

Hot Topics

Helping You Protect Lives And Property

A Recent Study Shows

Portable Fire Extinguishers



Inside

- **2** Technology: Advantages of LEDs as a Light Source for Exit Signs and Emergency Lights
- Suppression Cont'd: A Recent Study Shows Portable Fire Extinguishers Reduce a Building's Carbon Footprint
- 4 Sprinklers: Locking Caps for FDC and Standpipes Improve Firefighter Safety
- **6** Exit & Emergency Lights: Emergency Lighting in Transitions
- **7** Our People: Meet Brian Petrillo, Product Solutions—Backflow
- **7** Legislation & Code: Brooks Tracks Federal Code Updates and Participates in NFPA Meetings
- Product Feature: Macurco
 Products Now Available
 at Brooks



With many citizens and governing bodies (federal, state, and local) concerned over climate change and adopting measures to limit greenhouse gases, industries across the spectrum are being asked what they are doing to lower their carbon footprint. A major contributing factor of global warming is carbon dioxide produced by accidental fires. If we want to limit carbon

emissions from fire events, we need to extinguish them as early as possible. You will be interested to learn about one study that concluded that installing portable fire extinguishers in buildings and using them before a fire has a chance to grow, is the best way to reduce carbon emissions from building fires.

The primary goal of installing and maintaining fire protection equipment in buildings is to save lives, reduce property losses, and limit business interruptions. But installing fire extinguishing equipment in buildings also limits carbon dioxide emissions when a fire is extinguished during its early stage and before the fire department arrives.

Continued on page 3



800.826.3473 • BrooksEquipment.com • MarketingSupport@BrooksEquipment.com

Get Social With Us!







At FireExtinguisherTraining.com Learn More About:

Types of Fires

Fire Extinguisher Use, Inspection, and Maintenance

The Rules of Fighting Fires and More!



Advantages of LEDs as a Light Source for Exit Signs and Emergency Lights



Incandescent lights are much less expensive than Light Emitting Diode lights (LEDs). But LEDs are not replaced as often as incandescent lights, saving your customers money in replacement costs over the long run. LEDs are also more cost-effective, as they use less electricity in exit signs. The replacement cost savings and savings in electricity are the obvious advantages of LEDs. Here is a look at other advantages of the shift from using incandescent lights to LEDs as a light source for modern emergency lights (E-lights) and exit signs.

Since the 1990s, exit sign manufacturers have been providing LEDs for illuminating exit signs. A major benefit is that the signs are much smaller than ones employing incandescent lamps. There is not only a reduced footprint on the wall, but the signs are lighter and easier to handle and install. The smaller lightweight signs are the result of a shift from relying on sealed maintenance-free lead acid batteries to smaller, more energy-efficient nickel cadmium (ni-cad), lithium iron phosphate, and nickel metal hydrate batteries. Make sure to read the Exit and Emergency Lights section on page six regarding changes in batteries.

Over the past five years, there has been a shift in technology for E-lights. Lamp-heads for E-lights that employ LEDs are much more powerful and brighter than the old-style E-lights that used incandescent lamp heads. These newer E-lights are smaller and sleeker, so they are much more ascetically pleasing for your customer's buildings. And because they are brighter, fewer E-lights are necessary to illuminate egress routes, saving your customers money on installation and maintenance costs.

Before the advent of LED lamp heads in E-lights, the standard E-light used a 6 Volt, 5.4 watt (B939) lamp for each

lamp head of an E-light. The biggest drawback of this size lamp head was the maximum mounting height at 8 feet from floor level. The reason for the relatively low mounting height was to ensure the code-required illumination of path of egress would be maintained at an average of 1 footcandle at the floor level. To properly illuminate a 60-foot hallway, conventional E-lights were installed horizontally at 12 feet from center to center (of each E-light). Therefore, five conventional emergency lights would be needed. For modern E-lights, with LED lamp heads, this 60-foot hallway can be code compliant with just one E-light. This is a huge cost-savings for your customers in not only installation cost, but the cost of maintaining just one E-light with LEDs, when compared to the cost of maintaining five conventional E-lights over the lifetime of a building.

Another advantage to LEDs in E-lights is in buildings that allow for higher mounting heights. Since they are brighter and throw off much more light than incandescent lamps, they can be mounted much higher — between 20 and 30 feet above the floor level. That means for high-ceiling applications, such as warehouses, auditoriums, and production facilities, there is a need for fewer E-lights, resulting in installation and maintenance cost savings for your customers.

