



# Society of Fire Protection Engineers

New Jersey Chapter

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WEB [HTTP://members.aol.com/njsfpe/home.htm](http://members.aol.com/njsfpe/home.htm)

March 2001



### PRESIDENT'S MESSAGE

We cancelled the February 5 chapter meeting due to inclement weather. East Hanover had six to eight inches of snow that we felt you did not need to contend with. We posted the cancellation on our web site that afternoon. Hopefully you thought to visit the web site before driving over.

For those of you who were unable to attend our January meeting, please read the notes below from January's Technical Presentation. This was the discussion of an investigation of a multiple fatality fire, a sad loss of life and property. For whatever reason each of us first got into this industry I would like to think that we are still here today, at least in part, because of the good we do for society. We understand that if we each do our job in some way, loss from fire will be avoided or reduced. I found the presentation particularly poignant since it showed how many ways the things we do can be impacted by: working in an area where we are not fully

qualified; not having the latest training; not fully understanding relevant codes; or the underlying reasons for certain code requirements; over emphasizing cost or time constraints; being overly flexible to other customer concerns at the expense of safety; not taking the time to fully test out systems; or abbreviating inspections. The startling reminder of this presentation was that there are so many critical decisions in the process of designing, installing and maintaining fire protection systems. We can't lose sight of their importance in our day-to-day work.

As a group our charter is to advance the art and science of fire protection engineering, maintain a high ethical standard and foster fire protection engineering education. We aspire to these lofty goals because we know what the consequences might be. January's discussion helped me to remember that. I hope it did that for you too.



**Charles L. Gandy, P.E.**  
Chief Fire Protection Engineer

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## Technical Program for March

### **Topic: "Performance Based Building Design"**

You have heard a lot about the topic during the past three years or more. The "International Performance Code" is now in final draft. The presenter is Vice-Chairman of the International Code Council Performance Code Committee responsible for the development of this important document. Performance Design will definitely impact the Fire Protection Engineering concerns for safety in buildings as much as for any other discipline.

A free copy of the ICC performance code will be available for all attendees at the March 5 meeting.

### **Presenter: Gary Lewis**

Gary Lewis is no stranger to the Chapter. He has been here before. Gary is Chief Inspector, City of Summit, NJ; Chief of Code Administration (Construction Official) including Construction, Planning/Zoning, Housing Property Maintenance. He is former Chief Fire Inspector, Township of Fairfield (13 years). Lewis is Immediate Past President of the NJ Fire Prevention and Protection Association. In addition to being the VP of the ICC Performance Code Committee he is a member of the ICC Interpretations Committee.

He is past member of the BOCA Fire Prevention Code Changes Committee, BOCA IBC Firesafety Review Committee and the BOA interpretations Committee.

Gary Lewis a Charter member of the New Jersey Uniform Fire Code Advisory Council and past member of the NJ Fire Safety Commission.

He is also the Building Officials Association of New Jersey representative to the NJ Dept. of Community Affairs ICC Advisory Committee which is developing recommendations for use of the International Codes statewide to replace the BOCA National Codes.

Gary is an adjunct Fire Protection Instructor, Essex County College.

More importantly he is a low handicap Golfer who finds time to be a good husband and a terrific father to two beautiful children.

## TECHNICAL PROGRAM – JANUARY MEETING - SUMMARY

### **Topic: "Fire Loss Investigation – A Description And Analysis Of A Specific Fire Loss"**

**Presenter: John Cholin, JM Cholin Consultants**

The presentation outlined a fatal fire reconstruction performed by John M. Cholin, P.E., of J.M. Cholin Consultants, Inc. The fire occurred in a four-story apartment building, located in a northeastern city. Initiated by arson, the fire resulted in the total destruction of the entire building, numerous injuries and the death of four of the tenants. This fire raises the question "How can this still happen in modern America? The facts uncovered in the investigation and reconstruction were very unsettling.

The building was a four-story masonry structure with steel frame and load-bearing walls. The basement level, below grade was also divided into apartments. It was divided by fire resistive barrier walls in two locations. The building was not equipped with a sprinkler system but had been equipped with a fire alarm system.

The fire started in an unenclosed stairway that connected all five levels of the building. It propagated rapidly up the stairway involving all five levels. While many residents on the first and second floors reported hearing the fire alarm signals, surviving fourth story residents did not report hearing the fire alarm. The fatalities occurred when residents of the fourth story apartments jumped from their windows to the street below. Usually, we see fire alarm systems installed to achieve some life-safety objective. In this case even though the system had been installed it did not attain that objective. Why did so many people perish in a building with a fire alarm system that was purported to be properly designed, installed, certified and maintained?

