Editor Fusible Link:
Brad Hart &
Ana Crisostomo
Tel: 646-572-3920
Fax: 646-871-3920

Society of Fire Protection Engineers

New Jersey Chapter

FUSIBLE LINK

DECEMBER 2010

President's Message...

Last month we had the pleasure of being briefed by our good friend, *Russ Flemming*, P.E., Vice President of the National Fire Sprinkler Association. Russ gave an enlighten brief on the hazards of antifreeze systems in residential sprinkler systems and some insight into current testing and evaluations being conducted with respect to concentrations and operation. We thank Russ for making the time to meet with our Chapter. Our December meeting is an award winner, literally. On December 6th we will be honoring officially our newest Fellow recipient, Mike Newman of Johnson & Johnson. That night we also will present the *John V Kelly Excellence Award* to Vinny Fichera to recognize his many years working the halls and offices in Trenton reminding our elected officials the benefits and need to install automatic sprinklers heads – everywhere ! Come on out and help us toast both members who have represented our Chapter with distinction.

Rich Reitberger
Chapter President

NJ-SFPE November 1, 2010 Meeting Minutes

President Reitberger convened the meeting at 6:00PM with a salute to the flag and customary introductions. There were 19 in attendance.

The Treasurer's report for November 1, 2010 was read and accepted by the members. There is $14,359.11 in the balance.

The Secretaries report for September and October were discussed and accepted by the members.

Xianxu Hu, Marios Michaelides and Eric Greenwald have applied for chapter membership and were accepted by vote of the members. Welcome fellows.

Russ Fleming, Executive VP of the NFSA spoke to us about 'antifreeze in fire sprinkler systems –or- how to protect fire sprinkler systems from freezing'.

- NFPA 25 ver. 2011 section 4.1.2 will require the building owner to maintain heat….
- NFPA 13, 13D and 13 R use slightly different wording regarding the applicability of dry sprinkler protection all at the temperature of 40F.
- NFPA 13 D and 13R usually don't require protection in the type of spaces that are typically unheated.
- Wrapping sprinkler piping with insulation is of little use since that insulates the pipe from the warm side as well as from the cold.
- Loose fill insulation tends to fall off sprinkler piping so special steps are needed to keep the pipe on the warm side of this type insulation.
- NFPA 13 allows heat tracing, 13D is silent.
- There has been a trend of antifreeze sprinkler systems to grow in size.
- Sprinkler antifreeze requires thorough mixing with water to obtain solution otherwise denser antifreeze may settle out of the water causing pockets of higher concentration.
- NFPA 13 only allows glycerin for antifreeze in CPVC pipe.
- Expansion chambers for antifreeze systems are sometimes being replaced with relief valves instead.

Following a residential accident in Truckee, CA in Aug 09 there is concern about antifreeze in sprinkler pipe. During that incident it appears discharge from the single operating sprinkler supported fire, explosion. Another incident occurred in Herriman, UT in June 2010. Developing opinion today seems to be that antifreeze concentrations above published limits in sprinkler systems with smaller orifices and at higher pressures (~100psi) may be the cause. Not everyone agrees or agrees with how to resolve the issue.

Current TIAs and safety alert are; no new residential antifreeze systems should be installed. Existing antifreeze systems should limit concentrations of propylene glycol to no more than 40% and glycerin to no more than 50%. This may require changes to existing systems.

The meeting was adjourned at 8:20PM.

Schirmer Engineering Changes its Name

Effective October 1, 2010, Schirmer Engineering Corporation has officially become Aon Fire Protection Engineering Corporation (Aon FPE). In 2001, Schirmer Engineering was acquired by Aon Corporation, a leading global provider of risk management services, insurance, and reinsurance brokerage. The intent of this name change is to better align our Company and brand with that of our parent company, Aon Corporation. We believe this evolution of our brand honors our legacy; better represents our growing global presence; and positions us to move forward as one, united Company with a common vision. For more information on the combined global offerings of Aon Fire Protection Engineering, please visit our new website at www.AonFPE.com.

