

Agenda

Anatomy of a Fire

History and science behind development of fire protection design
Overview of fire growth and characteristics
The role that building construction plays in fire behavior
How codes are written to address fire resistance ratings, ventilation, egress, fire fighter access
Case study showing integration with overall building life safety performance

NFPA 13 Design Approach

Definition of responsible charge in the design of a sprinkler system
Engineer vs. contractor responsibilities for the design of automatic sprinkler systems
Design approaches for construction documents applied to NFPA 13
Establishing levels of contractor competency for degree of project complexity
Case study for application of design approaches to NFPA 13
What is the right level of fire protection design to optimize installation cost?

What's Eating Your Pipes? – How Corrosion Can Cause Your Sprinkler System to Fail and How to Fight it

Corrosion in fire protection systems is a growing problem
Steps in combating the corrosion problem
Various types of corrosion that can take place in fire protection systems
Specific information on ways to size up the corrosion problem, overview of NFPA 25 specified maintenance requirements and techniques to mitigate corrosion
Case studies of existing buildings to emphasize corrosion issues associated with the upkeep of sprinkler systems

Hazard Evaluation vs. Risk Analysis – A Way of Thinking

Steps that code enforcement officials, engineers, and architects can take in dealing with hazards and risks within structures that are not addressed by the building and fire codes
The difference between hazard evaluations and risk analysis
Examples of quantifying hazards and risk along with implementing risk management plans
A case study of a fire to emphasize the value of a hazard and risk analysis
Hazard evaluations and risk analysis for the evaluation of an existing building

Manufacturing and Industrial Occupancies – The Specialized Knowledge You Should Have

Identifying the level of protection that codes may not prescribe
Developing hazardous level classification
How to apply performance-based requirements of the codes
Developing customized detection and suppression design criteria
Case studies

Fire Protection for Data Centers

Outline the design professional's responsibilities in the development of data center fire protection systems
Technical details specified and defined in the Building Code and NFPA standards
Developing customized detection and suppression design criteria

Designing for Fire Protection
State College, PA - Thursday, May 10, 2018



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Learning Objectives

You'll be able to:

Examine how codes are written to address fire resistance ratings, ventilation, egress and fire fighter access.

Discuss design approaches to NFPA 13.

Learn how corrosion can cause sprinkler systems to fail and discuss techniques to fight it.

Explore steps for dealing with hazards and risks that are not addressed by the building and fire codes.

Review the level of protection needed for manufacturing and industrial occupancies, and explore fire protection for data centers.



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Examine how codes are written to address fire resistance ratings, ventilation, egress and fire fighter access

Identify design approaches to NFPA 13

Review how corrosion can cause sprinkler systems to fail and learn techniques to fight it

Take steps to deal with hazards and risks not addressed by the building and fire codes

Discuss the level of protection needed for manufacturing and industrial occupancies, and explore fire protection for data centers

Continuing Education Credits

Professional Engineers

6.5 PDHs

Architects

6.5 HSW Continuing Ed. Hours
6.5 AIA HSW Learning Units

International Code Council

.65 CEUs (Fire)

Contractors

Non-Credit Continuing Ed.



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Douglas R. Nadeau, MSFPE, P.E., CFPS, LEED AP

President at RAN Fire Protection Engineering, P.C.

Mr. Nadeau, P.E., is the president of RAN Fire Protection Engineering, P.C. and vice president of truVUE Inspection Technologies. He is a licensed fire protection engineer, certified fire protection specialist and LEED accredited professional. His education includes a bachelor of science degree in both Mechanical Engineering and Physics, along with a master of science degree in Fire Protection Engineering from Worcester Polytechnic Institute. Mr. Nadeau has worked as a lead design engineer for fire protection and plumbing systems in all types of buildings and uses for more than 20 years. Mr. Nadeau has been recognized as a leader in the field of fire protection engineering. He has been responsible for the complete design of fire protection and mechanical systems, including contract drawings and specifications as well as project coordination, administration, construction management and cost estimating. He has conducted risk evaluations of various building features involving building code application, fire modeling, and identification and resolution of hazardous conditions. Mr. Nadeau has a long history of experience with commercial, public, and institutional buildings. His work has involved the development of risk mitigation techniques and life safety systems specific to building design. He has conducted studies analyzing the protection of the facility property, the protection of occupants, and the redundancies necessary to provide a continuity of business function in the case of a fire emergency. Mr. Nadeau began his career in the heart of Boston, designing fire protection systems for high-rise buildings of both a prescriptive and performance-based nature. His work evaluating the life safety provisions inherent to the Uniform Building Code (UBC), Southern Building Code (SBC), and Building Officials and Code Administrators (BOCA) has been internationally published. In addition, his expertise in the determination and application of the intent of building codes has allowed him to function as a reference for state agencies and local municipalities.

