President’s Message...

It appears there was some confusion between the May and June meeting topics/speakers posted on our web site and our posted schedule; I hope this did not lead to any confusion.

Our May Speaker will be Todd Shearer, CSI, CET Market Development Manager for Mass Notification Systems who is responsible for the marketing and sales of SimplexGrinnell’s Mass Notification Systems to market segments with special emphasis on the Department of Defense, Department of State, Department of Homeland Security, Higher Education, and the Industrial Vertical Markets.

Todd has more than 40 years experience in integrated systems sales and marketing including NICET certification. Todd is a key contributor to the Mass Notification System Criteria for DoD through the UFC-04-021-01 and with NFPA 72 National Fire Alarm Code Chapter 12. He also sits on NFPA 101 TCC Committee. He serves on a variety of industry association committees and works with NFPA, CSI, ICC, BOMA, NEMA, ASIS, NACP, IAFC, S.A.M.E., AUSA and AFAA. I see no affiliation with SFPE but we can fix that.

For our annual meeting in June we have scheduled the FireXChange Trailer from Tyco. FireXChange is an interactive fire protection technology demonstration unit. The various system types offered by Tyco Fire Protection Products are displayed both in hardware and in actual system discharges, including video of actual fire tests.

I thank our Treasurer Bob Murray, PE of Associated Consulting Engineers for his presentation "Hazards of Solar Panel Installations—Fire, Wind, Live Loading, Personnel" Bob took what looked to be a very dry topic and brought it to life for those of us in attendance at February's meeting. He provided valuable information and kept it interesting as shown by a very lively Q & A session after his presentation. The benefit of the Q & A is missed by those that chose to read about meetings rather than support NJSFPE by coming out to attend them.

While on the topic of training our Spring Symposium is shaping up to be the best yet. We have some of the top speakers in the fire detection and suppression with Ray Grill, P.E., FSFPE Principal Arup Fire, Mike Crowley, P.E., FSFPE Rolf Jensen & Associates, John LeBlanc, FSFPE FM Global, Jonathan M. Eisenberg, P.E. Rolf Jensen & Associates, Art Black, Principal Carmel Fire Protection Associates and Rodger Reiweg, SET of SimplexGrinnell. As for topics all are very much in the life safety news. With new revisions to old codes, the introduction of NFPA 3 (the Recommended Practice on Commissioning and Integrated Testing of Fire Protection and Life Safety Systems) and the loss of hard wire dial-up phone lines generating great changes in off premises notification.

I hope many of you supported our sister chapter and attended NY Metropolitan SFPE’s Technical seminar on February 28 “New Technology in Fire Protection.” It is not too early to plan for the NJ/NY Metro SFPE annual golf outing in support of our scholarship fund.

So we have two very interesting meetings coming up with presentations on Mass Notification and Automatic Fire Sprinklers as well as our April Symposium, again many ways to stay on top of our dynamic industry. See you in March.

Ed Armm
Chapter President
President Armm convened the meeting at 6:00 PM with a salute to the flag and customary introductions. There were 25 attendees.

Treasurer’s report dated February 6, 2012 was read and accepted.

The Secretary’s report for the January 9 meeting was discussed and accepted by the members.

It was announced that the scholarship committee is looking for applicants.

The price of the golf outing will be raised from $125 to $135 and late registration will increase from $140 to $150. Additional hole sponsors are needed. A flyer will be developed by the NJ Chapter to advertise the golf outing.

SFPE International has developed an online course for this summer. There will be 14 live sessions, 1½-hours each from July to Oct. A room will be available at FMs office starting July 12 and ending on October 11. Time will be from 6:30 pm to 8 pm.

Our annual seminar will be held on April 20, 2012 and the registration form is available via our website.

The NY Metropolitan Chapter is holding a technical seminar on February 28 titled “New Technology in Fire Protection.” The cost is $100 for NY Chapter members.

In honor of the passing of Bob Parvin, Joe Janiga gave a brief overview of his career and contribution to the field of fire protection engineering. A moment of silence was held in his honor.

Our technical presentation was titled, “Hazards of Solar Panel Installations.” Our speaker was Bob Murray of Associated Consulting Engineers. His program included the following subjects:

- What makes up a solar photovoltaic (PV) system?
- Types of PV cells.
- How does a solar panel and PV system work?
- Where do you find PV systems?
- Why are these systems installed?
- Hazards associated with PV systems.

