

# Fire Department Connection

Fire Marshals' Association of Missouri Newsletter

Fall/Winter 2011

## E-BOARD

### President

Lloyd Montgomery  
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Fire District

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Randy Behrens  
Kirksville Fire  
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### Sec./Treasurer

David Phipps  
Metro-West FPD

### Past-President/ Executive Director

Jason Webb  
Belton Fire Dept.

## UPCOMING EVENTS

### Dec. 14<sup>th</sup> – 10:00 AM

Regular Meeting &  
Holiday Get-Together  
Mid-County FPD  
Camdenton

### Feb. 6-8

ICC Updates  
Lake Area Fire Marshals  
Lake Ozark (see  
website for more info)

[www.mofiremarshals.org](http://www.mofiremarshals.org)

## Welcome To The First Edition!



Whether you are new to the organization, or have been around since the beginning, you know that communication is the key to our success!

Learning, networking, and sharing information is what makes the

FMAM so important to each of us.

That is exactly what this newsletter is all about. Our goal is to provide our members, and just as importantly, our future members, with current information about code development, local and regional concerns, important legislation, upcoming events and more!

Take some time and look over this first edition...we hope you enjoy it. If you have suggestions, or ideas for future articles, let us know!

## Conference Update

Planning is in full-swing for the 2012 conference being held July 29<sup>th</sup> thru Aug 1<sup>st</sup> at Tan-Tar-A Resort in Osage Beach.

With everybody in the same shape budget-wise, we are making a concerted effort to keep costs as low as possible. Our focus continues to be on high-quality, timely topics and instructors.

The combination of receiving a high quality training experience at an affordable price makes the FMAM conference one of the best training values around!



Be sure to keep an eye on the website for the most up-to-date information.

Speakers, prices and Other info will be posted As soon as it becomes Available.



# ***Fill In Place Carbon Dioxide Systems***

*Recent incidents across the country have brought light to the risks associated with improper installation of “fill in place” CO2 systems commonly used in beverage dispensing systems. This article was written with the help of the MO Division of Fire Safety's Boiler and Pressure Vessel unit. Their contact info can be found at the end.*

In the past, most all liquid carbon dioxide (CO2) was delivered to the end user in cylinders filled at the distributor. The process of off-site filling and transport, utilizing cylinders specifically designed for this purpose has a good safety record. These cylinders are regulated under the U.S. Department of Transportation (DOT) since they are transported on roads and highways. There are not many regulations beyond what DOT has in place. Typically, these systems are found in carbonated beverage dispensers, and are still used today.

In the past 20 years or so, however, the carbonated beverage industry has begun using a system of larger cylinders permanently installed at businesses, and filled on-site. Obviously, these cylinders contain much more liquid carbon dioxide. The smaller cylinders that are filled in the plant and distributed to the end-user contain between 10 and 100 pounds of liquid carbon dioxide compared to between 200 and 750 pounds for these permanently installed ones. Since these cylinders are not transported, they are not DOT regulated.

These larger, permanently installed cylinders are also constructed differently than the smaller ones. Double wall construction allows for the inner portion to contain the product while the space between the walls contains a coil under a vacuum. That coil system facilitates the change in state from liquid CO2, to the gas that is used in the beverage dispenser.

The supplier generally connects to the system through a fill box installed on the outside of the building. Sometimes the building owner does not want a fill box for aesthetic or other reasons. In those cases, the supplier connects to the piping from the CO2 cylinder, or brings a fill hose inside the business to fill the cylinder. Either way, the system has a fill connection and a vent/relief connection, both of which must be properly piped.

Typical working pressure is between 300 and 350 psi. The internal pressure of the CO2 cylinders varies based on ambient temperature, the vacuum pressure in the outer vessel, and the volume of the CO2 changing state (from liquid to gas) at a given time. The cylinders reach their highest working pressure when being filled or immediately after high usage periods. This is the time when the risk of a release of CO2 is the greatest.