The system was purchased from an electrician who had an existing maintenance contract for the building. The electrician "designed" the system, purchased components from a local electrical supply outlet and installed it, citing his electrician's license as proof of competence. No drawings were ever produced, no design calculations were ever performed but the municipality did issue a permit to install the system. The municipality did have a certification ordinance, requiring fire alarm systems to be "certified" by a licensed fire alarm installer. The system was "certified" by a subcontracted fire alarm company for a nominal fee. The electrician then "maintained" the system.



The investigation analysis began by documenting the number of fire alarm devices installed and the type of wiring used to implement the system. Two serious flaws were uncovered. First the analysis showed that an insufficient number of notification appliances had been installed. The computational method in the SFPE Handbook of Fire Protection Engineering was outlined to show how audibility was determined. Second, the wiring recovered from the fire scene was shown to be of insufficient gauge and not listed for fire alarm service. Consequently, the resistive voltage drop on the wiring was so severe that there was insufficient potential applied to the audible notification appliances on the third and fourth floor to provide warning. Again, the computational method for calculating the voltage drop was shown.

The analysis showed that this fire alarm system was doomed to fail. Smoke detectors and notification appliances were provided in numbers to comply with the National Fire Alarm Code. There were several wiring irregularities that were also discovered. There was never a documented acceptance test. The certifying firm did not perform a thorough review and test of the system. Even though the owner was billed for annual inspection testing and maintenance the types of deficiencies found in this system would have been uncovered by even a cursory review. In short, this system was never operational despite the representations by the installer and certifier to the contrary. The owner and the public authorities having jurisdiction relied upon unqualified and arguably dishonest people.

The four people who died in this fire didn't have to die that day. They would have lived if the people involved in the fire protection of the building had performed up to expectation. Good fire protection is first and foremost a people issue. It is the people that make the difference between success and failure.

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## **GETTING TO KNOW YOUR CHAPTER OFFICERS** **Assistant secretary -- Brad Hart, PE,**

Brad is a Senior Vice President and Regional Director of the Integrated Management Services Practice of Willis of New York, Inc. His Practice leader responsibilities for IMS include property risk control, casualty risk control, boiler and machinery engineering, risk management information systems, casualty claims, property claims and other consultative services relating to reducing the cost of risk of Willis' clients. He is also co-chairman of the NY Region's IT committee, member of the NY Regional Management Committee, and a member of Willis' Global Risk Management Practice Group.

Mr. Hart began his career as a Property Loss Prevention Engineer with the Factory Mutual Engineering Association where he became a District Supervising Engineer. He later began working for Protection Mutual, one of the previous Factory Mutual companies, where he was responsible for the services provided to many large industrial and commercial accounts.

Throughout his career Mr. Hart has been actively engaged in providing property loss control engineering services to accounts with operations including acetylene, aerospace, large consumer product warehouse distribution, large EDP centers, gas distribution, petroleum tank farms, plastics, pulp and paper, retail, long distance telecommunications, and other complex exposures.

He is a member of the American Society of Civil Engineers and the National Fire Protection Association, and is Assistant Secretary of the New Jersey Chapter of the Society of Fire Protection Engineers. In addition, he has authored articles on business interruption and redundant power supplies.

Mr. Hart holds a degree in Civil Engineering from the University of Maine, and received his Professional Engineering Certification from the State of Connecticut.

He has been an active leader in the Boy Scouts and has been Troop 151 Committee Chairman for the past 11 years.

His son graduated from WPI with a BS in Electrical Engineering last spring and will be graduating from WPI this spring with an MBA. His daughter is a

sophomore at Rutgers University and is majoring in Biochemical engineering.

Brad lives with his wife, Suzanne in West Milford, NJ.

### **NJ/NYM JOINT SEMINAR**

A separate mailing went out earlier this month on the above seminar to be held on April 5. An additional registration form is included with this Fusible Link.

### **GEORGE KOUTSOUBIS PE**

SENIOR ENGINEER

### **ALPHA-OMEGA ENGINEERING PA**

235 Water Street • Perth Amboy NJ 08861

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## **FIRES IN NEW JERSEY – SUMMARY FOR 1999**

A review and summary of fire data submitted to the division of fire safety by 315 fire departments participating in the National Fire incident reporting system has been circulated.

### **Executive Summary:**

Sixty-three civilians were killed in fires. This is the lowest since the division has tracked the data.

Four firefighters died while on-duty or while performing their duties. All four were due to heart attacks. 43% of the civilian casualties were under 11 years of age or over 64.

Fifty-two of the civilians died in residential structural fires. 37 in one-/two family; 13 in apartments; 2 in mobile homes. 16% of the fires were or appeared to be intentionally set, 20% of the

fire department responses were to Emergency Medical and Rescue calls.

The 315 fire companies responded to 183,414 calls. Less than 12% of the calls were for fires – 21,676. Structural fires accounted for about 38% of the fires and vehicular fires 19%. Outside (other) fires accounted for 43%.

