

STANDATA interpretation 19-EDI-013/19-BCI-031

Elevating Devices/Building

Firefighters' Emergency Operation for alterations (FEO)

Date Issued: March 2023

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Purpose

This clarifies the requirements for Firefighters' Emergency Operations (FEO) when alterations are being made to existing elevating devices.

Discussion

Since 1975, there have been significant changes to the application for FEO in ASME A17.1/CSA B44 "Safety Code for Elevators and Escalators". The changes continued to increase the level of safety for emergency responders and the public.

Prior to the 1989 edition of ASME A17.1 there was no requirement for phase I or phase II FEO for an elevator with a rise of 50 feet or less. The 1989 to 1992 editions of ASME A17.1 required phase I for an elevator with a rise of 25 feet or more. In 1996, fire alarm initiating devices were introduced for automatic recall and designated landings. When an alteration to an elevator is undertaken in an existing building, the addition of FEO is always encouraged to support improved life safety for the occupants and emergency responders.

The National Building Code-2019 Alberta Edition (NBC(AE)) provides acceptable minimum standards for the construction and installation of life safety systems like FEO, including application of these standards when alterations are made to a building. While buildings are subject to the building code requirements in force at the time of construction, alterations typically are assessed as new construction and held to the standard of the current building code in force. It is critical that the registered professional involved in the design of the elevator system, particularly where alterations are involved, assesses the compatibility of the alterations with the existing building systems to ensure the life safety systems operate as intended and support the objectives of the building and elevator codes.

Unless stated otherwise, all Code references in this STANDATA are to ASME A17.1-2019/CSA B44-19

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The requirement for smoke detectors to be installed in elevator machine rooms and to recall the elevator upon actuation was first introduced in the Alberta Building Code 2014 (ABC 2014), which came into force May 1, 2015. The application of Elevator Emergency Return was introduced in the Alberta Building Code 1990 (ABC 1990) which came into force September 1, 1991.

The addition of FEO is always encouraged during an alteration. If the fire alarm system is upgraded, NBC(AE) article 3.2.4.11 applies. If the fire alarm system is planned for upgrading at a future date, a variance extending the timeline for a FEO upgrade may be considered.

Under the *Safety Codes Act*, the “owner” or the person having care and control is responsible for the compliance of any thing, process, or activity regulated by the Act including regulations, codes, and standards adopted under the Act. The registered professional should engage the owner regarding the installation of FEO, including specific conditions associated with the existing life safety systems and proposed alterations involving existing and new systems.

Code References

National Building Code-2019 Alberta Edition (NBC(AE)) Division A, Article 1.1.1.2.

1.1.1.2. Application to Existing Buildings

- 1) This Article applies to a *building* that has been legally built, occupied and used before 01 April 2019.
- 2) If a *building* is altered, rehabilitated, refurbished, renovated or repaired, the level of life safety and *building* performance shall not be decreased.
- 3) Except as specified in Part 10 of Division B, the *authority having jurisdiction* shall accept any construction or condition that lawfully existed in Alberta before 01 April 2019 if the construction or condition does not constitute an *unsafe condition*.
- 4) A change in *occupancy* or *alteration* of any *building* constructed before 01 April 2019 shall be permitted if the level of safety and *building* performance proposed are acceptable to the *authority having jurisdiction*.
- 5) For a *building* constructed before 01 April 2019, the *authority having jurisdiction* may accept an alternative or a proposal that achieves the appropriate level of safety for the specific activity for which the *building* is to be used.
- 6) The *authority having jurisdiction* may accept existing construction not in complete compliance with this Code, in which case it may be accepted, subject to conditions.

NBC(AE) Division A, Sentence 1.5.1.2.(1)

1.5.1.2. Conflicting Requirements

- 1) In case of conflict between the provisions of this Code and those of a referenced document, the provisions of this Code shall govern.

NBC(AE) Division B, Sentence 3.5.2.1.(1)

3.5.2.1. Elevators, Escalators and Dumbwaiters

- 1) The design, construction, installation and *alteration* of every elevator, escalator, passenger-elevating device, freight platform lift and dumbwaiter shall conform to the Elevating Devices Codes Regulation made pursuant to the *Safety Codes Act*. (See Note A-3.5.2.1.(1).)