Fatal Fires in Residential Buildings

Surprisingly, age as a factor (16 percent) was more often cited with smoking-related fires than fires caused by playing with the heat source. Typically, playing with a heat source is associated with children playing-caused fires.

It is not unexpected that smoking-related fires is the first or second associated fire cause with six of the seven human factors as smoking is the leading cause of fatal fires.

Table 6. Human Factors Contributing to Ignition for Fatal Residential Building Fires (Where Human Factor Contributing Specified, 2006–2008)

Human Factors Contributing to Ignition	Percent of Fatal Residential Fires (Unknowns Apportioned)	Primary Associated Fire Causes	
Asleep	47.3	Smoking	(28.5%)
		Other Unintentional, Careless	(17.1%)
Possibly impaired by alcohol or drugs	23.5	Smoking	(33.2%)
		Intentional	(12.8%)
Age was a factor	16.1	Smoking	(24.3%)
		Playing with Heat Source	(14.9%)
Physically disabled	14.8	Smoking	(41.0%)
		Other Unintentional, Careless	(16.5%)
Unattended or unsupervised person	10.2	Playing with Heat Source	(17.3%)
		Smoking	(13.6%)
Possibly mentally disabled	7.6	Intentional	(50.0%)
		Smoking	(16.7%)
Multiple persons involved	5.8	Intentional	(20.0%)
		Heating	(15.6%)

Source: NFIRS 5.0.
Notes: 1) Includes only incidents where human factors that contributed to the ignition of the fire were specified.
2) Multiple human factors contributing to fire ignition may be noted for each incident; total will exceed 100 percent.

Alerting/Suppression Systems in Fatal Residential Building Fires

Smoke alarms were reported as present in 38 percent of fatal residential fires. By comparison, smoke alarms were present in 44 percent of nonfatal residential fires. In 23 percent of fatal residential fires, there were no smoke alarms present.[10] Nationally, only 3 percent of households do not have a smoke alarm installed.[11] This lack of early warning is a considerable factor in fatal residential fires. Lastly, in 40 percent of these fatal residential fires, firefighters were unable to determine if a smoke alarm was present (Table 7).[12]

Table 7. Presence of Smoke Alarms in Fatal Residential Building Fires (2006–2008)

Presence of Smoke Alarms	Percent
Present	37.7
None present	22.5
Undetermined	39.7
Null/Blank	<0.1

Source: NFIRS 5.0.
Note: Total may not add to 100 percent due to rounding.

Where the existence of a smoke alarm was not determined, 79 percent of the fires spread beyond the floor of fire origin. Because these fires were so expansive, it may be impossible to determine the presence of smoke alarms.

Fires in one- and two-family housing accounted for 89 percent of fatal residential fires in which no smoke alarm was present. Multifamily housing accounted for just 8 percent of these fires, perhaps because they are subject to more stringent codes and often require the landlord or manager to maintain the detection systems.

Of concern are fatal fires in residential buildings that are not currently or routinely occupied. While these fires are a small portion of all fatal residential fires (4 percent), these occupancies—buildings under construction, undergoing major renovation, vacant, and the like—are also unlikely to have alerting and suppression systems that are in place and, if in place, that operate. Only 4 percent of fatal fires in residential buildings that are not routinely occupied were reported as having smoke alarms that operated. No automatic suppression systems were reported as operating in fatal fires in residential buildings that are not routinely occupied.

Occupied Housing

A continuing trend of fatal residential fires in occupied housing is the high proportion with no smoke alarms or nonfunctioning smoke alarms. Households with fires (both fatal and nonfatal) are less likely to have had smoke alarms (93 percent) than nonfire households (97 percent).[13] In addition, households with fatal residential fires are less likely to have had smoke alarms (Table 8).

