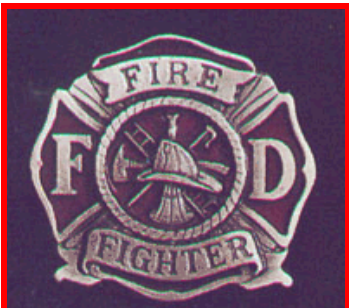


# The Station House

A News Letter for AHJ's,  
Fire Sprinkler Contractors & Underwriters

## New European Legislation Mandates Tunnel Protection



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Responding to recent and past instances of fires in transportation tunnels, the European Parliament signed a directive on April 29, that will mandate life safety and fire protection improvements to tunnels that are considered critical to the European Transportation Network. The new directive, entitled the "Tunnel Fire Safety Directive", mandates that each member of the European Union adopt the directive within the next 30 months, and that each will then have a ten year period in which to comply. Mandatory Fire Suppression requirements for Tunnels in Australia and Japan, and their positive experience with real fires, were cited throughout the discussions. The fixed foam-water system that was installed in the Mount Baker Tunnel in Seattle, Washington was also included.



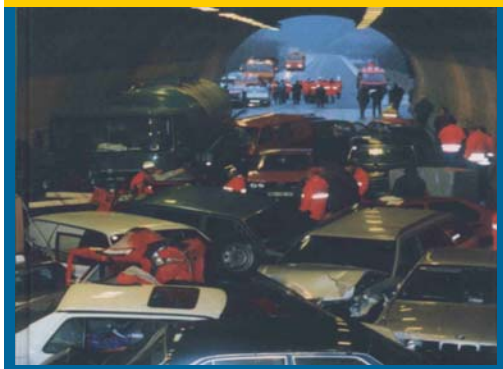
**European Tunnel Fire Burns Uncontrollably**

The discussions and subsequent legislation came as a result of a series of fires in tunnels in Europe with multiple loss of life. The fires resulted in such intense heat release, that fire departments found it impossible to enter the tunnels with manual equipment. The most devastating loss occurred in the Kaprun Ski Resort tunnel fire over three years ago in Austria, where a fire in a heater on a mountain train spread through the train, killing all of the 155 people that were on board. Other disastrous tunnel fires have included the Tauern and St. Gotthart road tunnels in Germany. Investigations in these and other tunnel fires showed that the loss of life did not occur as a result of being directly involved in the cause of the fire, but in an attempt to escape the tunnel.



**Aftermath & Damage of European Tunnel Fires**

A total of 512 tunnels that are located in the Trans-European Road Network are affected by the directive. Of these, 246 are located in Italy. The directive addresses tunnels that are in excess of 0.5 Kilometers (500 meters). Studies were made of the impact of tunnel fires on vehicles and occupants within the tunnels, as well as the long term economic impact to the EU due to the loss of any one of the tunnels for a prolonged period due to fire damage. *(Continued on page 5)*



## Schools & Fire Facts - FYI

**There are more than 8,000 fires in educational occupancies in the United States each year, accounting for an annual loss of \$65,000,000 in property damage. Although fire deaths in schools average less than one per year, hundreds have been injured.**



We all want to provide our children with the best available fire safety in their schools. Yet many new schools are still being built without the best single element of fire protection: an automatic fire sprinkler system.

Automatic sprinklers are widely recognized as the number one tool of fire protection. In over one hundred years of use, there has never been a multiple fatality of building occupants from fire in a building protected by a properly designed, installed, and maintained sprinkler system. Virtually all new shopping malls, nursing homes, high rise buildings and hotels are being protected with sprinklers. Why not schools?

### Should Schools Be Protected With Automatic Sprinklers?

Yes. Automatic sprinklers represent the state-of-the-art in fire protection, and should not be overlooked when new schools are built. They offer the best in terms of both life safety and property protection.

### Aren't Schools Built to be Fireproof?

Building codes regulate building materials and techniques, and the use of fire resistive construction is one way that codes permit the large building areas needed for educational facilities. But even though the building may not burn, the contents will. Building an un-sprinklered fire resistive compartment is like building an oven. If enough combustibles are placed within a compartment, the fire can proceed to "flashover." When that happens, toxic products of combustion can spread beyond the fire area and throughout the facility. Sprinklers respond to a fire while it is still small, preventing the fire from developing into a major threat.