The meeting was adjourned at 8:15 PM.
NJSFPE & AFAANJ Spring Seminar
Ramada Plaza (formally the Holiday Inn)
160 Frontage Road
Newark, NJ 07114
973-589-1000

Fire Safety in the New Decade and Beyond
Friday April 20, 2012

Continental Breakfast sponsored by the Vendors 7:30 – 8:30am

NFPA 3 the New Guide to Commissioning 8:30 – 10:00am
Rodger Reiwsig, SET of SimplexGrinnell

Coffee Break sponsored by the Vendors 10:00 – 10:30am

New Challenges in Fire Alarm Communications 10:30 –12:00
Art Black, Principal Carmel Fire Protection Associates

Lunch with the Vendors 12:00 – 1:30pm

<table>
<thead>
<tr>
<th>Afternoon A-1 1:30-3:00pm</th>
<th>Afternoon B-1 1:30-3:00pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>An update of NFPA 30 and the FM Data Sheet Flammable/Ignitable liquids</td>
<td>NFPA 99/101 Health Care Occupancies</td>
</tr>
<tr>
<td>John LeBlanc, P.E., FSFPE FM Global</td>
<td>Mike Crowley, P.E., FSFPE Rolf Jensen &amp; Associates</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Afternoon A-2 3:00- 4:30pm</th>
<th>Afternoon B-2 3:00-4:30pm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Protection/Life Safety Code Compliance for Laboratory Facilities</td>
<td>Meeting the Voice Intelligibility Requirements of NFPA 72</td>
</tr>
<tr>
<td>Jonathan M. Eisenberg, P.E. Rolf Jensen &amp; Associates</td>
<td>Ray Grill, P.E., FSFPE Principal Arup Fire</td>
</tr>
</tbody>
</table>

Note: YOU CAN ATTEND EITHER “A” or “B” SESSIONS IN THE AFTERNOON
REGISTRATION FORM

NJSFPE & AFAANJ Spring Seminar
Ramada Plaza (formally the Holiday Inn)
160 Frontage Road
Newark, NJ 07114
973-589-1000

Fire Safety in the New Decade and Beyond
Friday April 20, 2012

Price for the Seminar is $100
(Make checks payable to “NJ Chapter SFPE”)

Name__________________________________________________________

Company________________________________________________________

Address ___________________________________ Phone No.__________________________

City________________________________ State________ Zip________________________

E-mail address________________________________________________________

Amount Enclosed $________________

Mail to: NJSFPE Spring Seminar 2012
c/o Vicki Serafin
P.O. Box 8268
Parsippany, NJ 07054

Also you can register on-line at: www.NJSFPE.org
Questions or to reserve your seat in advance, please call Vicki Serafin at 973-541-6771
Directions to the Ramada Plaza, Newark Liberty Airport are attached.
Course CEUs will be awarded for those who attend (0.6 CEU/6.0 contact hours).
Directions

From North
Take Route 1 or 9 South and watch for Airport sign. Take Frontage Road at immediate right.
From New Jersey Turnpike take Exit 14. After the toll plaza make the 2nd right - see sign marked Frontage Road.

From West
From I-78 East, take Exit 58-B Frontage Road Exit. Stay on Frontage Road, and the hotel will be on the right.

From South
From Route 1 or 9 North, exit Frontage Road and follow ramp to hotel.

Ramada Plaza (formally the Holiday Inn)
Newark Liberty Airport
160 Frontage Road
Newark, NJ 07114
973-589-1000
New Jersey PE's Continuing Education Requirements

All NJ PE's are required this year to have 15 PDH's by April of this year. Attached is a flyer I received from the New Jersey Chapter of the National Society of Professional Engineers (NSPE) Any engineers who haven't gotten their credits should consider going to either one or both of the Seminars. Please pass this along to any registered PE's that you know.

PE's MUST HAVE CEU UNITS FOR LICENSE RENEWAL BEGINNING APRIL 2011

- Are you prepared for your license renewal?
- Do you have the appropriate amount and content of continuing education?
- Did you know that 2 hours of ethics are mandated?

Register today for the program below and satisfy your NJ, NY and PA requirements!

NJSPE, NJSME & NJIT Presents
2-Day Continuing Education Program
March 28 & 29, 2012
At the Somerset Palace in Somerset, NJ
Get the PDH Hours that You Need to Maintain Your Engineers License

SEMINAR DETAILS ATTACHED.
Register is now open online.
Register Today!!!

