

# Agenda

*Presented by Brian Johnson, Professional Engineer*

### Ethical Issues

|                                                 |                    |
|-------------------------------------------------|--------------------|
| Competency                                      | “Standard” of care |
| Duty to inform                                  | Engineered design  |
| Responsible charge/direct supervision           |                    |
| Ethics of continuous load path                  | Guardrails         |
| Misclassification of building exposure category |                    |
| Misclassification of snow exposure factor       |                    |
| Rational analysis                               | Repairs            |
| Rebuilding problems                             | Record retention   |

### Gravity Forces

|                                                         |                     |
|---------------------------------------------------------|---------------------|
| Components of a continuous load path                    |                     |
| Flush vs. “dropped” headers                             |                     |
| Tall walls - slenderness, eccentricity                  |                     |
| Hinges in exterior walls – lack of details or direction |                     |
| Roof recover or replacements                            | Ponding vs. pooling |
| Roof live load                                          | Corridor framing    |

### Lateral Forces

|                                                         |                                      |
|---------------------------------------------------------|--------------------------------------|
| General                                                 | Components of a continuous load path |
| Special design provisions for wind and seismic          |                                      |
| Flexible diaphragms                                     | Open front structures                |
| Cantilever diaphragms                                   | Diaphragm continuity                 |
| Bracing                                                 |                                      |
| Collectors - drag struts, diaphragm chords, collectors  |                                      |
| Shear walls -shear walls with openings - perforated     |                                      |
| Shear walls with openings - FTAO                        |                                      |
| Moment frames                                           |                                      |
| Hinges in exterior walls – lack of details or direction |                                      |
| Trusses                                                 |                                      |

### Wind

|                             |                               |
|-----------------------------|-------------------------------|
| Drift and shrinkage effects | Parapet loading (wind, MWFRS) |
| Parapet loading (wind, C&C) |                               |

### Seismic

|                             |                           |
|-----------------------------|---------------------------|
| Drift and shrinkage effects | Parapet loading (seismic) |
|-----------------------------|---------------------------|

### Connections

|                                                                              |
|------------------------------------------------------------------------------|
| Shear wall – lateral force transfer in shear wall floor to floor connections |
| Bracing                                                                      |
| Floor diaphragm to vertical lateral force resisting system                   |
| Embedded threaded rod to concrete, ACI 318-D                                 |
| Load transfer through concrete                                               |

**Structural Design and Ethical Issues**  
Eagan, MN - Wednesday, June 27, 2018

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## Learning Objectives

### *You'll be able to:*

**Identify** ethical issues in structural design, as well as in repairs and rebuilding.

**Discuss** gravity forces, including forces on roofs and tall walls.

**Talk** about lateral forces, and special design provisions for wind and seismic loads.

**Review** components of continuous load paths for gravity and lateral loads.

**Examine** load transfer through concrete.



# Structural Design and Ethical Issues

*Eagan, MN - Wednesday, June 27, 2018*



**Explore** ethical issues in structural design

**Learn** about components of continuous load paths they relate to gravity and lateral forces

**Discuss** the problems with hinge points in exterior walls

**Study** wind and seismic issues in structural design

**Consider** the importance of connections in structural design

### Continuing Education Credits

**Professional Engineers**  
6.5 HSW PDHs (1.0 Ethics)

**Architects**  
6.5 HSW PDHs (1.0 Ethics)  
6.5 AIA HSW Learning Units

**Contractors**  
Non-Credit Continuing Ed.



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# Faculty

**Brian Johnson** *Independent Consulting Civil/Structural Engineer in Minnesota*

Mr. Johnson provides structural engineering and forensic inspections in multiple states. His work focuses on staff development, mentoring, proper structural design practices, peer reviews and the investigation of building damage, construction or structural defects and their proper repair, legal support, report writing, expert witness services and expert reports. Mr. Johnson also consults as designer of record or peer reviewer for a variety of building types, primarily wood-framed single-family townhomes, and two to four-story assisted living, office, hotel, apartment and condo complexes. He has design experience in big box retail in Florida’s Hurricane prone regions and experience with historic buildings codes (UBC, BOCA, SBC). A licensed professional engineer in Minnesota since 2004, Mr. Johnson earned his B.C.E. and M.S.C.E. degrees from the University of Minnesota – Twin Cities. He is also a licensed structural engineer in Illinois and a professional structural engineer in Nebraska.

# Seminar Information

**Holiday Inn Airport SE-Mall Area**  
2700 Pilot Knob Road  
Eagan, MN 55121  
(651) 454-3434

**Tuition**  
**\$279** for individual registration  
**\$259** for three or more simultaneous registrations.

*Each registration includes a complimentary continental breakfast and printed seminar manual.*

**Receive a reduced tuition rate of \$101** by registering to be our on-site coordinator for the day. For availability and a job description, go online to [www.halfmoonseminars.org](http://www.halfmoonseminars.org).