Smoke alarms were reported as present in 38 percent of fatal residential fires in occupied housing. In 22 percent of fatal residential fires in occupied housing, there were no smoke alarms present. Lastly, in 40 percent of fatal residential fires in occupied housing, firefighters were unable to determine if a smoke alarm was present (Table 8).

When operational status is considered, the percentage of smoke alarms reported as present (38 percent) consists of:[14]

- smoke alarms present and operated—15 percent;
- present but did not operate—9 percent (alarm did not operate, 8 percent; fire too small, less than 1 percent); and
- present but operational status unknown—15 percent.

When the subset of incidents where smoke alarms were reported as present is analyzed separately, smoke alarms were reported to have operated in 38 percent of the incidents and failed to operate in 22 percent. In less than 1 percent of this subset, the fire was too small to activate the alarm. The operational status of the alarm was undetermined in 39 percent of these incidents.

Note that the data presented in Table 8 are the raw counts from the NFIRS data set and are not scaled to national estimates of smoke alarms in fatal residential fires. In addition, NFIRS does not allow for the determination of the type of smoke alarm—that is, if the smoke alarm was photoelectric or ionization, or the location of the smoke alarm with respect to the area of fire origin.

Table 8. NFIRS Smoke Alarm Data for Fatal Residential Building Fires in Occupied Housing (NFIRS, 2006–2008)

Presence of Smoke Alarms	Smoke Alarm Operational Status	Smoke Alarm Effectiveness	Count	Percent
Present	Fire too small to activate smoke alarm		9	0.3
	Smoke alarm operated	Smoke alarm alerted occupants, occupants responded	209	6.5
		Smoke alarm alerted occupants, occupants failed to respond	83	2.6
		No occupants	1	0.0
		Smoke alarm failed to alert occupants	28	0.9
		Undetermined	147	4.6
	Smoke alarm failed to operate		266	8.3
	Undetermined		474	14.8
None present			706	22.1
Undetermined			1,272	39.8
Total Incidents			3,195	100.0

Source: NFIRS 5.0.
Notes: The data presented in this table are raw data counts from the NFIRS data set. They do not represent national estimates of smoke alarms in fatal residential building fires in occupied housing. They are presented for informational purposes. Total may not add to 100 percent due to rounding.

Overall, full or partial automatic extinguishment systems (AESs), mainly sprinklers, were present in only 2 percent of fatal residential fires in occupied housing (Table 9). The presence of suppression systems in nonfatal occupied residential building fires is only 4 percent.

Table 9. NFIRS Automatic Extinguishing System (AES) Data for Fatal Residential Building Fires in Occupied Housing (2006–2008)

AES Presence	Count	Percent
AES present	44	1.4
Partial system present	7	0.2
AES not present	2,930	91.7
Unknown	214	6.7
Total Incidents	3,195	100.0

Source: NFIRS 5.0.

Notes: The data presented in this table are raw data counts from the NFIRS data set. They do not represent national estimates of AESs in fatal residential building fires in occupied housing. They are presented for informational purposes. Totals may not add to 100 percent due to rounding.

Examples

The following are some recent examples of fatal residential building fires reported in local media:

- December 2009: A large apartment complex fire killed 9 people in Starkville, MS. While investigators do not know what started the fire, they do not believe it was intentionally set. There were no smoke alarms in the apartment complex.[15]
- December 2009: A house fire killed two people in Casper Mountain, WY. Fire investigators believe the fire was accidental but have been unable to specify a cause. The victims were taken to a local medical center but did not survive. Firefighters did not find smoke alarms in the home but stated that the alarms may have been consumed by the fire.[16]
- November 2009: A 46-year-old man was killed in a fire that was started by a lit cigarette. The man was smoking while mixing gasoline and oil in the living room of his apartment. His death was the result of respiratory failure and burns suffered in the flash fire. The apartment fire left eight people homeless in Mechanic Falls, ME.[17]
- October 2009: A rowhouse fire killed a 63-year-old man in South Philadelphia, PA. A neighbor attempted to rescue the man, but was unable to reach him in time. Fire officials noted that there was no working smoke alarm in the house. The cause of the fire is still undetermined.[18]

NFIRS Data Specifications for Fatal Residential Building Fires

Data for this report were extracted from the NFIRS annual Public Data Release (PDR) files for 2006, 2007, and 2008. Only version 5.0 data were extracted.

