Massachusetts Dept. of Fire Services' tracking tool finds 50 lithium-ion battery fires in 6 months

Standard Nationwide Method Recorded About 20 Per Year.

"STOW—The Massachusetts Department of Fire Services' new tool for tracking lithium-ion battery fires has helped to identify 50 such incidents in the past six months, more than double the annual average detected by a national fire data reporting system, said State Fire Marshal Jon M. Davine.

The Department of Fire Services launched its Lithium-Ion Battery Fire Investigative Checklist on Oct. 13, 2023. It immediately went into use by the State Police Fire & Explosion Investigation Unit assigned to the State Fire Marshal's office, and local fire departments were urged to adopt it as well. Developed by the DFS Fire Safety Division, the checklist can be used by fire investigators to gather basic information about fires in which lithium-ion batteries played a part. That information is then entered into a database to identify patterns and trends.

"We knew anecdotally that lithium-ion batteries were involved in more fires than the existing data suggested," said State Fire Marshal Davine. "In just the past six months, investigators using this simple checklist have revealed many more incidents than we've seen in prior years."

Prior to the checklist, the state's fire service relied on battery fire data reported to the Massachusetts Fire Incident Reporting System (MFIRS), a state-level tool that mirrors and feeds into the National Fire Incident Reporting System (NFIRS). NFIRS tracks battery fires but does not specifically

gather data on the types of batteries involved. Some fields do not require the detailed information that Massachusetts officials were seeking, and some fires may be coded according to the type of device involved rather than the type of battery. Moreover, MFIRS reports sometimes take weeks or months to be completed and uploaded.

“Investigators using the Lithium-Ion Battery Fire Checklist are getting us better data faster,” said State Fire Marshal Davine. “The tool is helpful, but the people using it are the key to its success.”

From 2019 to 2023, an average of 19.4 lithium-ion battery fires per year were reported to MFIRS – less than half the number identified by investigators using the checklist over the past six months. The increase since last fall could be due to the growing number of consumer devices powered by these batteries, increased attention by local fire investigators, or other factors, State Fire Marshal Davine said. For example, fires that started with another item but impinged upon a battery-powered device, causing it to go into thermal runaway, might not be categorized as a battery fire in MFIRS or NFIRS.

Lithium-ion battery fires were reported in 38 cities and towns. Nine of the fires involved micromobility devices such as battery-powered scooters, e-bikes, and hoverboards, making them the most commonly involved in fires, according to the data. Eight fires involved laptops and another eight involved cell phones, tablets, or similar devices. Power tools were involved in six fires. The device’s charging status could be determined in 41 of the 50 fires: surprisingly, 56% of these devices were not charging at the time of the incident.

Lithium-ion batteries power everything from small devices like e-cigarettes and smartphones to scooters, e-bikes, and electric vehicles. If they are overcharged, overheated, or abused, they can fail rapidly and without warning. A lithium-ion battery that goes into thermal runaway will erupt in an

explosion of toxic gases and flames that will ignite nearby furnishings. Water and traditional fire extinguishers are significantly less effective against lithium-ion battery fires.

State Fire Marshal Davine offered the following safety tips for preventing lithium-ion battery fires:

• Be sure you have working smoke alarms installed on every level of your home.
• Use only the original equipment manufacturer’s batteries and charging equipment. Aftermarket or generic batteries and chargers may be cheaper but are more likely to pose a burn, fire, or explosion hazard.
• Store scooters and e-bikes outdoors if possible. If you must store them indoors, keep them and their batteries clear of doors, windows, and stairways.
• Charge the battery directly from a wall outlet, not an extension cord or power strip. Place it on a hard and stable surface, not a bed, couch, or pillow.
• Charge only one battery or device at a time and unplug it when it’s fully charged. Don’t allow a charged battery to continue charging.
• If you notice changes to the battery or the device, including damage, an unusual odor, a change in color, too much heat, change in shape, leaking, smoking, or not keeping a charge, stop using it right away.
• If and when it’s time to dispose of the battery, don’t put it in the trash. Lithium-ion batteries should be recycled, and you can find a location to take them at https://www.call2recycle.org/locator/.

Residents can learn more about lithium-ion battery safety at the Department of Fire Services’ Lithium-Ion Battery Safety web page.”-Massachusetts Department of Fire Service.