Managing the hidden risks of lithium-ion batteries as spring arrives

As Canadians transition from winter to spring, garages and sheds across the country are coming to life. Homeowners are swapping out electric snowblowers for battery-powered lawnmowers, trimmers, and leaf blowers. While the convenience of lithium-ion technology has revolutionized home maintenance, these high-energy units require more than a casual glance before they are plugged in for the season.

Unlike the standard AA batteries used in television remotes, lithium-ion batteries pack an immense amount of energy into a small space. If they are damaged, overcharged, or used with the wrong equipment, they can enter thermal runaway – a state where the battery generates heat faster than it can dissipate, leading to explosive fires that are difficult to extinguish.

A nationwide surge in battery-related fires

The risks associated with these batteries are reflected in a sharp upward trend in fire incidents across Canada.

- Toronto Fire Services reported 90 lithium-ion battery fires in 2025, an 18% increase from the year before and a 63% jump compared to 2023.
- Vancouver has seen a similar escalation, with rechargeable battery fires nearly doubling between 2021 and 2024.
- Montreal Fire Service has tracked a 195% rise in battery-related calls since 2022.

These fires present a unique challenge to first responders because they burn hotter and more unpredictably than traditional structure fires. In British Columbia, fire officials have even coined the term “battery concussion”– a bruise or internal damage caused by dropping a device that can lead to a delayed, catastrophic failure.

These incidents are not limited to one region. Fire chiefs nationwide are acknowledging the risks as households accumulate more battery-powered devices. In Edmonton, a single lithium-ion battery disposed of in regular trash caused a fire at a landfill that resulted in over $2.5 million in damage. Proper handling is essential not just for your home's safety, but for the safety of the entire downstream waste management system.

Preparing seasonal tools for safe use

After months of sitting in cold storage, seasonal tools need a thorough inspection before their first use of the year. Dust, moisture, and temperature fluctuations can affect the integrity of both the battery and the charging hardware.

Before you start your spring gardening or woodworking projects:

- inspect the charging ports and the battery casing for any visible signs of damage, wear, or swelling.
- ensure you’re using the specific charger designed for that battery; misplacing chargers during the winter and using a generic replacement is a major risk factor for overheating.

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- verify that the battery is inserted correctly according to the manufacturer's instructions – fires have been started when batteries were plugged in backwards.

Best practices for charging and storage

Safe battery management requires mindfulness during everyday tasks. These units should never be treated with the same casualness as low-energy household items.

To reduce the risk of fire in your home:

- **Avoid overcharging.** Do not leave batteries plugged in for extended periods once they reach a full charge. Set a timer or alarm on your phone to remind you to unplug the unit.
- **Charge in safe locations.** Keep the battery on a flat, cool surface away from direct sunlight and combustible materials like clothes or paper.
- **Use standalone outlets.** Plug your charger directly into a wall outlet rather than an overused power cord or a crowded daisy-chain of extensions, which adds unnecessary heat to the system.
- **Supervise the process.** Whenever possible, avoid charging batteries overnight or when you are away from home. Unattended batteries are the most common culprits in thermal runaway events.

The importance of proper disposal

When a battery no longer holds a charge or shows signs of damage, it must be disposed of through the correct channels. Never place lithium-ion batteries in your regular garbage or recycling bins. Most municipalities have dedicated hazardous waste programs or drop-off locations for these items.

By taking these small but critical precautions, you can enjoy the efficiency of modern tools while protecting their homes and communities from preventable hazards.

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