Causes of Residential Fires – Mostly carelessness.

Cooking 30.8% followed by Electrical 10% and Suspicious 7%

In 1999 there were 4,170 residential fires in which the presence and performance of smoke detectors were noted. In 57.2% of these fires the detectors operated. In 37% the detector did not operate or was not present. To date, in cooperation with industry and the local fire departments, over 65,000 smoke detectors have been distributed to the public.

Local fire departments, fire prevention offices and community organizations have initiated “Battery Give-away” programs. The need to educate the public on the benefits of smoke detectors and the need to replace batteries must be emphasized.

## **SCHOOL FIRES IN NEW JERSEY**

Public Law 1989, Chapter 42 requires ALL public schools to report any fire that occurs on school property to be reported to the local fire department who in turn are required to report the fire to the Division of Fire Safety, NJDCA.

In 1999 there were 257 fires on school property, 127 structural. The largest cause includes 3 groups, suspicious, unknown and incendiary. 60% plus. Misuse of Materials ignited dropped from 42% in 1998 to 11.5% in 1999 while mechanical failure rose from 8.4% to 17.3%. Other causes include misuse of heat sources; 6.3% operational deficiency 14.2%

Origin of school fires, lavatory/locker rooms 18% Hallways and Kitchen 13.4% each; Classrooms 7.8% and Trash area 7.1%.



## FIRES IN LANDS PROTECTED BY NJ FOREST FIRE SERVICE

There were 2061 reported fires of which 33% were incendiary in nature. Campfires, careless smoking and debris burning accounted for 17%. These fires resulted in over 16,445 acres of land burned over. Lightning, the only uncontrollable factor, was responsible for less than 1.1% of these fires.

It appears that fire can be defined as carelessness.

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## MORE ON PERFORMANCE-BASED DESIGN

As reported several times in the past year, an SFPE Committee has been developing an Engineering Guide to "Performance-Based Fire Protection Analysis and Design of Buildings. It is Done!!

On April 11, 2001 from 0900 to 1100 hours (EST) a comprehensive seminar will be offered "on-line" through the SFPE's web based training center. The fee is \$150 members, \$195 non-members per location (several persons may participate). In addition to leading participants through a detailed review of the Guide with presentations on each section, the seminar will define the role of the Guide in the fire safety design process with examples of its application.

A one-day seminar will also feature the same subject matter during Professional Development Week - September 10-14 in Baltimore, Maryland. SFPE will award 0.20 CEU's for the seminar.

## Editor's Comments:

The three former model codes (BOCA, ICBO, SBCCI) and the new International Codes have been and are referred to as Performance Codes. AND they are except for the fire safety features such as exits, fire separations (in and exterior of buildings), detection/alarm systems and extinguishing systems. These are primarily **prescriptive**. Therefore the application of Performance-based design principles will impact the Fire Protection Engineering features of buildings much more than it will other safety requirements.

It therefore behooves every fire protection engineer to understand the principles and to apply his/her knowledge and expertise including new methods and technology to develop safer structures at lower costs. This will not be an overnight fad. Performance-Based Design is here. Get involved. You know more about Fire Safety than others. Be Professional.

### A Thank You Letter To John Cholin From A Greatful Student Who Attended The P.E. Preparation Course

"Just wanted to drop you a note and let you know that I passed the exam. The letter came in the mail on Monday. I can't explain how happy, or should I say relieved, I am that I passed. Thanks again for taking the time to organize and run the review course. I can honestly say that if I had to study on my own the results would have been different. You provided plenty on insight and motivation which were truly needed to devote 3 1/2 months to studying."

Thanks again,  
Matt Drewello

## NEW JERSEY REHABILITATION CODE

In January, 1998 the NJ Department of Community Affairs began administering the Rehabilitation Subcode.

This is the first building code written expressly for existing buildings. Historically and presently

building codes are written for NEW buildings. Many of their provisions, when applied to an existing building make it almost impossible to justify the expense of rehabilitating existing buildings, which have outlived their usefulness.

Existing buildings already have a height and an area, it has a construction type, fire resistance (maybe) use groups and fixed dimensions, i.e., a 42-inch instead of a 44- inch stairway. The New Jersey Rehabilitation Code is based on four fundamentals:


1. **Now is not the perfect time** for the owner to learn about all the almost impossible things he must do to get a permit to rehabilitate this structure.
2. **Leave it no less safe** -- When work is finished the building shall be as safe or safer than when work began.
3. **Predictability** -- The owner should know exactly what is required before he makes a commitment.
4. **Proportionality** -- Requirements should be related to the work planned.