If a release does occur, the excess pressure should be vented through the safety relief circuit to a safe discharge point, if the system has been installed correctly in accordance with manufacturer's installation instructions. Cylinder manufacturers are very clear in that the safe point of discharge must be outside the building. Neither the vent nor the fill box should be below grade or in an enclosed location either inside or outside the building. Many of the incidents involving CO2 discharge (some involving injuries and death) have resulted from the vent circuit not discharging to an area of free air flow.

In Missouri, the Boiler and Pressure Vessel Safety Act places regulatory authority for these “fill in place systems” under the MO Division of Fire Safety, Boiler and Pressure Vessel Unit. The systems are rarely regulated by local jurisdictions for several reasons, but mainly because of a simple lack of knowledge of the systems themselves, and the inability to keep up with the sheer numbers of systems in service today. According to the Division, over 2000 of these systems have been inspected throughout the state. Initially, non-compliance rates were over 25%, but those rates have dropped dramatically. However, they are still finding dangerous situations such as improper venting and faulty relief valves. Either of those conditions can result in CO2 leaking into occupied spaces and can have tragic results.

The Division does require permits for new installations, and systems must be inspected every two years. But like with any state-wide program, coordination with local jurisdictions is key. Local ordinances requiring installation permits and ongoing inspections; prohibiting CO2 tanks or systems from being installed below grade; requiring CO2 leak detectors; and requiring warning signs are all options that help reduce risk and protect the public. Additionally, CO2 awareness training for first responders and owners of these systems is recommended.

The Missouri Division of Fire Safety has offered to assist with any of these endeavors. For more information on these systems, or for help with local ordinances, contact Deputy Chief Gary Scribner at (573) 751-8708 or by email at [gary.scribner@dfs.dps.mo.gov](mailto:gary.scribner@dfs.dps.mo.gov).



Beginning in September, the old fmamonline.com website was officially changed to [www.mofiremarshals.org](http://www.mofiremarshals.org). The website has been completely re-designed and has all the resources and information our members need.

Be sure to update your bookmarks!



We still have plenty of sponsorship opportunities available. If you know of a business that wants to help us in our mission saving lives and protecting property, contact Executive Director, Jason Webb at (816) 898-6101. Remember, we are a 501(c)(3), so donations and sponsorships are tax deductible!

Also, keep an eye on the website for other exciting events coming up to help raise money for our important work.

## **Continuing Education**

We have set a goal of providing at least one continuing education course in each region per year. If you are interested in hosting one of these classes, contact your regional director (their contact info is on the website) and let them know.

*An investment in knowledge always pays the best interest.*  
**-Benjamin Franklin**

## **Did You Know?**

- There were over 10,000 building fires in Missouri in 2010 (NFIRS data)
- 2010 fire losses totaled over \$2 billion in Missouri (NFIRS data)
- Missouri is ranked number 12 in fire deaths per capita in the U.S. (USFA 2008 stats)
- You have to be licensed to cut hair in Missouri, but not to install or maintain fire sprinklers!

## **Increasing Membership**

The board of directors has established several priorities for the near- and long-term. Perhaps the most important of those priorities is to increase membership.

Adding members does several things for the organization. First, it increases the reach and impact we can have within the state on the fire prevention issues that we re involved with. And secondly, it allows us to better serve our local citizens, and our departments by being part of a larger group with similar interests.

As a state-wide organization, our members come from a wide variety of backgrounds. From the most urban departments in our larger cities to the smallest communities in rural Missouri, fire prevention and protection issues affect us all, though.

We also have the challenge of geography. Missouri is a big state! Because of those reasons, we rely on our group of dedicated regional directors to preform most of the work of increasing membership. A list of those regional directors and their contact information can be found on the website.

Membership is only \$30.00 a year, and conference registration includes membership for the following year. If you haven't joined the FMAM yet, or if you know of people within or outside your department that would benefit from becoming a member of our organization, contact your regional director or visit to the website and download the membership application today!

**Sign me up!**





*2<sup>nd</sup> Annual*

## **Holiday Get-Together**

*Immediately following the  
Regular Meeting*

Wednesday, December 14<sup>th</sup>, 2011  
Mid-County Fire Protection District  
184 N. Business Route 5  
Camdenton, MO

Beginning at 10:00

Lunch provided by:



