

Risk Management & Loss Control Considerations for Electric Buses

Hazards & Recommendations:

- **Hazard** - Electric buses (E-buses) mostly have lithium-ion batteries installed. There have been reported fires associated with E-buses caused by the batteries reaching thermal runaway due to failure of components in the batteries. These fires are reported to be very intense and extremely rapid in ignition. These fires have been known to occur at unforeseen times and during overnight while E-buses are left to charge. If a fire were to occur due to a thermal runaway event due to a faulty battery cell, needed maintenance issues, or other potential causes, specialized fire suppression may be needed. Even after these events are suppressed, other adjacent batteries may have been compromised resulting in another similar event.

Recommendation – Work with the E-bus manufacturer, leasing company (if applicable), electrical contractor, local fire department, local fire marshal and local police to explore all potential hazards, and response times. End goal is to form an emergency response plan that adequately addresses the known hazards.

- **Hazard** - Battery discharge, proper maintenance of batteries and related components, and proper disposal of batteries.

Recommendation - Maintenance technicians need to be fully trained on battery discharge procedures to mitigate the opportunity for thermal runaway and/or workplace hazards due to electrical shock. Maintenance management providers for batteries should be contacted to identify and address preventative maintenance, storage, and disposal of batteries.

- **Hazard** - Inadequate training for E-bus drivers. There are different types of hazards associated with E-buses versus the traditional diesel/gas powered buses.

Recommendation – Ensure E-bus drivers have attended training in recognizing early warning signs of a thermal runaway or in the response to such an event. Yearly training for drivers in all aspects of the above-described events and all hazards response. Train staff, students, and all riders of the E-buses on how to detect immediate initial warning signs of a fire and the proper response techniques if a fire were to happen. Driving characteristics of an E-bus are different. Drivers should be thoroughly trained to avoid

collisions, hard breaking, and other adverse events that can lead to accidents or incidents.

- **Hazard** – E-bus Charging Station Location

Recommendation – Do not attach charging station to a school, near regular bus fleet and/or heavy foot traffic areas. Large electrical charging cables can pose trip and fall hazard(s). Ensure charging station is in a dry area with proper drainage so water doesn't "pool." It is suggested that the E-buses be parked for charging purposes off campus. The site should have access for local public safety and/or other approved personnel to oversee the vehicles to deter any vandalism or other unwanted actions.

We are currently in the process of getting copies of all the presentations associated with the series talked about in this press release:

https://www.napt.org/blog_home.asp?Display=47

Risk Management & Loss Control Resources:

EXCLUSIVE INTERVIEW: Dr. Thomas Barth, NTSB –

<https://school-busride.com/exclusive-interview-dr-thomas-barth-ntsb/>

NTSB Investigations of EV Fires –

<https://wiki.unece.org/download/attachments/60358932/EVS16-E7OI-0600%20%5BUS%5DNTSB%20electric%20vehicle%20fire%20investigations.pdf?api=v2> - pdf download

New Fire Safety Requirement –

<https://www.thebigredguide.com/insights/electric-buses-spark-fire-safety-requirements.1635855016.html>

Fire Prevention & Risk Management –

<https://rip.trb.org/view/1893354#:~:text=Damaged%20cells%20in%20the%20battery,similar%20events%20in%20adjacent%20cells>

YouTube Video – Electric Bus Fire

https://m.youtube.com/watch?v=T71cVhxG_v4

Contractual Risk Transfer - Installation of Charging Stations, Electrical & General Construction:

While being a Multi-Line member does provide you with a multitude of coverages for many events, the program is not a complete blanket of protection against all risks of harm. One area members need to be attentive to is contracting with outside entities. Please review and utilize the documents below when contracting with outside entities.

- Overview of Contractual Risk Transfer
- Recommended Insurance Requirements for Vendors
- Request for a Certificate of Insurance - Sample
- How to Read a Certificate of Insurance
- Contractor Labor/Employee Selection Follow Up Letter
- Hold Harmless Agreement - Sample
- Certificate of Insurance Tracking Form- Sample

Above Documents can be found online at: <https://www.vsbit.org/contractual-risk-transfer>

Contract Review Program – Have our legal counsel review your contracts for free as a Member benefit!

https://vermontschoolboardsinsurancetrust.formstack.com/forms/contract_review