Christopher Crivello, P.E.

Fire Protection Project Engineer at RAN Fire Protection Engineering, P.C.

Mr. Crivello is a fire protection project engineer for RAN Fire Protection Engineering, P.C. and a technical staff member at truVUE Inspection Technologies. His education includes a bachelor of

science degree in Mechanical Engineering from Rensselaer Polytechnic Institute, along with a master of science degree in Fire Protection Engineering from Worcester Polytechnic Institute. He has passed the principles and practices of engineering exam in fire protection engineering to become a licensed professional engineer. Mr. Crivello has worked as a lead design engineer for fire protection systems in all types of buildings for the last six years. As a fire protection engineer, Mr. Crivello's responsibilities include complete design of fire protection systems, specializing in fire suppression and fire alarm design. The scope of his responsibilities includes contract drawings, specifications, and construction administration services. Mr. Crivello has worked in fire protection design on commercial, healthcare, industrial, historical and residential buildings. He has designed fire protection systems for these types of buildings, including fire alarm, sprinkler/standpipe, water spray, foam and agent systems. His experience with existing buildings includes the documentation of as-built conditions for fire protection system plans to evaluate system reliability. Mr. Crivello's knowledge of national, state and NFPA codes make him an expert in fire protection code analysis and compliance review. His experience includes the analysis and design of life safety and egress solutions including architectural egress components, evacuation planning, and crowd management. He is also experienced in master planning and code consulting. With Mr. Crivello's educational and application design background, he has specialized in the discipline of industrial fire protection engineering. He has worked diligently on performing fire hazard analyses, including code compliance, fire risk assessment, explosion protection, flammable and combustible liquids storage, and the control of toxic gases.

**Here’s what past attendees had to say about the program and presenters
Douglas R. Nadeau and Christopher Crivello:**

“Excellent information.” – *Electrical Engineer*

“Enjoyed personal experiences of presenters.” – *Architect*

“Very interesting presentation. Very educational.” – *Code Enforcement Official*

“Excellent seminar with up-to-date technical information.” – *Fire Protection Engineer*

Seminar Information

Toftrees Golf Resort & Conference Center

One Country Club Lane
State College, PA 16803
(814) 234-8000

Tuition

\$279 for individual registration
\$259 for three or more 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 job description, please visit www.halfmoonseminars.org.

How to Register

- Visit us online at 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.

Continuing Education Credit Information

This seminar is open to the public and offers 6.5 PDHs to professional engineers and 6.5 HSW continuing education hours to architects in all states, except Florida architects. Educators and courses are not subject to pre-approval in Pennsylvania.

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

The International Code Council has approved this event for .65 CEUs in the specialty area of Fire.

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

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.

Additional Learning

Webinar Series

Commercial Energy Conservation Code

- **Commercial Energy Conservation Code vand COMcheck Introduction**
Weds., Mar. 28, 2018, 11:00 AM - 1:00 PM CDT
- **Building Envelope Energy Efficiency**
Weds., Mar. 28, 2018, 1:30 - 3:30 PM CDT
- **Heating, Ventilation and Air Conditioning Systems**
Thurs., Mar. 29, 2018, 11:00 AM - 1:00 PM CDT
- **Service Water Heating, Power and Lighting**
Thurs., Mar. 29, 2018, 1:30 - 3:00 PM CDT

For additional learning opportunities visit:

www.halfmoonseminars.org/webinars/

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

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How to Register		Registrant Information
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Fax: 715-835-6066		
Mail: HalfMoon Education Inc., PO Box 278, Altoona, WI 54720-0278		
Complete the entire form. Attach duplicates if necessary.		
		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*

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