### Don't Schools Rely on Alarms and Exit Drills for Fire Protection?

Yes, and the successful implementation of school fire drills is probably the main reason we've been able to keep fire deaths and injuries to a minimum. But alarms and fire drills don't put out the fire, and they don't protect the building during non school hours.

Schools represent an important investment on the part of a community. Built-in protection against fire not only protects that investment but also ensures uninterrupted use of the learning environment.

### What About the Possibility of Arson?

Arson is a major problem in schools. Fire records from 1990 through 1994 show that more than half of all educational facility fires were of incendiary or suspicious origin. The deliberately set fires caused all the deaths, half the injuries, and three-fifths of the property damage.

Sprinklers protect against arson. They are on guard 24 hours a day. System control valves and water flow switches can be supervised around the clock to ensure that the systems are in operational order and to quickly notify the fire department in the event the system is actuated.

### How Reliable Are Sprinklers?

Records of fires in buildings with supervised automatic fire sprinkler systems have indicated successful extinguishment or control in more than 99 percent of fire incidents. No other fire protection system or feature has a comparable record of reliability.

### What About Water Damage?

Because sprinklers attack the fire while it is still small, the total amount of water needed for fire suppression is small, often less than 50 gallons per minute. If the fire is permitted to grow, the fire department will typically apply hundreds of gallons of water per minute during their operations. For this reason, total amounts of water used in sprinklered buildings approximate one-tenth the amounts used in fires in non-sprinklered buildings.

### Aren't Sprinkler Systems Expensive?

No, in fact sprinklers can often reduce the total cost of construction.

Typically, sprinkler systems can be installed for about 1 percent of building cost, or less than \$2 per square foot. But if the decision to use sprinklers is made early enough in the planning process, sprinklers can actually reduce total construction costs through the use of code incentives or "trade-offs".

*Reprinted in part from NFPA Journal*

## Steel Pipe Costs Shift Attention to CPVC

There has been a dramatic price increase in steel products recently, and the price seems to fluctuate daily. This has made the use of traditional steel pipe a very difficult decision for typical users. With the price of the product unknown from day to day, enormous stress has been put on the shoulders of contractors, specifying engineers and plant managers. The ability to predict a price for an upcoming bid or budgeting a future project is very difficult.

With the current challenges of steel pipe, alternative methods are being considered and implemented. A natural transition has been to consider the use of plastic **BlazeMaster® CPVC** pipe and fittings.



CPVC piping can be used in many areas once thought only appropriate for steel. These include hospitals, dormitories, high-rise buildings, homes, hotels, apartments and many other applications. There are many advantages for using CPVC systems. The weight of the piping is approximately 1/6th of steel. The labor savings is big since unlike steel pipe, the CPVC pipe can be field "cut" instead of prefabricated in a fab-shop. Since the piping is plastic, it is not susceptible to MIC (microbiologically influenced corrosion) which is plaguing steel pipe systems.

**However**, not all CPVC plastic pipe systems are the same. **BlazeMaster® CPVC** pipe and fittings offer many advantages sometimes not found with other systems. These include many areas specifically tested and approved for unique applications. Some applications include: Tyco Fire & Building Products Specific Application Attic Sprinklers; Return air plenums with no set-back at ceiling openings per NFPA 90A; Exposed system risers in accordance with NFPA 13D and 13R; Exposed solid wood joists in NFPA 13D basement installations; Exposed Listed pendent light hazard, quick response, sprinklers - at 20' spacing with up to 155°F extended coverage sprinklers; Sidewall unique listings to BlazeMaster® CPVC.

To see the comparison of **BlazeMaster® CPVC** to other CPVC piping systems and limitations, please see chart below.