Prior to LED lamp heads, the very large old-style E-light systems had a capacity of supplying 100-300 lamp-watts. Each lamp head provided 25-50 watts in order to properly illuminate the path of egress, according to code. Not only do LED lamp heads only draw 1-2 watts each, they allow a horizontal spacing of 58 feet from center to center (of each E-light) when installed at a height of 20 feet above the floor level. The savings for your customers can be realized when an existing building is renovated. You can show your customers an actual comparison of the higher number of large conventional E-lights that were removed compared to the replacement brighter LED E-lights installed higher off the floor. But make sure to inform them of not only the cost savings for installing fewer units, but the savings over time for maintaining fewer E-lights.

Your customers view E-lights as a necessity to provide safety for building occupants and to be in-compliance with local codes. Installing and maintaining exit signs and E-lights with LEDs not only improves safety by providing improved illumination along paths of egress, but there is significant savings in both initial installation costs of fewer E-lights and maintenance costs for those units over the lifetime of buildings. •

A Recent Study Shows Portable Fire Extinguishers Reduce a Building's Carbon Footprint

Carbon dioxide is a greenhouse gas, which is generated during a fire. Any reduction in carbon emissions is a benefit and will help slow global warming. What was not realized until this year is the benefit that installing and using portable fire extinguishers in reducing the carbon footprint of buildings. The reason extinguishers play such a major role is they are used to extinguish fires before much carbon dioxide is produced.



An Earlier Study on the Impact or Fire Sprinklers on a Building's Carbon Footprint

In 2009, FM Global commissioned a study¹ to estimate the total carbon emission of buildings over their lifetime, which included carbon emissions due to accidental fires. FM Global also studied the reduction of carbon emissions when automatic sprinkler systems are installed in buildings.

Federal Government's Interest in Reducing Carbon Footprint

Fast-forward to 2023 and the Fire Equipment Manufacturers' Association (FEMA) was communicating with a couple of federal government agencies over the important role that extinguishers play in safety, property protection, and business continuity. At a virtual meeting with the Government Services Administration (GSA), one of the members of FEMA Government Relations Committee (GRC) mentioned extinguishers can help reduce a building's carbon footprint because they are used to extinguish fires before much carbon dioxide is released. GSA was intrigued by this statement and asked if there was any data to support the claim. Although no data existed at the time, it was a very logical conclusion. Following the meeting, FEMA was determined to develop data to support their position.

Recent Study on Extinguishers Reducing a Building's Carbon Footprint

Aware of the FM Global work on reviewing how sprinklers can reduce a building's carbon footprint, FEMA-GRC took the next step. They communicated with Jensen Hughes, one of the most respected names in fire protection, and enrolled them to study the role that fire extinguishers play in reducing the carbon footprint of building fires².

The Jensen Hughes study found that installing and using portable fire extinguishers and extinguishing fires in the early stages of fire propagation significantly reduces carbon emissions from building fires, when compared to other extinguishment methods. Building upon the work of FM Global, Jensen Hughes found that the carbon emissions from a building fire can be reduced from 33-90 kg/m², to less than 1 kg/m² when both fire extinguishers and sprinklers are used as compared to a fire department response. Although there is a 90% reduction of fire-related carbon emissions with just sprinklers, the Jensen Hughes study shows there is a 99% reduction in carbon emissions where buildings have both automatic sprinklers and portable fire extinguishers in comparison to extinguishment by a fire department.

"...we should be encourgaing people to install and use portable fire extinguishers in all their buildings. That is, without a doubt, the very best way to save on the carbon footprint..."

Data Shows Extinguishers are Used Effectively

The Jensen Hughes study also reported on the effectiveness of portable fire extinguishers. They relied on fire extinguisher-use data collected by other organizations, including Factory Mutual Research Corporation (FMRC), Consumer Product Safety Commission (CPSC), and Fire Equipment Manufacturers' Association (FEMA). In a recent YouTube® video, Morgan Hurley, Senior Director at Jensen Hughes says "...if those portable fire extinguishers are used, the data shows they are likely to be used effectively".

