

EXISTING ELEVATOR MODERNIZATION/FIRE ALARM INTERFACE

PURPOSE

This interpretation provides clarity when a new Elevator Recall Control Supervisory Panel (ERCSP) or Firefighter Emergency Operation (FEO) is installed on existing elevators as per the Elevating Devices Codes Regulation AR 192/2015 and the ASME A17.1/CSA B44 Safety Code for Elevators and Escalators. This clarification is for building owners, operators, designers, fire alarm installers, fire alarm technicians, electricians, elevator constructors as well as Safety Codes Officers in the Elevator, Building, Fire and Electrical disciplines.

DISCUSSION

Changes to the Elevating Devices Code have resulted in some confusion between the Elevating Devices Code, the National Building Code – 2019 Alberta Edition (NBC(AE)) and the National Fire Code – 2019 Alberta Edition (NFC(AE)) related to upgrading existing elevators when installing new ERCSPs.

Some of the questions raised are:

- 1) What are the concerns for a building, regarding changes to the Fire Alarm System (FAS)?
- 2) What types of equipment and standards must be used to deal with the detection and notification portions of the FEO?
- 3) What are the requirements for “professional involvement” and permitting?
- 4) What are the requirements for verification or re-verification of the FAS after FEO is installed?
- 5) What are the inspection, testing and maintenance requirements for detection and notification equipment?

APPLICATION

This interpretation applies to all buildings where an existing elevator is upgraded or modernized to the current standards with a new ERCSP and the mandatory requirements for FEO.

INTERPRETATION

Issuance of this STANDATA is authorized
by the Provincial Fire, Building, Elevating Devices and
Electrical Administrators



This interpretation will provide clarity when upgrading an elevator to have FEO, the FEO upgrade requirements, the FAS requirements that correspond with an FEO upgrade, and the inspection, testing and maintenance requirements for the ERCSP and FAS. This document will also provide different examples of modification types for further clarification.

Building owners are not required to upgrade the elevator controller; however, when the owner of an existing elevator decides to perform an alteration or modernize the elevators to current standards, the elevator(s) shall have FEO.

The requirement to have FEO does not, create a requirement to install an FAS in a building. Conversely having an FAS in the building does not, create any requirement to upgrade the elevator system to include FEO.

Where the elevator in an existing building which has an FAS is modernized and FEO is added, all of the additional detection devices, components and wiring, which are required when upgrading the elevator system to FEO, shall be part of the FAS.

Note: It is not acceptable to have two systems for detecting combustion products in a building. This would lead to confusion among owners, occupants and servicing personnel and creates unreasonable operational difficulties for building operators and the responding fire department.

Requirements:

- 1) All equipment used to detect products of combustion and control elevators shall meet the appropriate referenced CAN/ULC Standards* (CAN/ULC-S527 for control panels, CAN/ULC-S529 for smoke detectors) referenced in the current NBC(AE) and the current NFC(AE). The spacing, wiring, and installation shall comply with the appropriate portions of CAN/ULC-S524 Installation of Fire Alarm Systems, as referenced in the current version of the NBC(AE).
- 2) Where the building is of a size/type where its design and construction requires (or would have required) professional involvement as per the NBC(AE) the design and installation of additional fire alarm equipment shall also require professional involvement.
- 3) Where devices are added to a building with a fire alarm system, to accommodate FEO, the FAS shall have its operation verified as per the current requirements of the NBC(AE), NFC(AE) and CAN/ULC-S537. If this addition required professional involvement for design and installation, the verification shall also require professional involvement.
- 4) Only smoke detectors that conform to CAN/ULC-S529 shall be used for smoke detection in an FEO system (smoke alarms are not permitted).
- 5) All FEO detection and notification systems shall be maintained annually in accordance with CAN/ULC-S536, either as part of the FAS or, where no FAS exists, as the independent ERCSP. Records of this maintenance shall be retained on-site for at least two years as per the NFC(AE).
- 6) Installation of new devices and wiring for FEO, both in a stand alone system, in a building with no FAS, and where the FEO devices are part of the existing FAS, shall require the owner, designer or installer to obtain a Building Permit from the authority having jurisdiction

(AHJ). If a new circuit or additional wiring to existing circuits is installed, an Electrical Permit from the AHJ shall be required as well.

- 7) Elevators without emergency backup power supplied shall be identified to firefighters by signage in each car, in symbols and text no less than 30 mm in height on a contrasting background, as below:

 **Normal Power”.**

- 8) FEO upgraded elevators with emergency backup power supplied shall be identified to firefighters in each car with symbols and text no less 30 mm in height on a contrasting background as below:

 **Emergency Power”.**

Possible Modernization Types

- 1) Existing building where the owner decides to upgrade to FEO and the building does not have a FAS
- FEO smoke detectors mounted in elevator lobbies (within 6.4 m of all hoistway entrances), hoist way and machine room,
 - The FEO does not require the installation of an FAS,
 - An ERCSP shall be installed in a building mechanical/electrical room but not in the elevator machine room. This panel shall be identified as the ERCSP by signage on the panel cover, in letters no less than 30 mm in height on a contrasting background and in addition, state in the same lettering that:

“This is NOT a Fire Alarm System”.
 - This system shall have the ERCSP detection designed and installed in accordance with the relevant portions of the referenced version of CAN/ULC-S524 in the current NBC(AE).
- 2) Existing building where the owner decides to upgrade to FEO and the building does have a FAS
- FEO smoke detectors shall be mounted in elevator lobbies (within 6.4 m of all hoistway entrances), hoistway and machine room,
 - All detection and control of the elevators in FEO shall be through the Fire Alarm Control Panel (FACP),
 - Upgrading may need to be accomplished by using an addressable FAS or require the use of smoke detectors (heat detectors in the machine room may be possible) with integral relays for the purpose of providing signals to the elevator controller and this shall all be connected to the FACP in an approved manner (CAN/ULC-S529, S530, and S524). Where smoke detectors with integral relays are used, a fault in the

elevator signalling wires shall cause the elevator to go to its recall position. The system shall be configured for normally closed contacts so that a break in the wiring shall be immediately detected by the elevator going to its recall position. A separate ERCSP providing a single signal to the FAS will not be acceptable.

- d. Unsupervised (120V systems with no annunciator or control panel) fire alarm configurations are not able to be upgraded to provide FEO as per ASME A17.1/CSA B44 which requires electrical supervision of the system devices and therefore shall be replaced by a compliant FAS at the time the elevator controller is upgraded.
- 3) Existing building where the FAS is upgraded and the owner has decided not to upgrade elevators to FEO
- a. The upgrade to the FAS does not generate any requirement to upgrade the elevator system,
 - b. No additional smoke detectors are required to be mounted in elevator lobbies, hoistway and machine room,
 - c. No FEO is required to be installed in building.

Designers, and the local Fire Department need to engage in full discussion of the requirements and expectations of the elevator and its interface to any FAS prior to the installation or upgrade of an elevator which utilises newer technology to provide FEO in accordance with ASME A17.1/CSA B44.

Note: New Buildings shall comply with all the applicable requirements for the Building, Fire, Electrical and the Elevating Devices Codes Regulations.

*The following ULC documents are referenced in this STANDATA:

CAN/ULC-S524, "Installation of Fire Alarm Systems"
ULC-S527, "Control Units for Fire Alarm Systems"
CAN/ULC-S529, "Smoke Detectors for Fire Alarm Systems"
CAN/ULC-S530, "Heat Actuated Fire Detectors"
CAN/ULC-S536, "Inspection and Testing of Fire Alarm Systems", and
CAN/ULC-S537, "Verification of Fire Alarm Systems"

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