	BlazeMaster® Pipe & Fittings	Non-BlazeMaster® Fittings	Non-Blazemaster® Pipe
UL Listed (UL 1821)	X	X	up to 2"
ULC or CUL Listed	X	-	-
Factory Mutual Approved	X	up to 2"	up to 2"
LPC Approval	X	-	-
Size available up to 3" in diameter	X	X	up to 2"
Can be flush at return air plenums	X	X	up to 2"
Exposed system risers NFPA 13D, 13R	X	X	up to 2"
Exposed basement NFPA 13D (solid wood joist)	X	X	up to 2"
Extended coverage (exposed)	X	X	up to 2"
- 20' spacing on pendent in lieu of 15'	X	X	up to 2"
- 18' spacing on sidewall in lieu of 14'	X	X	up to 2"
Combustible concealed sprinkler head (CC1 & CC2)	(1)	(2)	(2)
Tyco attic sprinkler head (to protect the floor below)	X	-	-
Exposed sidewall sprinkler Listing for exposed pipe & fittings			
• 24' extended coverage sidewall sprinkler, 12" drop, 155° F sprinkler head	X	-	-
• 18' extended coverage sidewall sprinkler, 12" drop, 165° F sprinkler head	X	-	-
• 16' extended coverage sidewall sprinkler, 12" drop, 175° F sprinkler head	X	-	-
• 14' standard spray sidewall sprinkler, 12" drop, 200° F sprinkler head	X	-	-
Factory Mutual Approval exposed w/Soffi-Steel soffit covering system	X	-	-

- (1) BlazeMaster® CPVC pipe and fittings are approved for use with all manufactured CC1 and CC2 sprinkler heads on the market.  
 (2) Spears FlameGuard™ fittings and Victaulic FireLock™ pipe are not approved with the Tyco CC2 sprinkler head.

## Fire Sprinklers Never Sleep– Success Stories

### 1– Fire Sprinkler Extinguishes Arson Fire in Florida

Several incendiary devices thrown through a restaurant window around 5:30 a.m. ignited the building's contents, but a single fire sprinkler quickly extinguished the fire. Fire department notification was delayed when an improperly connected water-flow alarm failed to operate.

The single-story restaurant, which was 76 feet (23 meters) long and 48 feet (15 meters) wide, had metal and steel walls covered with drywall and a metal-deck roof. It was protected by a full-coverage wet-pipe fire sprinkler system.

The owner of a neighboring dry cleaners heard water running when he arrived at work around 5:30 a.m. and called 911 at 6:02 a.m., after he saw broken glass and the operating sprinkler. Responding firefighters found the fire completely extinguished and shut down the water supply.

Investigators determined that the fire started when someone threw three Molotov cocktails into the restaurant through the front window. The burning liquid ignited seating, the walls, and the ceiling before the fire sprinkler activated. Damage to the building was estimated at \$5,000, and damage to its contents at \$1,500. *Reprinted from NFPA Journal*

### 2– Sprinklers Confine Fire in Supermarket

An automatic fire sprinkler kept a fire in a northwest supermarket from spreading early Monday morning (03/08/04). The cause of the fire appeared to be accidental. There were no injuries.

Firefighters were alerted Monday morning that a fire was in the bakery of the King's Ranch Market at 840 N. Decatur Boulevard. When firefighters arrived, they found thick white smoke inside the one-story concrete block supermarket, which was still closed to the public when the fire broke out.

A manager told firefighters that approximately 15 employees were just beginning work for the day. In the bakery, one of the employees had just turned on the proofer (a device that warms dough to make it rise quickly), and noticed sparks coming out of an electrical cable that supplies power to the unit. The sparks caught some nearby cardboard boxes on fire, which activated the automatic fire sprinkler. Fire damage was confined to the area around the proofer in the bakery, and there was moderate odor throughout the rest of the store. *Reprinted from: lasvegasnevada.gov*

### 3– Sprinklers Control Storeroom Fire

New York - Four fire sprinklers controlled a fire in the storeroom of a large manufacturing plant after it closed for the night, containing the blaze until firefighters extinguished it. The steel-frame building was two stories high but had only a single level that covered 107,000 square feet (9,940 square meters). It had metal walls and a metal roof supported by steel bar joists. The storeroom, located 10 feet (3 meters) above the main floor, was 20 feet (6 meters) long, 10 feet (3 meters) wide, and 6 feet (2 meters) high. It had no ceiling. A full-coverage wet-pipe fire-sprinkler system supported by three automatic fire pumps was connected to the municipal alarm system.

