# Lithium Ion Storage and Recharging Policy

Lithium batteries power a wide array of devices used daily. These type batteries are used in such common devices as cell phones, laptop computers, computer tablets, power hand tools, and electric cars.

## Property and Injury from Fire Issue

Rechargeable lithium battery cells contain lithium metal which is highly combustible. Lithium metal is a soft, silver-white metal. It is violently flammable and reacts to water and other substances generating great heat. Burning Lithium creates a metal fire generating temperatures of over 3600 degrees Fahrenheit. That kind of heat will warp/collapse building structure as well as ignite surrounding boxes, furniture and other combustibles.

## Storage

Lithium battery fire risk can be managed through properly storing the batteries. Suggested storage practices include:

- Store batteries at room temperature between 40- and 80-degrees F.
- Do not expose the battery pack to direct sunlight (heat) for extended periods.
- Do not leave a battery charging unattended. Should the battery be damaged it can overheat and become a fire source.
- Store batteries separately from other hazards such as combustibles, flammable liquids, plastics or other highly flammable materials.
- Battery storage areas should not be subject to high temperatures, sources of open flame, or spark-generating equipment.

## Causes of Battery Fires

- Over-charging (usually with older battery models that lack an automatic power shut off sensor.)
- The battery charger used is not the manufacturer-designed for the battery being charged and causes short-circuiting.
- Battery failures resulting in energy-release (the battery itself fails and releases stored energy rapidly creating heat and venting gases from the battery that can potentially ignite.
- Improper storage of lithium batteries (sunlight exposure, extreme heat, etc.)
- Battery storage with flammables or combustibles.
- Failure to dispose of the battery after the expiration date or when the battery no longer functions properly / hold a charge (batteries tend to physically deteriorate / come apart once past their prime.)
- Water and liquid substances contact with a live-battery's storage material.
- Attempting to charge a non-rechargeable battery.
- Improper storage of batteries.
- Sunlight heat or other heat sources cause the battery to overheat.

## Battery Recharging Overview

- Never charge batteries unattended.
- Never charge batteries inside vehicles.
- Designate a specific battery charging area. This also applies where charging takes place outside of the residential unit i.e. community room, exercise area, garage, etc.
- Use a quality charger. Consider the following features:
    - Use the specifically designed by the manufacturer charger to recharge the battery.
    - Follow the battery manufacturer's charging instructions.
    - Designed to charge various types of batteries including Nickel Metal Hydride (NiMH) rechargeable battery, Nickel Cadmium rechargeable battery (NiCd) and Lead Acid rechargeable battery as well as Lithium Ion rechargeable battery.
- Know and follow the manufacturer directions for the battery maximum charging rate. If any swelling of the casing is detected, stop charging, place the battery in a segregated, protected location away from other batteries and combustible materials and monitor for at least one hour.
- Charge batteries individually. Do not charge groups of batteries at the same time on the same charger unless manufacturer states in writing the charger is designed to perform multiple charging's.
- Maintain as much space as possible between charging batteries to avoid fire spread between batteries.
- Let batteries cool to the touch before charging.
- Trust your judgement. If you think something is not right – overheating, battery case swelling, electrical smell – immediately quit charging the battery and place it in a safe, segregated area free of flammables and combustibles. Immediately contact location maintenance and location management!

## Proper Lithium Battery Extinguishing

- **Do not use water on a burning lithium battery because lithium metal fires react violently with water and combustible substances. Mixing water with lithium can cause a chemical reaction resulting in additional heat release of over 3000 degrees Fahrenheit.**
- Activate the building's fire alarm.
- Let the fire department fight fires.
- Residents or employees should not use a fire extinguisher unless formerly trained in the proper operation of an extinguisher.
- Note: Only Class D fire extinguishers that contain a copper powder are approved for combating a Lithium fire.
- Because Lithium battery fires can spread from one battery cell to the next, it is critical any burnt battery be isolated **outside of the building** for some time to **better contain** further fire risk from the battery reigniting.

**The Lithium Battery Policy has been reviewed with me.**

**Resident Name** **Unit Number** **Date**

**Location Manager / Authorized Location Supervision** **Date**