Click here for seminar details:
NJSPE, NJSME & NJIT Seminar Information

Register online at: http://conexsys.myprereg.com/Events/NJSPE2012
Seminar Title: Professional Engineering Ethics 101
Date: Friday, May 13, 2011
Location: Holiday Inn Hotel, in Somerset, NJ
Time: 10:00 AM – 12 noon
Accreditation: 2 PDH’s, credits approved in NJ & PA, pending approval in NY
Speaker: Lawrence Powers, co-partner in-charge of the Construction Department at the New Brunswick law firm of Hoagland Longo Moran Dunst and Doukas, LLP and counsel to NJSPE

Topics to be covered will include:
1. New Jersey's Statutory and Regulatory ethics rules - Why they exist, how they govern your practice and what can happen if you do not follow them:
   a) New Jersey Statutes Annotated requirements
   b) New Jersey Administrative Code requirements
   c) The ethics enforcement powers of the New Jersey State Board of Professional Engineers and Land Surveyors.
2. Professional Standards promulgated by NSPE and NJSPE- Why they exist, how they govern your practice and what can happen if you do not follow them:
   a) NSPE Code of Ethics
   b) NJSPE Code of Ethics
   c) The enforcement of ethical standards by NSPE and NJSPE
3. Practical Reasons for Ethical Practice:
   a) Liability Issues
   b) Legal and Licensure Issues
   c) Moral Issues

Seminar Registration Fee: $69/person (Member Rate); $99/person (Non-Member Rate)
*The registration desk will be open from 9:15 AM – 10:00 AM. Seminar Registration fees include continental breakfast & seminar instruction.

REGISTRATION DEADLINE – MAY 6, 2011. Register early to avoid being closed out.

Refunds:
If you cannot attend the seminar, you are asked to please contact NJSPE by telephone at 609-393-0099 or by email at info@nspe.org. You are permitted to cancel your registration for the seminar until May 6, 2011. Should you cancel your registration, you will be charged a $25 administrative fee that will be subtracted from the refund amount. Refunds will not be given after the stipulated deadline and requests for refunds MUST be received in writing. You may send in your refund request by fax to 609-393-0891. Refunds for non-attendance will not be given; although registration substitutions are allowed.

Substitutions:
Requests for substitutions should be sent in writing via fax to 609-393-0891. Substitutions will NOT be permitted after May 6, 2011.

Fees are not deductible as charitable contributions for federal income tax purposes, but may be deductible as a business expense.

☐ Yes, I will attend the Ethics Seminar

Name: ________________________________
Company: ______________________________
Address: ______________________________________________________________
City/State/Zip: ____________________________________________________________
Phone: ____________________________ Fax: ___________________________
E-mail Address: _______________________
Pay by credit: □ Visa □ Master Card
Card Members name: ____________________________
Card Number: _________________ Exp. Date: ___ / ___
Cardholder’s Signature: _______________________

To pay by check, send your check payment to NJSPE for the applicable fees:
NJSPE
414 River View Plaza
Trenton, NJ 08611

Office Use Only

Amount $_________ Date________ Check #________

Batch #_________
### Program Schedule:

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 AM - 8:00 AM</td>
<td>Registration &amp; Continental Breakfast</td>
</tr>
<tr>
<td>8:00 AM - 9:00 AM</td>
<td>Ethics for Engineers</td>
</tr>
<tr>
<td>9:00 AM - 10:00 AM</td>
<td>Break</td>
</tr>
<tr>
<td>10:00 AM - 12:00 noon</td>
<td>Lunch</td>
</tr>
<tr>
<td>12:00 noon - 1:00 PM</td>
<td>Project Management</td>
</tr>
<tr>
<td>1:00 PM - 1:15 PM</td>
<td>Proposal Writing</td>
</tr>
<tr>
<td>1:15 PM - 2:15 PM</td>
<td>Proposal Writing</td>
</tr>
<tr>
<td>2:15 PM - 3:15 PM</td>
<td>Certificates of Completion Distributed (certificates will not be mailed out &amp; must be picked up onsite)</td>
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#### Thursday, March 29, 2012

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>10:00 AM - 12:00 noon</td>
<td>Litigation and The Design Professional</td>
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<tr>
<td>12:00 noon to 1:00 PM</td>
<td>Buffet Lunch</td>
</tr>
<tr>
<td>1:00 PM - 4:00 PM</td>
<td>Advances in Stormwater Management</td>
</tr>
<tr>
<td>1:00 PM - 5:00 PM</td>
<td>Crisis Management Communication - A Seminar on Communications For The Engineer</td>
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</tbody>
</table>

**Description:** The purpose of this course is to provide a level of familiarity to all practicing engineers in the State of New Jersey with the laws governing ethics. This course will cover the New Jersey Local Government Ethics Law, N.J.S.A. 40A:9-22.1, et seq., which is the main law governing the ethical responsibilities of professionals serving in the public domain. We will also cover conflicts of interest, the role of the Local Finance Board in the process and New Jersey regulations governing the professional conduct of engineers along with the criminal code.

**Topics will include:**
- Litigation Defined
- Four Essential Proofs for Malpractice Suits
- Sources of Duty
- Definition of Proximate Cause
- Sources of Breach of Duty
- Duty to Practice to Standard of Care
- Standard of Care Defined
- Risk Management Process

**Description:** This seminar will acquaint the student with the fundamentals of tort claims against design professionals, focusing on the elements that must be proven by a plaintiff to prove professional malpractice (negligence). It will offer comprehensive descriptions of the sources of duty for design professionals, and will describe the importance of understanding and conforming with the Standard of Care in professional practice.