The video concludes with a statement from Jim Tidwell, Code Consultant to FEMA. He says, "The bottom line is that we should be encouraging people to install and use portable fire extinguishers in all their buildings. That is, without a doubt, the very best way to save on the carbon footprint when it comes to building fires." •

'"The Influence of Risk Factors on Sustainable Development", FM Global Research Division, March 2009. https://www.fmglobal.com/~/media/Files/FMGlobal/Research%20Technical%20Reports/p09104a.pdf

²"A Review of the Impact of Fire Extinguishers in Reducing the Carbon Footprint of Building Fires", Jensen Hughes, March 2023. https://femalife-safety.org/wp-content/uploads/2023/04/Carbon-Footprint-Study-FINAL.pdf

Locking Caps for FDCs and Standpipes Improve Firefighter Safety

More and more cities are focusing on firefighter safety today than ever before. Injuries are devastating to firefighters and their families and are expensive for cities. For these reasons, cities are always looking for ways to improve safety for firefighters. One way is to install locking caps on fire department connections and standpipe hose connections. Since locking caps can only be removed by the fire department, they prevent vandalism and ensure that firefighters can make connections and readily provide a water supply to supplement fire sprinklers and supply the standpipes that are used for interior firefighting. Firefighter safety is the main reason that locking caps are endorsed by fire departments.

Water Supply for Buildings

Your city has an underground water piping system that supplies water for use in buildings. That water is not only for drinking but is also used for fire protection. The fire sprinkler system uses this water. Another use of the water is for standpipe systems, which firefighters rely on for interior firefighting.

Firefighters that arrive for a building fire will connect a hose from a fire hydrant to their pumper truck. Another hose is deployed and connects the pumper to the building. That hose ensures that adequate pressure and water-flow are available for the sprinkler system and other fire department operations that utilize the building standpipe system.

FDC and Standpipe Connections

At the heart of sprinkler system operation and standpipe system use is water supplied through the fire department connection (FDC). The FDC allows firefighters to connect hoses and supplement the water supply for sprinklers and interior firefighting operations.

In the case of standpipe systems, the water supply allows firefighters to use their hose lines on upper floors of a building. For a sprinkler system, the additional water from the FDC supplements the water needed to operate the sprinklers and allows firefighters to control and eventually extinguish a fire.

The success of these operations is dependent on successful connection to the FDC. Failure to supplement the water supply for sprinkler operation or supply water to standpipe systems could result in a delay or a failure to extinguish fires quickly and increases the possibility of firefighter injuries.

Hydrant Outlets

The starting point is a fire hydrant. Prior to connecting a hose between the hydrant and the pumper truck, a firefighter



will flow-check the hydrant. This is done by opening the hydrant and flowing water. This enables the firefighter to ensure there is no debris in the hydrant. Once proper flow is achieved, the hydrant (valve) is closed. The hose is then connected between the hydrant and the pumper.

FDC Inlets

Next, another hose is connected to the pumper and the hose is run to the FDC on the side of the building. The FDC cap is removed, and the hose is connected. The main slowdown is where FDC caps are missing. Firefighters must often remove debris prior to making the connection. Even where caps are present, firefighters check for debris as conventional caps are not secure. That means that vandals can remove a cap, insert debris, and then replace an unsecure cap.

Unlike hydrants, which have outlets that can be flow-checked, a FDC is an inlet to the fire protection piping in the building. Since the FDC is an inlet (allows water to flow into the building), it cannot be flow-checked. Any debris that is not discovered has the potential to block or limit water flow into the building. This is very dangerous for firefighters that rely on adequate water pressure and flow to support their operations.

Standpipe Connection Outlets

Standpipe connections are typically in the stairwells of buildings at the landing of a floor. The purpose is to allow firefighters to use the piping rather than lay hose from the pumper to upper floors in a building. For example, only enough hose is needed from the standpipe connection to the location of the fire on that floor. A standpipe system eliminates the need to run hose all the way down flights of stairs to the pumper.

Standpipe connections also have caps. The caps protect the threads of the hose connection. If a cap is missing, threads can be damaged. Damaged threads mean a poor and leaky connection, cross-threading, or a worst-case scenario—a connection cannot be made at all.

Locking Caps are the Solution for Safety

Locking caps are available for FDCs (threaded and unthreaded Storz) and standpipe connections. Cap sizes and thread types are dependent on local conditions (check with the fire department). Locking caps prevent vandalism and keep debris out of the FDC. Also, their removal is prevented, other than by firefighters, thereby protecting threads from damage.