The Rehab Code is divided into six categories of work:

- Repair
- Renovation
- Alteration
- Reconstruction
- Additions and
- Change of use

These categories are well defined in the code. The owner decides which category his contemplated work falls into. The Rehab Code is written in a cook book format. All of the requirements for each category are completely spelled out, including possible trade-offs for additional fire safety systems. This has caused some comments concerning the voluminous text. The text is specific to each category and though repetitive in some areas, is more understandable than referencing sections.

**MICHAEL NELSON**  
ENGINEERING MANAGER



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**ROLF JENSEN & ASSOCIATES**  
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St. Patrick's  
Day

# Meeting Dates/Program for 2000-2001

(Programs Subject to Change)

Watch web page concerning cancellation In case of possible inclement weather conditions

March 5	Performance Based Design from a Code Official's Standpoint – Gary Lewis
April 5	NO MEETING – SEMINAR – Topic: “International Building Code & Various NFPA Code Updates (NFPA 13, 72 & 5000 in A.M., Breakouts Session in P.M.). Held at Martinique Hotel in New York City
May 7	TBA
June 4	ANNUAL MEETING, ELECTION OF OFFICERS & DIRECTORS
June 18	GOLF OUTING

## ***POSITIONS TAKEN BY SPEAKERS ARE NOT NECESSARILY THE POSITION OF THE NJ S.F.P.E.***

All meetings are held at the Hanover Manor, Eagle Rock Road, Hanover, NJ (approximately 1 ½ miles west of Eisenhower Parkway). Get Acquainted Hour 5:00-6:00 p.m. Adjournment is usually before 8:30 p.m. The Executive Committee meets at 4:00 p.m.

Editors Note—If you would like to advertise your company and help offset the cost of this publication, as well as having your business card in front of over 150 Fire Protection Professionals please call John Cholin at (201) 337-8621 for further information. The cost is \$100 for 10 issues.

## COMMITTEES 2000-2001

### Standing Committees

#### **Program:**

Co-chairs – Mike Newman, Peter Rullo  
Consulting – Nick Chergotis

#### **Arrangements:**

Co-chair- Mike Newman, Peter Rullo

#### **Membership:**

Chair – Chuck Gandy

#### **Nominating:**

Chair – Peter Rullo  
Bruce Barrios  
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#### **Scholarship Fund:**

Chair - Rich Reitberger  
Robert Hall

#### **Auditing:**

Jim Tolos

#### **Archivist/Historian:**

Jim Tolos

#### **Communications:**

**Fusible Link:** John Ed Ryan, Editor

Brad Hart – Coordinator

Frank Bender – Mailing/Automation

### Special Committees

**Bylaws:** Jim Tolos, Co-Chairman

Joe Janiga – Co-Chairman

#### **Career Recruitment:**

Chair - Al Doport

Tom Brereton

Joe Stavish

Glenn Deitz

Dave Gluckman

#### **Golf Outing:**

Chair - Richard Reitberger

Murray Cappers

#### **Awards:**

John Ed Ryan

Frank Savino

#### **PE Examination:**

Chair - John Cholin

John E. Ryan

Chuck Gandy

#### **Joint Seminar/Chapter Seminar**

Chair - Richard Reitberger

Pat Egan

Dave Gluckman

#### **Legislative:**

Chair - Rich Reitberger



**NY/NJ Chapters SFPE  
TECHNICAL SEMINAR 2001**  
Thursday APRIL 5<sup>TH</sup>, 2001  
*The Martinique on Broadway, NYC*  
(Holiday Inn)

**“Staying Current – Codes and Standards”**  
**International Building Code & NFPA 13, 72 , 5000 updates**

**REGISTRATION FORM**

**REGISTRATION LIMITED – MAIL EARLY**

Price for the seminar is **\$120 per person for SFPE Members**  
**\$140 per person for Non-members and walk-ins**

Make checks out to “**SFPE NJ Chapter**”

**Name** \_\_\_\_\_  
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Check your choice for the **Afternoon** Session: (Note: please pick one and one alternate)

- |   |   |
|---|---|
| <input type="checkbox"/> Session “A” : Changes to NFPA 13   | <input type="checkbox"/> Alternate choice |
| <input type="checkbox"/> Session “B” : Changes to NFPA 72   | <input type="checkbox"/> Alternate choice |
| <input type="checkbox"/> Session “C” : Preview of NFPA 5000 | <input type="checkbox"/> Alternate choice |

\* Note: Seats are limited. All sessions are on a first received based. The alternate choice will be used if your first choice session is full.

**MAIL THIS FORM INCLUDING PAYMENT TO:**

NY/NJ SFPE SEMINAR 2001  
C/O Dave Gluckman  
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For further info or directions call:

Rich Reitberger at 973-483-1098 or Dave Gluckman at 973-734-3661  
Tom Kuhta at 973-734-3665