Fatal Residential Building fires are defined as:

- Incident Types 111 to 123:

Incident Type	Description
111	Building fire
112	Fires in structure other than in a building
113	Cooking fire, confined to container
114	Chimney or flue fire, confined to chimney or flue
115	Incinerator overload or malfunction, fire confined
116	Fuel burner/boiler malfunction, fire confined
117	Commercial compactor fire, confined to rubbish
118	Trash or rubbish fire, contained
120	Fire in mobile property used as a fixed structure, other
121	Fire in mobile home used as fixed residence
122	Fire in motor home, camper, recreational vehicle
123	Fire in portable building, fixed location

Note that Incident Types 113 to 118 do not specify if the structure is a building.

Incident Type 112 is included prior to 2008 as previous analyses have shown that Incident Types 111 and 112 were used interchangeably. As of 2008, Incident Type 112 is excluded.

- Aid Types 3 (mutual aid given) and 4 (automatic aid given) are excluded to avoid double counting of incidents.
- Property use 400 to 464:

Property Use	Description
400	Residential, other
419	One- or two-family dwelling
429	Multifamily dwelling
439	Boarding/rooming house, residential hotels
449	Hotel/motel, commercial
459	Residential board and care
460	Dormitory-type residence, other
462	Sorority house, fraternity house
464	Barracks, dormitory

- Structure Type:
  - For Incident Types 113–118:
    - 1—Enclosed building,
    - 2—Fixed portable or mobile structure, and
    - Structure Type not specified (null entry).
  - For Incident Types 111,112, and 120–123:
    - 1—Enclosed building, and
    - 2—Fixed portable or mobile structure.
- Civilian deaths greater than zero.

The analyses contained in this report reflect the current methodologies used by the USFA. The USFA is committed to providing the best information on the United States' fire problem and continually examines its data and methodology to fulfill this goal. Because of this commitment, data collection strategies and methodological changes are possible and do occur. As a result, analyses and estimates of the fire problem may change slightly over time. Previous analyses and estimates on specific issues (or similar issues) may have used different methodologies or data definitions and may not be directly comparable to the current ones.

To request additional information or to comment on this report, visit http://www.usfa.fema.gov/applications/feedback/index.jsp

Notes:

[1] The U.S. fire death rate for 2008 shown here is based on the National Fire Protection Association's (NFPA's) estimate of fire deaths in 2008 and the U.S. Census Bureau's estimate of the 2008 U.S. resident population.

[2] The Geneva Association, "World Fire Statistics," *Geneva Association Information Newsletter*, Number 25, October 2009.

[3] National estimates here are based on 2006–2008 native version 5.0 data from the National Fire Incident Reporting System (NFIRS) and residential structure fire loss estimates from the NFPA's annual surveys of fire loss. Fires are rounded to the nearest 100, deaths to the nearest 5, injuries to the nearest 25, and loss to the nearest $million.

[4] In NFIRS, version 5.0, a structure is a constructed item of which a building is one type. In previous versions of NFIRS, the term "residential structure" commonly referred to buildings where people live. To coincide with this concept, the definition of a residential structure fire for NFIRS 5.0 has, therefore, changed to include only those fires where the NFIRS 5.0 Structure Type is 1 or 2 (enclosed building and fixed portable or mobile structure) with a residential property use. Such fires are referred to as "residential buildings" to distinguish these buildings from other structures on residential properties that may include fences, sheds, and other uninhabitable structures. Confined fire incidents that have a residential property use, but do not have a structure type specified are presumed to be buildings. Nonconfined fire incidents without a structure type specified are considered to be invalid incidents (structure type is a required field) and are not included.

