

# Fire Protection Engineering and Building Code Analysis

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Presented By:

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# What is Fire Protection Engineering?

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- The utilization of engineering and scientific principles to recommend and design solutions to protect people, homes, the workplace, the economy and the environment and prevent the devastating effects of fire and explosion.
- Also, the completion of research into new technologies, materials and methods of fire prevention and protection and post-investigations of fire and explosion incidents.



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# What do we do?

- Fire Protection and Life Safety Analysis
- Fire Protection Systems Design
- Fire Protection and Life Safety Training
- Fire Protection Features Development
- Fire Investigation and Expert Testimony
- Building and Fire Code Development



UPMC Children's Hospital  
in Lawrenceville



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# Fire Protection and Life Safety Analysis



David L. Lawrence Convention Center

- Develop code analysis
  - Occupancy classifications
  - Building construction type
  - Fire suppression design
  - Fire alarm and Detection
  - Means of egress
  - Life safety systems
- Review design drawings
- Meet with officials
- Develop alternative approaches and seek approval



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# Fire protection systems design

- Sprinkler systems
- Special hazards systems
  - Carbon dioxide
  - Dry chemical
  - Clean agents (FM200, Inergen, etc.)
  - Water mist
  - Foam systems
- Fire alarm and detection
- Standpipe systems
- Water supply systems
  - Fire pumps
  - Underground pipe
  - Water storage tanks



Water Mist System



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# Fire Protection and Life Safety Training

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- Life Safety Code Courses
- Basic Fire Protection Engineering
- Automatic Sprinkler Systems
- Fire Alarm and Detection
- Confinement of Fires in Buildings
  - Fire doors and fire windows
  - Fire rated glazing
  - Fire and smoke dampers
- Performance based codes and standards



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# Fire Protection Features Development

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- Worked with Pittsburgh Corning on testing of glass block for heat transfer effects
- Expanded use of monitor nozzles for large assembly occupancies – modified design
- Focus group member for major fire alarm and detection company – help to consider future industry needs and application
- Consult with detector manufacturers to look at applications of new technologies
- Work with fire door manufacturer to look at new opportunities for design



# Fire Investigation and Expert Testimony

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- Investigated Haunted Castle fire at Great Adventure Park in Jackson Township, New Jersey
- Closing of fire stations in South Baltimore, Maryland
- Occupancy testimony for “Body Talk”
- Investigate failure of dry pendent sprinklers in grocery freezers
- Failure of engineering firm to identify water supply deficiencies causing insurer to pick up \$35 million loss in carpet facility
- Support One Meridian Plaza, Philadelphia attorneys on pressure reducing valves



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# Building and Fire Code Development

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- NFPA 80 and 105 – Technical Committee and past Chairman
- Building and Fire Codes
  - ICC
- Other NFPA Codes and Standards
- Author Chapter on Confinement of Fires in Buildings for the 19<sup>th</sup> edition of the NFPA Fire Protection Handbook



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# Schools and Universities

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University of Maryland

Worcester Polytechnic Institute

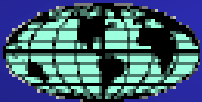


Oklahoma State University

University of California at Berkeley



International



University of Canterbury, Christchurch, New Zealand

University of Edinburgh, Scotland

Others



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Thank you for your time today.

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QUESTIONS?

Please call us.



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