**How to Register**

- Visit us online at [www.halfmoonseminars.org](http://www.halfmoonseminars.org)
- Mail-in or fax the attached form to 715-835-6066
- Call customer service at 715-835-5900

**Cancellations:** Cancel at least 48 hours before the start of the seminar, and receive a full tuition refund, minus a \$39 service charge for each registrant. Cancellations within 48 hours will receive a credit toward another seminar or the CD/manual package. You may also send another person to take your place.

# Additional Learning

**Webinar Series**

**National Electrical Code: Onsite Power Generation and Distribution**

- **National Electric Code: Onsite Power Generation and Distribution Part 1**  
Weds., June 6, 2018, 11:00 AM - 2:15 PM CDT
- **National Electric Code: Onsite Power Generation and Distribution Part 2**  
Thurs., June 7, 2018, 11:00 AM - 2:15 PM CDT

**HVAC Series**

- **Heating, Ventilation and Air Conditioning Principles**  
Thurs., June 7, 2018, 11:00 AM - 1:00 PM CDT
- **HVAC System Design Considerations**  
Thurs., June 7, 2018, 1:30 - 2:30 PM CDT
- **Evaluating HVAC Systems and Equipment**  
Fri., June 8, 2018, 11:00 AM - 12:00 PM CDT
- **HVAC System Controls and Techniques**  
Fri., June 8, 2018, 12:30 - 2:30 PM CDT

For more information and other online learning opportunities visit:  
[www.halfmoonseminars.org/webinars/](http://www.halfmoonseminars.org/webinars/)

**Introduction to Vibrations**

- **Introduction to Vibrations**  
Thurs., June 14, 2018, 11:00 AM - 1:00 PM CDT
- **Eigenvalues, Eigenvectors and Motion**  
Thurs., June 14, 2018, 1:30 - 3:00 PM CDT
- **Analysis and Test Methods**  
Fri., June 15, 2018, 11:00 AM - 12:30 PM CDT
- **Designing for Vibration and Failure Analysis**  
Fri., June 15, 2018, 1:00 - 2:30 PM CDT

**Pedestrians and Bicycle Transport Planning**

- **Introduction to Current Conditions and Trends in Biking and Walking**  
Thurs., June 21, 2018, 11:00 AM - 12:30 PM CDT
- **Engineering and Infrastructure: Design for Walkability and Bikeability**  
Thurs., June 21, 2018, 1:00 - 2:30 PM CDT
- **Developing a Walking and Biking Plan, Part I**  
Fri., June 22, 2018, 11:00 AM - 12:30 PM CDT
- **Developing a Walking and Biking Plan, Part II**  
Fri., June 22, 2018, 1:00 - 2:30 PM CDT

## Continuing Education Credit Information

This seminar is open to the public and offers 6.5 HSW PDHs, including 1.0 ethics hour, to professional engineers and architects in all states, except Florida architects. Educators and courses are not subject to preapproval in Minnesota.

This seminar is approved by the American Institute of Architects for 6.5 HSW Leaning Units (Sponsor No. J885). Only full attendance can be reported to the AIA/CES.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida, Indiana, Maryland, New Jersey (Approval No. 24GP00000700), New York (NYSED Sponsor No. 35), North Carolina, and North Dakota. HalfMoon Education is deemed an approved continuing education provider in New York.

This seminar offers a non-credit continuing education opportunity to construction contractors. It has not been approved by any state contractor licensing entity for continuing education purposes.

Attendance will be monitored and attendance certificates will be available after the seminar for most individuals who complete the entire event. Attendance certificates not available at the seminar will be mailed to participants within fifteen business days.

**Can’t Attend? Order the CD/Manual Package:**

An audio recording of this seminar is available for \$289 (including shipping). Allow five weeks from the seminar date for delivery. Please refer to specific state licensing rules or certification requirements to determine if this learning method is eligible for continuing education credit.

# Registration

**Structural Design and Ethical Issues**  
Eagan, MN - Wednesday, June 27, 2018

**How to Register**

**Online:**  
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**Complete the entire form.** Attach duplicates if necessary.

**Registrant Information**

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

Company/Firm: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip \_\_\_\_\_

Occupation: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

**Additional Registrants:**

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

Occupation: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

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

Occupation: \_\_\_\_\_

Email: \_\_\_\_\_

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Email address is required for credit card receipt, program changes, and notification of upcoming seminars and products. Your email will not be sold or transferred.

( ) I need special accommodations. Please contact me.

## Tuition

( ) **I will be attending the live seminar.** Single Registrant - **\$279.00**. Three or more registrants from the same company registering at the same time - **\$259.00** each.

( ) **I am not attending.** Please send me the CD manual package for **\$289.00**. (S&H included. Please allow five weeks from seminar date for delivery)

**Checks:** Make payable to HalfMoon Education Inc.

**Credit Card:** *Mastercard, Visa, American Express, or Discover*

Credit Card Number: \_\_\_\_\_

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