[5] The average fire death and fire injury loss rates computed from the national estimates will not agree with average fire death and fire injury loss rates computed from NFIRS data alone. The national estimates are based on a sample of fire departments that report fatality totals. The NFIRS is based on a large set of fires, with the data at the individual fire incident level. The fire death rate computed from national estimates would be (1,000*(2,635/1,800)) = 1,463.9 deaths per 1,000 fatal residential building fires and the fire injury rate would be (1,000*(725/1,800)) = 402.8 injuries per 1,000 fatal residential building fires.

[6] For the purposes of this report, the time of the fire alarm is used as an approximation for the general time the fire started. However, in NFIRS, it is the time the fire was reported to the fire department.

[7] The U.S. Fire Administration (USFA) cause hierarchy was used to determine the cause of fatal residential building fire incidents: http://www.usfa.dhs.gov/fireservice/nfirs/tools/fire_cause_category_matrix.shtm.

[8] USFA differentiates between smoking as a cause of fires and fires ignited by smoking materials. Smoking (or smoking-related fires) are considered a behavioral cause. Fires ignited by smoking materials are considered as a group of fires where smoking materials were the heat source. The two sets are similar but not identical. A deliberately set fire with smoking materials as the heat of ignition would be considered an "intentional" fire; a fire unintentionally set by someone smoking (cigarettes, cigars, or other smoking materials) would be considered a "smoking" fire.

[9] The U.S. Census Bureau shows that, in 2007, 76.3 percent (84.4 million) of occupied housing units were one-unit attached and detached structures or mobile homes (http://www.census.gov/hhes/www/housing/ahs/ahs07/tab1a-1.xls for occupied housing). Household size was estimated at 2.6 people per household (http://factfinder.census.gov/servlet/ACSSAFFFacts?_submenuId=factsheet_1&_sse=on). Thus, 84.4 million housing units x 2.6 people per household = 219.4 million people lived in one-unit attached and detached structures or mobile homes. With the 2007 U.S. population given as 301.3 million, (http://www.census.gov/popest/national/asrh/NC-EST2008/NC-EST2008-03.xls), approximately 72.8 percent of the population lived in what NFIRS defines as one- and two-family housing.

[10] Here, *at least* 23 percent of fatal residential building fires had no smoke alarms present—the 23 percent that were known to not have smoke alarms and some portion (or as many as all) of the fires where the smoke alarm presence was undetermined.

[11] Greene, Michael, and Craig Andres. 2004–2005 *National Sample Survey of Unreported Residential Fires*. Division of Hazard Analysis, Directorate for Epidemiology, U.S. Consumer Product Safety Commission, July 2009.

[12] The percentages cited for smoke alarms sum to more than 100 percent due to rounding errors.

[13] Greene, Michael, and Craig Andres. 2004–2005 *National Sample Survey of Unreported Residential Fire*. Division of Hazard Analysis, Directorate for Epidemiology, U.S. Consumer Product Safety Commission, Table 5-3, July 2009.

[14] The percentages cited for smoke alarms do not add to the percent of alarms present due to rounding errors.

[15] "9 dead, including 6 kids in Mississippi apartment fire," foxnews.com/news, December 28, 2009. http://www.foxnews.com/story/0,2933,581378,00.html (accessed January 7, 2010).

[16] Joshua Wolfson, "No cause found in fatal house fire," billingsgazette.com, December 4, 2009. http://www.billingsgazette.com/news/state-and-regional/wyoming/article_d99520fa-e091-11de-a0d4-001cc4c002e0.html (accessed December 14, 2009).

[17] "Fire officials release cause of fatal Mechanic Falls fire," wmtw.com, November 30, 2009. http://www.wmtw.com/news/21760881/detail.html (accessed December 10, 2009).

[18] "Man dies in S. Phila. rowhouse fire," philly.com, October 13, 2009. http://www.philly.com/philly/news/20091013_Man_dies_in_S__Phila_rowhouse_fire.html (accessed December 14, 2009).

