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CANADA'S RENTAL HOUSING MARKET

LITHIUM-ION BATTERY SAFETY

By Stacey Wilson, Vice-President Client Executive, BFL CANADA

It's fitting that as people become more dependent on battery powered products ranging from e-bikes to cordless vacuums, to laptops, and do-it-yourself power tools, the slogan for fire safety week this past October was titled "Charge into Fire Safety: Lithium-Ion Batteries in Your Home."



The goal was to inform the public about the importance of safely using the Li-ion batteries that keep their equipment running, including how to carefully charge and recycle batteries. And despite their incredible benefits, Li-ion batteries are increasingly under scrutiny as they are responsible for many residential fires. It also served as a reminder that fire safety is more than a weekly thought, it should be with us 52 weeks of the year.

As insurers, we're on the front lines of dealing with fires in multi-unit and single dwelling homes across the country and we see the destruction and upheaval they cause for many, especially those living in units that did not cause the blaze but suffer its consequences.

Remarkably, reliable data on specific causes of residential fires is not collected across Canada. Statistics Canada does report that most structural fires are caused by kitchen fires, (mostly due to unattended appliances) and improperly discarded cigarettes, (i.e. falling asleep while a cigarette is still lit). Statistics collected by our organization show that fire damage accounts for the largest dollar value of claims, more even than water damage.

But on the focus of fire safety, professionals are increasingly concerned with Li-ion batteries that are often behind house and residential fires.

We've seen a range of products from e-bikes to cordless vacuums and cellphones grow exponentially as Canadians embrace mobile and bat-

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tery powered options. For example, many health-conscious Canadians are trading in their cars for battery powered bikes and scooters and are even using them to commute to work. In 2022 alone, sales of e-bikes hit 70,000 across the country and are continuing to reach higher levels.

But behind these benefits, there is a risk that lithium batteries catch on fire. These fires can cause serious property damage and, in some cases, have resulted in severe injuries.

The problem with Li-ion batteries is their density which is what allows them to store the required energy to power bikes and other devices. In some cases, they can suffer from thermal runaway, which is an uncontrolled chemical reaction that causes heat and then fire.

Common causes of these types of fires occur because of over-charging, poor storage conditions, damage to the battery from cracks and impacts, manufacturing defects and severe temperatures.

WHAT CAN BATTERY OWNERS DO TO PREVENT FIRES?

Due to the risk of fire from batteries, users should ensure that they purchase a recognized brand from a reputable manufacturer. In the case of e-bikes, look for the newly developed CAN/UL 2849 standard, which assures consumers that they are making a safe purchase. This standard isn't currently required in Canada so you may come across other lower quality options that might be of questionable quality.

For other devices such as portable electronic devices, IEC 62133 is an international standard for the safety of rechargeable Li-ion batteries, which are commonly used in a wide range of consumer electronics and other applications. The IEC 62133 standard sets out requirements and tests for the safety and performance of Li-ion batteries used in portable electronic devices, including cell phones, laptops, tablets, and other devices.

IEC 60335-2-2:2019 deals with the safety of electric vacuum cleaners and water suction cleaning appliances for household and similar purposes, including vacuum cleaners for animal grooming, their rated voltage being not more than 250 V. It also applies to centrally-sited vacuum cleaners and automatic battery-operated cleaners. If you are unsure, check with the Canada Standards Council.

STEPS FOR BATTERY SAFETY

To minimize the risk of fire, these simple steps should ensure safe keeping:

- Never modify the device's battery system or use after-market rapid chargers.
- Don't substitute batteries that are not designed for or compatible with your product.
- Always inspect the battery to look for cracks, leaks or other damage. Impacts from rocks and other points of contact could increase the risk of a runaway thermal event.
- Remove the battery from the charger or the device (if safe to do so), should the battery become hot or produces smoke.
- Store devices, especially bikes, in a well-ventilated area that is protected by sprinklers and smoke detectors.
- Never leave an e-bike or e-scooter on a balcony or anywhere near combustible materials.
- Batteries should not be charged overnight, and a charging battery should not be left unattended.
- Batteries should not be charged near flammable materials such as beds and furniture.
- Batteries should not be stored on a full charge. Instead, ensure the battery is fully drained and stored in a metal cabinet.

Once the battery reaches the end of its life, it should not be disposed of in the garbage. Recycle Batteries Canada offers a website that locates drop off locations for safe recycling.

Battery powered devices are new territory for property managers and apartment owners alike as they come to terms with policies to keep residents safe while recognizing the importance of this new activity.

As battery powered products continue to grow in popularity, property managers and apartment owners cannot stop residents from having them on the premises and are best advised to work out practical rules and policies to minimize risk and ensure safety. In the case of e-bikes, policies can be complicated by the fact that each residence could have more than one e-bike on the premises. E-bikes are often heavier than regular bikes and present challenges when moving them through hallways and into elevators.

One option is to provide residents with a safe space to charge and store their e-bikes to minimize risk. However, many residents are reluctant to store an expensive bike even in a secure area for risk of it being stolen. Some buildings have, or are exploring, additional theft prevention with security cameras and providing wash areas to reduce dirt and grease being tracked into the building.

While the issue around batteries is still evolving, ongoing communications need to be provided about the risks of e-battery fires to residents through regular updates such as newsletters and emails. These need to remind residents of best practices and the risks associated with fires whether it's their phone, laptop, vacuum or e-bike.

WHAT TO DO IF THERE'S A THERMAL RUNAWAY FIRE

If a battery starts to produce smoke or catches on fire, step away from the device and call the fire department immediately. BFL Engineers note that Li-ion batteries involve intense heat and cannot be extinguished using a regular fire extinguisher. However, an ABC extinguisher can be used to put any fire out that has spread around the area of the battery fire.

Fire safety starts with all of us, and it will be an important reminder this year as we recognize those batteries are an important part of our daily lives but can cause a lot of damage if not properly maintained and controlled.



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