**Description:** To provide a reference background and hands-on sampling of various organizational communication methods for preparing and presenting engineering technical data and projecting a professional image, class is interactive. The seminar addresses preparation of surveying and engineering data and documents and addresses oral and written presentations of that data to boards, state agencies and clients. The course will leave the participant with a series of suggestions, ideas, check lists and procedures to benefit the professional's daily communication needs.

**Description:** The course begins with a review of the pertinent design Hydraulics and Hydrology associated with storm water management. Next discussed are current NJDEP storm water regulations contained in the NJDEP BMP manual. Several case studies of will be presented from sites state previously analyzed by the instructor. Design software will be utilized in the class with all analyses tied into actual project site plans.

**Description:** This seminar examines the dynamic practice of crisis communication on the organizational level. It seems we live in a culture of crisis—organizations must be proactive. Topics discussed will include options available to organizations facing crisis, crisis management teams, and crisis management as a form of public relations. STRUCTURE: The seminar will build on the foundation created during the first session on "Presenting Engineering Projects." It will be a lecture driven with audience participation encouraged through discussion of students' business and life experiences. The course will leave the participant with a series of suggestions, ideas, and procedures to benefit the professional's daily communication needs.
# Program Itinerary for Thursday, March 29, 2012

<table>
<thead>
<tr>
<th>Time</th>
<th>Seminar Options</th>
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<tbody>
<tr>
<td>8:00</td>
<td><strong>Ethics for Engineers - 2 PDH’s</strong></td>
<td>8:00</td>
<td><strong>Presenting Engineering Projects - 4 PDH’s</strong></td>
</tr>
<tr>
<td>9:00</td>
<td><strong>Litigation for Design Professionals - 2 PDH’s</strong></td>
<td>9:00</td>
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<tr>
<td>10:00</td>
<td><strong>LUNCH BREAK</strong></td>
<td>10:00</td>
<td><strong>Fusible Link</strong></td>
</tr>
<tr>
<td>11:00</td>
<td><strong>Advances in Storm Water Management - 3 PDH’s</strong></td>
<td>11:00</td>
<td><strong>Crisis Management Communications - 4 PDH’s</strong></td>
</tr>
<tr>
<td>12 Noon</td>
<td><strong>Fusible Link</strong></td>
<td>12 Noon</td>
<td><strong>Fusible Link</strong></td>
</tr>
</tbody>
</table>

## ABOUT THE SPEAKERS:

**Bill Boesl** is a licensed Professional Engineer, Land Surveyor and Planner with over 40 years experience in the field of land development. He is known for his excellent presentations and his ability to relate to the audience. Bill has written numerous articles on land development and has been a frequent speaker at land use development and environmental law conferences.

**Demet D. K. Birsoy** is a licensed Professional Engineer in Ohio, North Carolina, and South Carolina. He has been a speaker at numerous conferences and has written several articles on land development and environmental law.

**Glenen K. Koenig** is a partner in the firm of Weber, Lemanik, LLP in Parsippany, New Jersey specializing in real estate law and specifically zoning, planning and land use development and redevelopment along with environmental and municipal law.

**Dr. Jennifer K. Leir** is the Chair of the Department of Communication Studies for the College at Philharmonic. This department includes both the Bachelor of Arts in Communication Studies as well as the Master’s in Corporate and Organizational Communication. In addition to teaching courses in Communication Research, Advertising, and Corporate Communication, Dr. Leir is also the Director of the MA Program in Corporate and Organizational Communication and oversees the Thesis Projects and the Comprehensive Examination for the MA Program. Dr. Leir is also the editor of the academic journal Communication, Literature and Media Studies, a quarterly publication of the International Association of Business Communicators (IABC/NJ). Additionally, Dr. Leir is a faculty advisor to the student chapter of the International Association of Business Communicators (IABC/NJ). Dr. Leir has also authored several articles on communication and customer service for several organizations including advertising, public relations, and marketing.

**Glenen K. Koenig** is a partner in the firm of Weber, Lemanik, LLP in Parsippany, New Jersey specializing in real estate law and specifically zoning, planning and land use development and redevelopment along with environmental and municipal law.

With over 30 years of complex litigation experience in the land use, zoning and redevelopment areas, Mr. Koenig has tried cases before Judges in the State and Federal Courts. He holds an AV rating in Martindale Hubbell and has been recognized by New York Magazine as one of the “New York Areas Best Lawyers” as well as by New York Monthly Magazine in the area of zoning and planning along with being designated a “Super Lawyer”.