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NBC(AE) Division B, 3.2.4.11.(1)(g) and (4)**3.2.4.11. Smoke Detectors**

- 1) If a fire alarm system is installed, *smoke detectors* shall be installed in
g) elevator machine rooms.

(See Note A-3.2.4.11.(1).)

- 4) *Smoke detectors* required in Clause (1)(g) shall, upon actuation, recall the elevators served by the elevator machine room in which the *smoke detector* is installed.

NBC(AE) Division B, Article 3.2.4.14.**3.2.4.14. Elevator Emergency Return**

- 1) Except as permitted by Sentence (3), in a *building* having elevators that serve *storeys* above the *first storey* and that are equipped with an automatic emergency recall feature, *smoke detectors* shall be installed in the elevator lobbies on the recall level so that when these *smoke detectors* are actuated, the elevators will automatically return directly to an alternate floor level.
- 2) *Smoke detectors* required by Sentence (1) shall be designed as part of the *building* fire alarm system.
- 3) The alternate floor recall feature required by Sentence (1) is not required if the *floor area* containing the recall level is *sprinklered* throughout.

NBC(AE) Division B, Article 3.2.6.1.**3.2.6. Additional Requirements for High Buildings**

(See Note A-3.2.6.)

3.2.6.1. Application

- 1) This Subsection applies to a *building*
- a) of Group A, D, E or F *major occupancy* classification that is more than
- i) 36 m high, measured between *grade* and the floor level of the top *storey*, or
 - ii) 18 m high, measured between *grade* and the floor level of the top *storey*, and in which the cumulative or total *occupant load* on or above any *storey* above *grade*, other than the *first storey*, divided by 1.8 times the width in metres of all *exit* stairs at that *storey*, exceeds 300,
- b) containing a Group B *major occupancy* in which the floor level of the highest *storey* of that *major occupancy* is more than 18 m above *grade*,
- c) containing a *floor area* or part of a *floor area* located above the third *storey* designed or intended as a Group B, Division 2 or 3 *occupancy*, or
- d) containing a Group C *major occupancy* whose floor level is more than 18 m above *grade*.

NBC(AE) Division B, Article 3.2.6.4. (High Buildings)**3.2.6.4. Emergency Operation of Elevators**

- 1) Elevators shall comply with the Elevating Devices Codes Regulation made pursuant to the Safety Codes Act.
- 2) Special Emergency Services, as defined in the Elevating Devices Codes Regulation made pursuant to the Safety Codes Act, shall be provided in all elevators.
- 3) Manual emergency recall shall be provided for all elevators serving *storeys* above the *first storey*.
- 4) Key-operated switches for emergency recall required by Sentence (3) shall be provided in a conspicuous location at
- a) each elevator lobby on the recall level, and
 - b) the central alarm and control facility required by Article 3.2.6.7.
- 5) In-car emergency service switches shall be provided in all elevator cars.
- 6) Keys to operate the switches required by Sentences (4) and (5) shall be

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- a) provided in a suitably identified box conspicuously located on the outside of an elevator hoistway near the central alarm and control facility required by Article 3.2.6.7., and
- b) kept at the central alarm and control facility.

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8.7.1.1 Applicability of Alteration Requirements.

When any alteration is performed, regardless of any other requirements of Section 8.7, the installation, as a minimum, shall conform to the following applicable Code requirements:

- (a) the Code at the time of installation
- (b) the Code requirements for the alteration at the time of any alteration
- (c) ASME A17.3 if adopted by the authority having Jurisdiction

8.7.2.27.4 Controllers (Electric Elevators)

- (c) Where both a motion controller and an operation controller are installed without any change in the type of motion control as described in (a) and without any change in the type of operation control as described in (b), the installation shall conform to the following
 - (8) in jurisdictions enforcing the NBCC, 2.27.3 through 2.27.9 [as modified by 8.7.2.28(c) through 8.7.2.28(f)] apply only if Firefighters' Emergency Operation was required or provided at the time of installation.
 - (9) (e) Where a controller for the elevator operation on emergency or standby power systems or Firefighters' Emergency Operation is installed, see 8.7.2.28.