RENEWAL APPLICATION & 2010- 2011 DUES NOTICE

Name: _____

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- *** PLEASE PROVIDE US WITH YOUR E-MAIL ADDRESS EVEN IF WE HAVE IT ALREADY SO WE MAY UPDATE OUR RECORDS. THIS WILL ENABLE US TO PROVIDE YOU WITH IMPORTANT AND TIMELY NOTICES SUCH AS MEETING CANCELLATIONS DUE TO INCLEMENT WEATHER.**
- **Hurricanes are not considered inclemency's of the season here! Just normal circumstance that is not insured against in a normal homeowner's policy.**

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1. Are you a current member of the International SFPE?

   If not, would you like a membership application?

2. Are you interested in NJ Chapter Committee Participation?

****

PLEASE REMIT BY - ***ASAP***

MAKE YOUR CHECK PAYABLE TO **- "NJ CHAPTER SFPE"**

MAIL YOUR CHECK TODAY WITH THIS APPLICATION TO:

Vicki Lynn Serafin
C/O NJ Chapter SFPE
P.O. Box 8268
Parsippany, NJ 07054-1196

Dues - 2010-2011: $20.00 **E-mail copies** of Fusible Link and Meeting Notices

Still need application Filed out **$ 0.00 Retired member**

Email: vicki.serafin@affiliatedfm.com

Thank you for your continued support!

Meeting Dates/Programs 2010-2011

Dec. 6	John V. Kelly award recipient to be speaker—Vinny Fichera
Jan. 3	Tyco Model PRV-1 Pressure Reducing Valve
Feb. 7	Dust Update—John Cholin
March 7	Insurance Industry Update
April 22	Joint Symposium/Seminar—International Codes and Standards
May 2	Green Power Hazards, FM speaker.
June 13	Annual Meeting—The Changing View of Protection for Data Centers.

Vicki Serafin
Affiliated FM
400 Interpace Parkway, Bldg C
3rd Floor
Parsippany, NJ 07054-1196
Phone: (973) 541-6771
Fax: (973) 541-6909

MEETING NOTICE

Date: December 6, 2010

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

Price: $30.00

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

Topic: John V. Kelly Award and Legislation Update

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

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2008-2009 Chapter Committees

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Richard Ravaioli
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Vicki Serafin, Chairperson

Membership
John Cholin, Chairman

Nominating
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Chuck Gandy

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Alternates: Rich Reitberger, Jim Tolos

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Joe Janiga, Chairman
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Ana Crisostomo—Coordinator
Mailing/Automation/e-mail—Vicki Serafin, Chairperson
Website—Joe Janiga
Facebook & Twitter Coordinator—Todd Vazquez

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Glen Buser

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PE Examination
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Rich Reitberger - Chairman
John Cholin
Bob Murray

HELPFUL LINKS

ADAAG http://www.access-board.gov/adaag/about/index.htm
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/
Coffee Break Training http://www.usfa.dhs.gov/nfa/coffee-break/
CPSC http://www.cpsc.gov/
CSAA http://www.csaaul.org/
Municipal Codes (E Codes) http://www.generalcode.com/Webcode2.html
FDNY http://nyc.gov/html/fdny/html/home2.shtml
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/
HVAC Bld. Control Fire Safety http://www.iklimnet.com/hotelfires/hotelfiresmain.html
AFAA-NJ http://www.afaanj.org/
International Code Council - http://www.iccsafe.org/
International Code Council Residential Sprinkler Exam - http://www.iccsafe.org/news/nr/2009/0709_ResidentialSprinklerExam.pdf
The Joint Commission (JCAHO) - http://www.jointcommission.org/www.JointCommission.org/
Material safety data Sheets (MSDS-OSHA Site) - http://www.osha.gov/SLTC/hazardcommunications/index.html
National of Fire Equipment Distributors (NAFED) - http://www.nafed.org/index.cfm