Mr. Koenig regularly represents public entities, developers and citizens in all legal and litigation matters concerning primarily in redevelopment, land use proposals for industrial, commercial and residential development proposals before Boards. He has appeared before over 100 different agencies.

Mr. Leir is admitted to practice in New Jersey and before the U.S. District Court District of New Jersey and the United States Supreme Court. He serves as a condemnation commissioner, as Associate Counsel to the New Jersey Planning Officials and as Counsel to the New Jersey Society of Municipal Engineers. He has also been admitted to practice in the United States Court of Appeals for the Third Circuit and the United States Court of Federal Claims.

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REGISTRATION FEES:

March 28th Program: Seminar registration fees for this full day program includes: continental breakfast, coffee breaks, buffet lunch, seminar instruction & course materials/handouts. Upon completion of this course, attendees will earn 8 PDH/credits.

- $345 NJSPE, NJSME Members or NJIT Alumni Rate - Engineering and Surveying Ethics in Technical Communications
- $395 Non-Member Rate - Engineering and Surveying Ethics in Technical Communications

Seminar Registration Fees for the March 29th Program includes:
- Full Day Registration $345 NJSPE, NJSME Members or NJIT Alumni Rate
- Full Day Registration $395 NJSPE Non-Member Rate

Full day registration fees, includes: continental breakfast, coffee breaks, buffet lunch, seminar instruction & course materials/handouts. Upon completion of this course, attendees will earn 7 PDH/credits.

- AM Registration $148 NJSPE, NJSME Members or NJIT Alumni Rate
- AM Registration Non-Member $198

AM Registration rates includes: continental breakfast, coffee break, seminar instruction & course materials/handouts. Upon completion of this course, attendees will earn 4 PDH/credits.

- PM Registration $148 NJSPE, NJSME Members or NJIT Alumni Rate
- PM Registration Non-Member $198

PM registration rates include: coffee break, seminar instruction & course materials/handouts. Upon completion of this course, attendees will earn 3 PDH/credits.

Refunds: If you cannot attend the seminar, please contact NJSPE, in writing by fax to 609-393-9891 or email at info@nspe.org. You are permitted to cancel your registration for the seminar until March 21, 2012. Should you cancel your registration, you will be charged a $25 non-refundable administrative fee that will be subtracted from the refund. Refunds will not be given after the stipulated 3/21/12 deadline and requests for refunds MUST be received in writing. Refunds for non-attendance will not be given.

Substitutions: If you cannot attend the program, but wish to transfer your registration to a co-worker, you’ll need to notify NJSPE in writing. Requests for substitutions should be sent via fax to 609-393-9891 or by email to info@njpe.org. Substitutions will NOT be permitted after March 21, 2012.

*Registration Fees are not deductible as charitable contributions for federal income tax purposes, but may be deductible as a business expense.

Online Registration Only.
Register is simple, fast & easy.
To register, go to:
http://conexsys.myprereg.com/Events/NJSPE2012
Challenges in Mercantile Occupancies

By: Edward Goldhammer, P.E.

Mercantile occupancies are those that involve the display and sale of merchandise and are accessible to the public. Mercantile occupancies range from small "mom and pop" operations to much larger big-box retailers. Mercantile occupancies often present complex fire protection and life safety issues, and require special consideration when developing fire and life safety solutions.

Fire challenges in mercantile occupancies may arise from:
• Varying products and display/storage configurations;
• Conflicting safety and security objectives; and
• Occupants who are generally unfamiliar with their surroundings.

Typical combustible merchandise may include flammable and combustible liquids, hazardous materials, plastic, aerosols, rubber tires and many other high-hazard commodities displayed in various solid piled, shelving and racking arrangements. Inherently, mercantile occupancies are sales-driven and require flexibility to adapt to changing market conditions and fluctuations in seasons.

Fire and life safety design professionals must consider all of the special life safety challenges facing the mercantile industry and incorporate these into an integrated approach with both active and passive systems which accomplish a well-thought out design solution. Passive systems include compartmentalization, fire-rated construction and physical separation. Active systems include fire alarm, fire sprinkler and smoke-management systems.

Hazard Classification

Proper hazard classification is crucial to a successful fire protection strategy. One important characteristic in defining hazard severity is understanding the heat release rate for the product. Heat release rate is a function of both heat of combustion and burning rate. An increase in heat release rate may lead to an increase in hazard. The heat release rate is critical information when determining fire size, sprinkler effectiveness, detection adequacy, smoke production and available safe egress times.

Today, the use of plastics in goods and products is prevalent in the retail industry. In accordance with NFPA 13, Class IV commodities are allowed up to 15% by weight or 25% by volume of Group A plastic.