8.7.3.31.5 Controllers (Hydraulic Elevators)

- (c) Where both a motion controller and an operation controller are installed without any change in the type of motion control as described in (a) and without any change in the type of operation control as described in (b), the installation shall conform to the following
 - (7) In jurisdictions enforcing the NBCC, 3.27.1 through 3.27.4 [as modified by 8.7.3.31.8(c) through 8.7.3.31.8(f)] and 2.27.3 through 2.27.9 [as modified by 8.7.2.28(c) through 8.7.2.28(f)] apply only if Firefighters' Emergency Operation was required or provided at the time of installation.
 - (8) (e) Where a controller for the elevator operation on emergency or standby power systems or Firefighters' Emergency Operation is installed, see 8.7.3.31.8.

8.7.2.28 Emergency Operation and Signaling Devices (Electric Elevators)

- (c) Where an alteration is made to, or consists of the addition of, Firefighters' Emergency Operation or Occupant Evacuation Operation, the elevator and all elevators in the same group automatic operation shall conform to 2.27.3 through 2.27.8 and 2.27.11.
- (d) Where the alteration consists of the addition of an elevator to a group, all elevators in that group shall conform to Section 2.27.
- (f) Change in type of service (8.7.2.16.1), controllers (8.7.2.27.4), type of motion control (8.7.2.27.5), or type of operation control (8.7.2.27.6) requires emergency operations and signaling devices to be altered, conforming to Section 2.27.
- (g) The requirements of (f) shall be permitted to be modified according to the requirements of 8.7.2.28.

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8.7.3.31.8 Emergency Operation and Signaling Devices (Hydraulic Elevators)**8.7.3.31.8 Emergency Operation and Signaling Devices**

- (c) Where an alteration is made to, or consists of the addition of, Firefighters' Emergency Operation, the elevator and all elevators in the same group, automatic operation shall conform to Section 3.27, except 2.27.1 and 2.27.2. For inspection and test requirements, see 8.10.3.3.2(m).
- (d) Where the alteration consists of the addition of an elevator to a group, all elevators in that group shall conform to Section 3.27. For inspection and test requirements, see 8.10.3.3.2(m).
- (f) Changes in type of service (8.7.3.17), controllers (8.7.3.31.5), type of motion control (8.7.3.31.6), or type of operation control (8.7.3.31.7) require emergency operations and signaling devices to be altered, conforming to Section 2.27.
- (g) The requirements of (f) shall be permitted to be modified according to the requirements of 8.7.3.31.8.

Application

This joint interpretation applies to alterations of existing elevating devices in buildings where FEO was not required or installed at the time of installation.

Interpretation

1. The alterations section 8.7 of ASME A17.1/CSA B44 addresses multiple requirements that cover all aspects of the elevator. Under section 8.7.1.1 "Applicability of Alteration Requirements", determining if FEO can be omitted requires review of the applicable building code and elevator code in force at the time of initial installation. During the permit process the registered professional involved must verify that FEO was not required at the time of initial installation. ASME A17.3 is not adopted in Alberta, so clause 8.7.1.1(c) does not apply.
2. Sections 8.7.2.27.4 and 8.7.3.31.5 apply to alterations to controllers. A controller with FEO capabilities is not considered an installed FEO system.
3. If FEO is altered under sections 8.7.2.28 or 8.7.3.31.8, it must meet all requirements of 2.27.3.
4. Under Sentence 1.1.1.2.(5) in Division A, of the NBC(AE), the Building Safety Codes Officer (SCO) of the Authority Having Jurisdiction may accept an alternative or proposal that achieves the appropriate level of safety for the specific activity for which the building is to be used. Where FEO is not required under 8.7.2.27.4 and 8.7.3.31.5, the Building SCO and a Level 2 Elevating Devices SCO must review the alteration application. The building and the level 2 elevating devices SCO may attach conditions to the alteration application.
5. With reference to Sentence 1.1.1.2.(4) in Division A of the NBC(AE), the installation of an elevator recall system designed by a registered professional is interpreted as an acceptable level of safety and building performance when an alteration is undertaken. If an elevator undergoes a subsequent alteration, the installation date referenced in 8.7.1.1(a) will be the date of the previous major alteration. FEO under Sections 8.7.2.28 and 8.7.3.31.8 will apply.

This INTERPRETATION is applicable throughout the Province of Alberta.

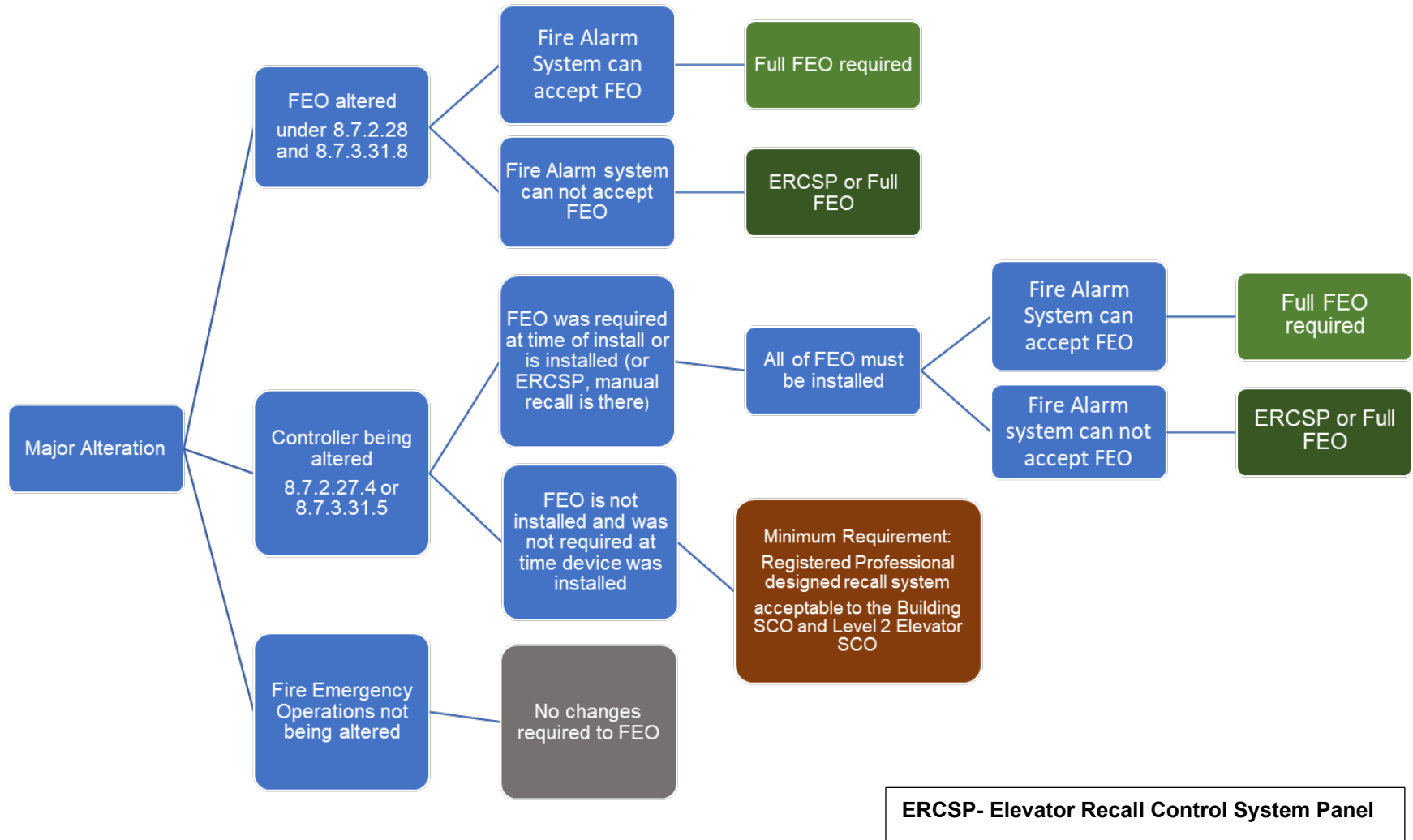
This STANDATA replaces joint STANDATA 19-FCI-016, 19-BCI-022, 13-EDI-001, 18-CECI-007 Existing elevator modernization/fire alarm interface.

Note: Appendix "A" Flow Chart example

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Appendix “A” Flow Chart



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