

Winterizing Fire Protection Systems: Don't get caught out in the cold

By Tom Parrish - 10/07/2020

Each year, frozen fire sprinkler pipes and fire safety equipment are rendered ineffective due to snow and freezing temps, thereby causing a potentially serious threat to the safety of employees and customers alike.

In addition, these non-functioning fire safety systems allow a lapse in the protection of a retail location's building, stock, and machinery. And, once fire safety systems are damaged, repairs can be costly.

How to limit potential losses with working fire sprinklers

No company wants to see their brand name in the news attached to a catastrophic or injurious fire.

And, the immediate life safety of employees and customers in this type of large fire event is, naturally, always the top priority. But, the loss of a facility itself due to a large-scale fire can also impact staff and customers for months, or possibly years to come.

Even a small fire can have devastating consequences for a retail location. However, when experienced with a successful sprinkler activation, a fire tends to have a more limited impact, with some clean-up and a minimal loss of stock. These smaller incidents allow retail locations to re-open much more quickly, sometimes even the same day.

The disparity in the results of these two types of fires is based on the successful activation of a fire sprinkler system, making the maintenance and winterization of these systems essential.

NFPA 25, The Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems has various requirements that must be followed in order to maintain fire sprinkler systems properly. While the list of the requirements directly corresponds to the complexity of the system, one that is universal is checking to make sure systems have been inspected and tested, as required by the code. Most jurisdictions require a minimum of one annual test that is conducted by a licensed contractor.

Other tests and inspections are required quarterly and semi-annually. These can be completed by the facility personnel and are dependent on the specific state statutes on licensing. So, it's always important to confirm the requirements for a specific location.

Dry sprinkler system maintenance

If a location is likely to experience freezing conditions, there may be a "dry pipe sprinkler system" installed. These systems are utilized in areas that experience various fluctuations in temperature, such as attics, entry vestibules, and outside canopies.

In addition to periodic inspections of dry sprinkler systems, additional attention is required to remove any water which may potentially freeze. This additional water can typically be attributed to condensation and draining of the water within the system. When this trapped water freezes within the system, the result is often costly, damaged pipes and the possibly of additional property damage.

Removal of water is crucial, because, while the system may have been drained after testing, studies have shown it can take some time for all of the residual moisture to be eliminated from the pipes. It is also vital to make sure the air compressor, or nitrogen system, is working properly and the location that houses the valves is sufficiently heated.

In addition, a program for monitoring the condition of the system and the operation of the auxiliary drains should be instituted. Auxiliary drains should be operated on a daily basis after a dry sprinkler system operation, until several days pass with no discharge of water from the drain valve. Thereafter, it's possible to decrease the frequency to weekly or longer intervals, depending on the volume of water discharged.

If your dry pipe or pre-action systems show signs of being tripped (are filled with water), or your staff discovers excessive amounts of water when performing the drain task, it is important to contact a professional immediately to remedy the situation before a greater problem occurs.

Fire pump, backflow preventer, anti-freeze and extinguisher protection

If a facility has fire pumps and backflow preventers, they must have proper enclosures. They should be properly heated, as well.

Another system that is susceptible to cold weather issues is an anti-freeze system. These are traditionally used when the area in need of protection is relatively small and the temperatures do not get cold enough to exceed the protected temperature. These protected temperatures are dependent on the actual anti-freeze mix and need to be confirmed annually prior to the cold season to ensure there will be no issues. Map-based charts within NFPA 25 can help determine the average mean temperature and protection level.

Some fire extinguishers also need to be checked and possibly moved to warmer climates. Although water-based extinguishers (which contain an anti-freeze mix) are not common, this cannot easily be confirmed from the outside of the extinguisher. So, it's essential to know the freeze rating, or swap these out for dry powder units for the cold season.

Routine maintenance helps avoid problems

A few final notes. Once the cold weather starts to fill store parking lots with that frosty white stuff, make sure when plowing or shoveling that all exterior emergency exit doors are free of snow and ice.

Likewise, sidewalks and walkways should be properly cleared and treated.

In addition, it's crucial that when parking lots are plowed, Fire Department Connections or FDC's are not blocked or buried in snow. Fire lanes and fire hydrants should be cleared and accessible.

Finally, if you have emergency power generators or diesel fire pumps, make sure that adequate fuel is on hand. Same day delivery trucks delivering heating oil may be impacted by snow, ice, and other adverse freezing conditions.

With a little planning, retailers can keep fire safety equipment and systems in top working order during the winter months, reducing the chances of a large-scale fire event.

Tom Parrish is the VP of Telgian Corp., a worldwide fire, life safety and security firm, as well as the current Fire Marshal at Putnam Township Fire Department in Pinckney, Michigan. He also serves on several National Fire Protection Association (NFPA) committees and is the VP of the Automatic Fire Alarm Association (AFAA). he can be reached at tparrish@telgian.com.