Traditional design approaches to protect Class I-IV commodities may be inadequate for the ever-increasing presence of Group A plastics. This is especially true for big-box stores; however, even with smaller retail operations, the overall design approach is based on the hazard class. NFPA 13 addressed this in the latest edition confirming the use of Ordinary Hazard Group 2 for mercantile occupancies that are arranged in stockpiles. For example, if the store has Class I-IV commodities, the stockpile height is allowed to 12 ft (3.7 m); however, for Group A plastic commodities the stockpile height is reduced to 8 ft (2.4 m).

When there will be Group A plastics, it is important to properly apply the requirements of NFPA 13. For example, NFPA 13 permits "mixed commodities" to contain up to five pallets of higher-hazard group A plastic; however, the Group A plastic must be randomly dispersed with no adjacent loads.

Classifying commodities is a unique challenge, and utmost consideration should be given to the retailer to allow for greater merchandising flexibility and future changes. A thorough investigation of the retail commodity, including hazardous materials classifications, flammable and combustible liquids, aerosols and any other high-hazard commodities, is necessary prior to developing any fire protection strategy.

Display and Fixture Arrangements

Retail display and storage arrangement play an important role in the severity of a fire. The display arrangement can affect the rate at which materials burn. This burning rate is dependent on many factors, including storage height, flue space, shelving, aisles, display depth and storage density.

NFPA 13 defines various types of storage arrangements, including solid piled, shelf and rack storage. Mercantile occupancies might include one or a combination of all three configurations. Many of the prescriptive requirements have been developed based on warehouse storage. However, many display arrangements do not fit neatly into the prescriptive requirements.

For example, shelf systems may exceed the 30 in. (750 mm) required by NFPA to be classified as shelf storage, although the arrangement may also not fall into the traditional rack storage criteria. Various high-shelf storage arrangements may also be outside the limits of the prescriptive code. It should be noted that the NFPA 13 committee is addressing some of these difficulties, with a proposed new definition of back-to-back shelf storage in the 2010 edition.
The use of solid shelves within the display storage array can create a shielded fire. NFPA 13 defines solid shelving as anything over 20 sq ft (1.9 m²). In mercantile rack storage arrays, it is common practice to provide displays within the storage array that could be considered solid shelves. In addition, solid display shelves in excess of 30 in. (750 mm) could be considered rack storage with solid shelves.

Storage density can also be affected by the retail display. In many cases, retail display storage within the sales floor is significantly less dense than a typical rack storage array in a warehouse. Product is displayed out of the cartons in retail display shelves as opposed to closely packed products in cartons on racks. In other cases, such as big-box home improvement, retail display is similar to a traditional warehouse storage rack.

**Retail and High-Piled Storage**

Certainly, the determination of whether a retail occupancy falls within the prescriptive high-piled storage provisions of the *International Fire Code® (IFC)* can be quite challenging. The high-piled storage provisions incorporate enhanced features into the building design to account for an expected higher fire severity. These features typically impact larger retail occupancies, especially the big-box retailers. Building enhancements may include smoke management, sprinklers, detection, access, storage restrictions and small hose stations.

The *International Fire Code* defines high-piled storage as combustible material storage within a building in closely packed piles or on pallets, in racks or on shelves where the top of storage is greater than 12 ft (3.6 m) in height. Also, high-piled combustible storage may include certain high-hazard commodities such as Group A plastic, aerosols, etc., exceeding 6 ft (1.8 m) in height.

Retailers using storage racks might fall into the provisions for high-piled storage. Retailers using display shelving and not warehouse storage racks are typically not considered high-piled storage, even when there are limited amounts of high-hazard commodities exceeding 6 ft (1.8 m) in storage height.

High-piled combustible storage has several distinct features not common to display shelving, such as storage in a compact arrangement, quantities of types of products stored and storage heights.

Among these factors, compact arrangement should be evaluated as the sales floor display may be significantly less dense than in warehouse storage. Products are displayed out of the cartons in retail shelves versus closely packed on warehouse racks.

**Sprinkler Design**

The type of commodity and complexity of the storage arrangement must be thoroughly evaluated when designing fire sprinkler systems. One of the greatest challenges that might be encountered is integrating the protection strategy into a program which allows merchandising flexibility to the end-user without compromising adequacy.

Sprinkler design must include an analysis of expected hazards and the various merchandising display arrangements. Special consideration is given to grated and solid mezzanines, shelf systems, solid shelves, slatted shelves, racks, displays in racks, solid piles, aisles, flue spaces, storage heights and ceiling heights.

The technology behind automatic sprinkler protection has come a long way, especially since the early ‘90s. The use of larger-orifice sprinklers, extended coverage and suppression-mode technology has tremendously helped to protect a large variety of products and storage configurations. Larger orifice size equates to larger K-factors and greater flows at minimum pressures. These contributing factors aid in the overall effectiveness of sprinklers in storage fires.

Retailers have also utilized full-scale fire testing to provide design solutions for their display storage arrangements. One example is the Retail Fire Research Coalition, a partnership of government agencies, retailers, insurance companies, consultants and testing laboratories. The coalition developed standards specific to their display storage and racking arrangement, and incorporated these into NFPA 13. Another example is retailers displaying flammable liquids, combustible liquids and aerosols developing protection standards specific to suppression-mode technology. One retailer conducted several full-scale fire tests to develop protection guidelines for their display storage of aerosols within a rack array. The design approach was to incorporate a combination of rack sprinklers, overhead ESFR sprinklers and a horizontal barrier to trap heat and allow activation of the rack sprinklers. These guidelines were later incorporated into NFPA 30B under “Mercantile Occupancy Special Protection Design.”

**Smoke Management**

Today, there are mercantile operations in all types of specialized areas, such as high-rises, atriums, covered mall buildings and high-piled storage areas. The requirements for smoke management are driven by these special occupancies and not necessarily the mercantile operations. Integrating smoke management into the building design requires special consideration and should include an evaluation of the mercantile use and operations.

There are many approaches to a properly engineered smoke-management system. High spaces in malls and atria may be used as smoke reservoirs, which mitigate effects on the occupants’ egress through the mall. High-piled storage areas may utilize mechanical exhaust in lieu of traditional smoke and heat vents.
If a retailer falls under the provisions of high-piled storage, then a smoke-management system may be required. This is frequently accomplished through use of smoke and heat vents using a prescriptive vent area to floor area ratio of 1:50 or 1:100.

While smoke and heat vents may provide value, their presence in sprinklered buildings has long been an issue of debate. With today's technology, in lieu of these prescriptive ratios, a design approach can incorporate design fire, smoke production and smoke exhaust to design a performance-based alternative. This performance approach can utilize exhaust fans or reduced smoke and heat vent ratios. Developing the methodology for the smoke-management system is quite complex and requires a plume analysis to determine design smoke conditions. The design professional should take into consideration the retail display arrangement including the commodity analysis and heat release rate.

The codes recognize that the quantity of smoke produced is a direct effect on the ability of fire sprinkler systems to detect and suppress a fire. As an alternative, the IFC allows the use of suppression mode technology (Early Suppression Fast Response sprinklers - ESFR) without smoke and heat vents.

This is based on the performance of these types of sprinkler systems. By activating sooner and suppressing the fire, the ESFR sprinkler system minimizes smoke and heat development.

Fire Alarm
Mercantile occupancies might contain people who are unfamiliar with their surroundings. Display fixtures can confuse the path of egress. As such, the prescriptive code provisions for fire alarm systems in mercantile occupancies have recognized these challenges for the wide range retail operations.

Prescriptive codes require fire alarm systems for most mercantile occupancies. In the past, a fire alarm system in mercantile locations included sprinkler monitoring with limited notification unless it was required as part of another occupancy. Today, especially in big-box stores, full notification coverage is typically provided.

Placement of notification devices should be integrated with the display and fixture layouts. In high-rack areas, notification appliances should be located within aisles for greater visibility. Placing notification on the racks should be avoided due to inherent damage to the equipment from merchandising operations. In some jurisdictions, wall-mounted devices are considered inappropriate and only ceiling-mounted devices over the aisles are permitted. As fixtures are modified and relocated as part of the merchandising program, the notification appliances should be re-evaluated for compliance.

Detection is typically handled through the automatic sprinkler system. If a smoke-detection system is desired as an alternate means or required as part of delayed egress in a high-rack arrangement, the design professional must consider rack configuration and commodity classification. Location of detectors can be at the ceiling level above each aisle and/or intermediate levels in the racks. If beam-type detectors are used, consideration should be given for low-hanging signage. Edward Goldhammer is with Schirmer Engineering.

References:
News from the International Master of Science in Fire Safety Engineering Program

The simultaneous first and second editions of The "International Master of Science in Fire Safety Engineering (IMFSE)" are running well.

The first year students have finished their first semester and after the well-deserved Christmas holiday recently got settle in Lund for their second semester. The second year students, meanwhile, are closer and closer to their graduation with all courses finished and with only the master thesis research and reporting work to go during their upcoming fourth and last semester.

For the IMFSE edition 2012, the best students out of about 200 applicants from all over the world are being selected for the prestigious scholarships of Erasmus Mundus (16), Lloyd's Register Educational Trust (1) and the new tuition fee scholarship of Fire Protection Consultants – FPC (1).

The applications for scholarships were closed in January, but self-sponsored students can still apply, keeping in mind the deadline of April 2012. The online application forms can be found here: http://www.imfse.ugent.be/index.asp?p=620&a=620.