Approval for Locking Caps

The locking caps installed within each city must be keyed-alike. Although fire departments that allow locking caps have many FDC and standpipe key wrenches, each key tool works on every locking cap within the city. That is what is meant by "keyed-alike". This also means that the fire department must approve the use of locking caps before they are installed. Fire Departments in Express Jurisdictions

have approved the use of FDC Locking Caps. Click here for a list of Express Jurisdictions

The importance of making the connection to the FDC or standpipe is often overlooked until it is too late. Since it is only firefighters that make these connections, it is of the utmost importance that caps remain secure until the fire department arrives on the scene of a building fire. This can only be accomplished with locking caps.

For current Express Jurisdiction Cities, locking caps became a necessity for safety of firefighters. We can work together to expand the list of Express Jurisdiction Cities to include additional cities within your state, because we believe that locking caps are necessary for FDCs and standpipe connections, which improves safety for all firefighters that must use these connections. Learn More

Decision Making for Installation of FDC and Standpipe Locking Caps



Emergency Lighting in Transition!

If you have attended one of my Emergency Lighting classes, either through Brooks or the FED Learning Center, you would have heard me say, "The thing I love about the emergency lighting industry is it is always in a state of transition or constantly evolving."

In the 1960s, lead acid batteries had become the hallmark of batteries used in emergency lighting. Ironically, the first emergency lights had "wet" nickel cadmium batteries. The lead acid batteries became a better source for emergency lights as they were cheaper and had no "memory issues" like the nickel cadmium batteries.



In the early 1990s, the primary battery was a sealed, maintenance-free lead acid battery. Then, two important things happened that helped shape the emergency lighting Industry. The first was the advent of exit signs utilizing LEDs instead of lamps. The second was Congress passing the Energy Bill.

The Energy Bill, when passed, stated that exit signs could no longer be manufactured, requiring more than five lamp watts. So, the bar was set, and incandescent or fluorescent exit signs were out. Incandescent and fluorescent signs typically consume 20-40 lamp watts per sign. At that time, the earliest LED exit signs did just that. They used only 5 lamp watts.

As the years progressed, the LEDs in exit signs became brighter and more energy efficient. Exit signs today generally draw two lamp watts or less. Considering the millions of signs out there, a lot of energy is being saved.

Now that these signs consumed only two watts of energy, the industry realized that the lead acid batteries were no longer needed. A typical exit sign would have used two 6V 3.6 W lamps (B909 lamps) to provide illumination when the building's electricity went out. Now, the LED board used to light the sign could be used for both the AC and DC operation of the exit sign. With the typical exit sign

only using two or fewer watts, these signs were physically becoming smaller because they no longer needed a power pack on top of the exit sign to house the Lead Acid battery. The industry turned to nickel-cadmium, small double A-sized cells could easily fit into the new exit sign without blocking or interfering with the lighting of the word EXIT, and most importantly, they could eliminate the power pack. So, the signs became energy efficient and physically smaller. The ni-cad batteries also offered other benefits. They had a better and higher operating temperature range and had a long shelf life and service life.

That's great for exit signs, but what about the emergency lights?

The emergency lights have only trended away from lead acid batteries in the past five years. The main reason was emergency lights, unlike exit signs, have much higher lamp-watt requirements that require larger batteries. Even though, for example, your smallest emergency light generally consumed 11 lamp watts (2- B939 lamps), which the PRB64 battery routinely covered. The lead acid battery was far more economical.

Recently, LED technology has exploded to unbelievable heights. Back in the '90s, none would have ever thought that traffic lights, high bay fixtures, car lamp heads, and even flashlights could be powered by LEDs. So, with the LED lamp heads reducing the number of lamp watts per sign (while dramatically increasing light output), lead acid batteries were again replaced by nickel cadmium batteries.

In these examples, we saw lead being replaced by nicad. Now, because of the advancement in LED and battery technology, applications that use ni-cad batteries are being replaced by lithium iron phosphate batteries. And the evolution continues.

The most notable benefit of lithium iron phosphate batteries is holding their voltage constant during discharge. If a unit has a lead acid or a ni-cad battery, its voltage declines as it discharges (during a power outage). Thus, as the voltage of the battery declines, so does the wattage of your lamps. But, with lithium iron phosphate, the battery's voltage remains the same (in most cases) either 3.6 VDC or 9.2 VDC for 90 minutes. The benefit of this is that the illumination level of the unit will also remain the same in minute 90 as in minute one of the discharge. So, in terms of life safety, providing continuous light levels for safe and efficient facility egress is a considerable benefit. •

Bob Mete is the Emergency Light product specialist at Brooks Equipment and is also an instructor at the FED Learning Center, where he teaches FEDs the why and how of selling and servicing Emergency Lighting.

Meet Brian Petrillo, Product Solutions—Backflow

In May 2023, Brian joined Brooks in our Product Solutions Backflow Division. Before joining Brooks, Brian spent a decade at East End Backflow, a Division of R. Essay Plumbing & Heating, in Southampton, NY. As the lead in their Backflow Division, he performed/oversaw testing, repairing, and installing backflow preventer assemblies. He also headed up inventory for the warehouse and work vehicles and prepared customer estimates. Plus, he trained new technicians.

Today, Brian offers technical support on backflow products to Brooks customers and account managers. Growing up in Argentina and in the United states, Brian is fluent in both Spanish and English, enabling him to help Brooks customers overcome installation challenges or questions. He truly enjoys sharing his backflow knowledge and experience with anyone who needs it.

If not for Brooks, Brian says he would be pursuing a career in the sound engineering industry. "I have always been interested in sound editing for movies (sound effects, music scores, etc.)," says Brian. And his motto is all about respecting yourself and others and never stop learning.

Brian's favorite place anywhere in the world is a warm beach, alongside his wife and kids. And watching them play in the sand brings him peace. He's got another favorite. This time, it's something you eat—Argentinianstyle BBQ.

When not at work, Brian enjoys spending time with his wife and two children. Besides going to the beach,



he likes listening to music. A fun fact about Brian that many people don't know is that he was raised in a house where Soccer is considered a religion (Argentinian mother, Italian father). He inherited this passion through them and passed it to his children, Delfina and Luka.

Legislation & Code

Brooks Tracks Federal Code Updates and Participates in NFPA Meetings



Extinguishers for Military Facilities

At a recent meeting of the Fire Equipment Manufacturers' Association (FEMA), it was reported that the Dept of Defense (DoD) has committed to updating Uniform Facilities Criteria (UFC), in accordance with the National Defense Authorization Act (NDAA), to require portable fire extinguishers throughout military facilities, in accordance with the requirements of NFPA 1, Fire Code. Implementation guidance is also being developed for existing facilities where portable fire extinguishers were removed, based on an earlier edition of the UFC. FEMA is now seeking a timeline from DoD for updating the UFC and developing the guidance document.

NFPA 10, Standard for Portable Fire Extinguishers

Brooks sent two engineers (committee members) to the recent meeting of the NFPA Technical Committee on Portable Fire Extinguishers held Oct 31 − Nov 2 in Quincy, MA. The first draft report developed at that meeting contains the proposed revisions to NFPA 10. The report will be posted for review and public comment on March 21, 2024. The committee will meet again later next year to review and act on any comments received on the first draft report. ◆

Macurco Products Now Available at Brooks!



Macurco Gas Detection equipment offers one of the industry's best ranges of gas detection solutions for around-the-clock monitoring of deadly gases. These wirelessly connected systems are reliable, with advanced capabilities and easy operation, making them ideal for a host of industrial, commercial, and institutional settings.





Commerical Series Applications:

- Parking Garages
- Mechanical Rooms
- Restaurants
- Charging Stations
- Breweries
- Storage Facilities
- Loading Docks
- Warehouses
- And More

CME1 Applications:

- Homes
- Schools/University Dorms
 Apartments
- Hotels/Condos
- Offices

- Retail Stores
- Airports
- And More









PM400 Series Applications:

- Confined Space Entry
- Oil & Gas
- Heavy Metal & Steel
- Chemical Plants
- Pulp & Paper
- Municipalities • Food & Beverage
- Construction
- And More

Disclaimer: The opinions expressed in the articles are the author's only and provide limited information. Although the information is believed to be reliable, Brooks Equipment Company, LLC expressly disclaims any liability for errors or omissions. The user of this article(s) or the product(s) is responsible for verifying the information's accuracy from all available sources, including the product manufacturer. The authority having jurisdiction should be contacted for code interpretations.