Firefighters responded to the automatic alarm at 5:27 a.m., arriving within four minutes to find the fire sprinklers confining the fire to the storeroom. They used a 1 3/4-inch hose line to extinguish burning cardboard boxes and foam samples stored on lower shelves that were partially shielded from the fire-sprinkler spray.

The fire originated in a fluorescent light fixture in the storeroom. One end of the fixture melted, and molten metal dripped onto the boxes, igniting them. Damage to the building, valued at \$6.2 million, and to its contents, valued at \$1 million, was estimated at \$5,000 and \$45,000, respectively. There were no injuries. *Reprinted from NFPA Journal*

### 4– Fire Sprinklers Douse Bunk Bed Fire

Automatic fire sprinklers are being credited with dousing an apartment fire that left a seven-year-old boy with minor smoke inhalation Monday night (03/22/04) in Las Vegas.

Fire investigators say that a lamp clamped to the top of the boy's bunk bed ignited the fire a little before 8:00 p.m. in a downstairs unit.

The first firefighters to arrive thought the boy was still inside the burning apartment, but then found him safe outside. Damage was minor, and the cause is being called accidental. *Reprinted from FPC Magazine*





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## Remember State Fire Marshal, Your VRP Statistics Are Attached ...

Your state's Voluntary Replacement Program Statistics are attached to this Newsletter. The Statistics for the VRP are state and Program specific. You may distribute these statistics or this news letter to your constituents. We encourage you to pass along the information contained in this newsletter and the positive progress that is being made in the VRP.

### New European Legislation Mandates Tunnel Protection *(Cont. From Page 1)*

Prior to the adoption of the directive, Nibra, the Dutch Fire and Disaster Institute, announced that two tunnels in the new highway around Roermond in the south of The Netherlands will be equipped with fire suppression systems. The systems are expected to be multiple-zone, AFFF foam, deluge systems. Similarly, Germany announced that the Heidkopf tunnel that is located beneath the former East-West German border on the new A38 Autobahn linking Goettingen with Halle will have a fire sprinkler system.

The directives were adopted following full-scale fire testing that was performed in Norway, and allow trade-offs in the modifications that are required to existing tunnels. The cost of compliance can be evaluated for each tunnel, and options include water based suppression to control fire and allow egress, or modifications to the tunnels that would increase ventilation and add emergency escape routes at multiple points within each tunnel.

### Significant Tunnel Fires in US:

- **Wallace Tunnel**, I-10, Mobile, Alabama  
Date: late 1970's
- **Caldecott Tunnel**, US24, Oakland, California  
Date: 7 April 1982
- **Baltimore Harbor Freeway**, Baltimore, Maryland  
Date: 23 March 1978
- **Holland Tunnel**, New York City, New York  
Date: 13 May 1949
- **Squirrel Hill Tunnel**, Pittsburgh, Pennsylvania
- **Blue Mountain Tunnel**, Pennsylvania Turnpike
- **Chesapeake Bay Bridge/Tunnel**, Norfolk, Virginia  
Date: 3 April 1974

### New 'RED-E' Deluge / Preaction Cabinet

- Aesthetically Pleasing Appearance
- Professionally Assembled
- Minimal Installation Time
- Internally Pre-Wired
- UL/ULC/FM Components
- Sizes 1 1/2", 2", 3", 4" & 6"
- Preaction, Double Interlock, and Deluge Packages
- Model DV-5 Deluge Valve (Standard)
- All Gauges and Panel Display are Visible Externally



- Supply Pipe to Cabinet From Either Side
- System Discharges Vertically Through Top of Cabinet
- Furniture Grade Rollers (4) are Standard at Bottom of Cabinet
- Model DV-5 Deluge / Preaction Valve (Standard)
- Potter 4410 Releasing Control Module (Standard)
- Model BFV-1 Butterfly Control Valve (Standard)

All (4) Side Panels Easily Removed For Ease of Maintenance