As a reminder for recently joined SFPE members: The International Master of Science in Fire Safety Engineering (IMFSE) is commonly organized by the Universities of Ghent (Belgium, coordinator), Edinburgh (Scotland) and Lund (Sweden). The main objective of this two-year full time educational program is providing the required knowledge for a professional fire safety engineer in a Performance Based Design environment. Besides inter-university cooperation, student mobility in Europe is one of the main points of interest of the overall program. The mobility structure, with possible change in study location after each semester, gives the students the opportunity to gain from the strengths and expertise of each of the three universities.

More information is available on its website: http://www.imfse.ugent.be.

The Passing of John Crawford

John D. Crawford, Jr., 56, of New Providence, NJ passed away in his home on Wednesday, February 22, 2012 with his family by his side.

The visitation will be held at Paul Ippolito Summit Memorial, 7 Summit Ave., Summit, NJ on Sunday, Feb. 26th, from 2-6 PM. Relatives and friends are invited to go directly to Corpus Christi Church, Chatham, to celebrate the Funeral Mass on Monday, Feb. 27th, at 10 AM. Services will conclude at the end of Mass. For directions or more information please visit www.ippolitofuneralhomes.com.

John was born in New York City and was raised in West Orange, NJ. He lived in Berkeley Heights for 5 years before moving to New Providence 22 years ago.

John's successes began early on, as he achieved the level of Eagle Scout. He went on to earn his Bachelor of Science degree in Engineering from Villanova University and was currently employed as Senior Vice President, Risk Consulting Practice at Marsh USA, Inc. in New York City, where he began working in 1983. John was a member of the Society of Fire Protection, where he served as president in 1992-93, on the Board of Directors from 1993-2002, and as Seminar Chairman from 1985-91. He was also a member of the National Society of Professional Engineers. John's passion for his profession led him to participate in many Career day events at the New Providence Middle School, where he was able to convey to the students the importance of engineering and his love for his profession. In addition to his passion for his career, John had a love of travel.

John is survived by his beloved wife of 29 years, Terry (nee Pyle) and his sons, John D., III, William, and Steven Crawford, all of New Providence. He was pre-deceased by his parents, John D. and Anna May (nee Skelley) Crawford.

In lieu of flowers, please make donations in his memory to Griffen Bridges Program, c/o Seton Hall Prep., 120 Northfield Ave., West Orange, NJ 0705.
MEETING NOTICE

Date: March 5, 2012

Place: Hanover Manor
16 Eagle Rock Avenue
East Hanover, NJ 07936

Price: $30.00

Dinner: 5:00-6:00 (Cash bar for mixed drinks)
Dinner at 6 PM

Topic: A Forensic Review of Sprinkler System Failures

Speaker: Top Myers of RelMark Group

Please note for this meeting:
All officers, directors and committee chairman are requested to attend a meeting at 4:00 p.m. at the Hanover Manor.

PLEASE COMPLETE AND RETURN WITH YOUR CHECK PAYABLE TO “SFPE NJ CHAPTER” TO:

Vicki Serafin
Affiliated FM
400 Interpace Parkway, Bldg C - 3rd Floor
Parsippany, NJ 07054-1196
vicki.serafin@affiliatedfm.com

OR PAY AT THE DOOR

NAME:________________________________________________________

COMPANY:_________________________________TELEPHONE:______________________
### Meeting Dates/Programs 2011-2012

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<td>A Forensic Review of Sprinkler System Failures—Top Myers of RelMark Group</td>
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<tr>
<td>April 20</td>
<td>3rd Annual NJSFPE/AFAANJ Symposium and Trade Show a full day of presentations and vendors. CEU's to be had.</td>
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<td>May 7</td>
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HELPFUL LINKS

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AFAA National http://www.afaa.org/
AFSA http://www.firesprinkler.org/
ANSI http://web.ansi.org/
ASHRAE http://www.ashrae.org/
Campus-Firewatch http://www.campus-firewatch.com/
CPSC http://www.cpsc.gov/
CSAA http://www.csaaul.org/
Municipal Codes (E Codes) http://www.generalcode.com/Webcode2.html
FM Global http://www.fmglobal.com/
FSDANY http://www.fsdany.org/regs.htm
FSI http://www.firesprinklerinitiative.org/
FSSA http://www.fssa.net/
Fire Tech Productions—Nicet Training (FTP) http://www.firetech.com/
Home Fire Spklr Coalition http://www.homefiresprinkler.org/
AFAA-NJ http://www.afaanj.org/
National of Fire Equipment Distributors (NAFED) - http://www.nafed.org/index.cfm

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Do you want your business to be known by over 125 professionals in the local Fire Protection industry? Advertise in the Fusible Link. $100 per chapter fiscal year. Contact Vicki Serafin for more info: Vicki.serafin@affiliated.fm.com