Proposal Summary

Traction Elevators (Measure #1)

Updated Wednesday, July 24, 2025

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Measure Description

The proposed code change would add requirements as a new subsection to Section 120.6(f) of the California Building Energy Efficiency Standard's mandatory requirements for elevators. The changes would add mandatory requirements for the power conversion system, which drives the elevator motor. Existing code requirements for elevator lighting and ventilation efficiency would not be affected. The existing exception for healthcare facilities would not be changed.

This would impact new elevators that meet the following criteria:

- Have a rise equal to or greater than 20 feet.
- Have a load capacity equal to or greater than 2,000 lbs.
- Have a rated speed equal to or greater than 150 feet per minute.
- Use counterweighted traction technology (hydraulic elevators are exempt)

The elevators meeting the above criteria would be required to have a regenerative drive that recovers potential energy and returns it to the building electrical system rather than dissipating the electricity in a resistor bank. The drive would have to meet or exceed a 90 percent total power factor.

Table 1 summarizes the scope of the proposed code change.

Table 1: Scope of Proposed Code Change

An “X” indicates the proposed code change is relevant.

Building Type(s)		single family	**Construction Type(s)**	X	new construction
		multifamily		X	additions
	X	nonresidential		X	alterations
Type of Change	X	mandatory	**Updates to Compliance Software**	X	no updates
		prescriptive			update existing feature
		performance			add new feature
Third Party Verification	X	no changes to third party verification			
		update existing verification requirements			
		add new verification requirements			

Justification for Proposed Change

Elevator operation accounts for 2-5 percent of electricity usage in modern buildings, and more than 1,000 commercial traction elevators are constructed in California each year. Requiring the use of regenerative drives would provide building owners with significant cost savings over the 30-year analysis period. Regenerative drives are already found on most high-rise traction elevators and some low-rise elevators. This proposal would expand the use of regeneration to all elevators serving a rise of 20 feet or more, approximately equivalent to a three-story building. The cost of adding a regenerative drive and enabling its use is small to negligible, and the lifecycle savings is high, leading to an overwhelming cost-effective efficiency improvement for building owners. Reduced energy use by the elevator system yields additional reductions in the cooling load of the building by reducing heat in the elevator machine room.

The Statewide CASE Team engaged stakeholders during the previous Title 24 2025 code cycle on this topic. Additional work is on-going in ASHRAE and International Energy Conservation Code (IECC) national model code efforts that align with this Title 24, 2028 traction elevator proposal.

The European Union commissioned an effort to establish a framework for setting efficiency requirements for elevators. The effort started in 2017 and lasted two years. The final report examined existing elevator standards and a feasibility and cost-effective analysis of approaches to elevator efficiency.

Data Needs / Information Requests

The Statewide CASE Team is seeking the following information to inform the code change proposal. Data may be provided anonymously. To participate or provide information, please email Fawn Brooks, FawnBrooks@2050partners.com, directly and copy info@title24stakeholders.com.

Costs

The Statewide CASE Team has engaged with industry consultants to estimate negligible additional costs for adding a regenerative drive to a traction elevator. Please provide additional cost estimates for our review.

Feasibility

Please identify source of information for the power factor for regenerative drives. How best may the power factor for regenerative drives be verified?

Identify for us additional circumstances where a regenerative drive may not be well suited for a building type or use.

Code Changes

We provided an exception to the regenerative drive requirement for various circumstances where the building's electrical load may be incompatible; please let us know if the code language is ambiguous or challenging to interpret.

We request comments on the interaction of this code proposal with other existing California regulations, industry standards, or best practices.

Life Cycle

The elevators were assumed to require an overhaul / modernization every 25 years, with standard maintenance needed yearly. If your maintenance or modernization timelines are different, please let us know.

Draft Code Language

1.1 Guide to Marked Up Language

The proposed changes to the Standards and Reference Appendices are provided below. Changes to the 2025 documents are marked with blue underlining (new language) and ~~strikethroughs~~ (deletions).

1.2 Title 24, Part 1

There are not proposed changes to Title 24, Part 1.

1.3 Title 24, Part 6

SECTION 120.6(f) Mandatory requirements for elevators. Elevators shall meet the following requirements**:**

1. Elevator energy recovery: New traction elevators, with a rated capacity of 2,000 pounds or greater, a rated speed of 150 feet per minute or greater, and have a total rise of 20 feet or greater, shall have a regenerative drive that recovers energy released during motion and supplies electrical energy to the building electrical system. Braking resistors or resistive load bank shall be permitted to absorb regenerated energy only during emergency generator operation. Drives must meet or exceed a 90 percent total power factor.

Exception 1 to Section 120.6(f)1. Stand-alone parking garages, where the calculated total building electrical load under normal operation is less than the load needed to absorb regenerated power from the elevator system.

2. ~~1~~ The light power density for the luminaires inside the elevator cab shall be no greater than 0.6 watts per square foot.

Exception to Section 120.6(f)2~~1~~: Interior signal lighting and interior display lighting are not included in the calculation of lighting power density.

3. ~~2~~ Elevator cab ventilation fans for cabs without space conditioning shall not exceed 0.33 watts per cfm as measured at maximum speed.

4. ~~3~~ When the elevator cab is stopped and unoccupied with doors closed for over 15 minutes, the cab interior lighting and ventilation fans shall be switched off until elevator cab operation resumes.

5. ~~4~~ Lighting and ventilation shall remain operational in the event that the elevator cabin gets stuck when passengers are in the cabin.

6. ~~5~~ Elevator Lighting and Ventilation Control Acceptance. Before an occupancy permit is granted for elevators subject to 120.6(f), the following equipment and systems shall be certified as meeting the Acceptance Requirement for Code Compliance, as specified by the Reference Nonresidential Appendix NA7. A Certificate of Acceptance shall be submitted to the enforcement agency that certifies that the equipment and systems meet the acceptance requirements specified in NA7.14.

EXCEPTION to Section 120.6(f): Elevators located in healthcare facilities.

1.4 Reference Appendices

Nonresidential Appendix

NA7 Appendix NA7 – Installation and Acceptance Requirements for Nonresidential Buildings and Covered Processes

NA7.14 Elevator Regenerative Drive, Lighting and Ventilation Controls

NA7.14.1 Construction Inspection

Verify and document the following prior to functional testing:

a) Elevator has regenerative drive enabled.

b) The occupancy sensor has been located to minimize false signals, and the elevator cab does not have any obstructions that could adversely affect the sensor's performance.

~~b~~ c) For PIR sensors, the sensor pattern does not enter into the elevator lobby.

~~c~~ d) For ultrasonic sensors, the sensor does not emit audible sound.

Note that some elevators are able to use weight sensors to provide occupancy sensing. In this case, document that the elevator uses weight sensing to provide occupant sensing and proceed to the functional test.

NA7.14.2 Functional Testing

For each elevator cab being tested, confirm the following:

a) Verify that the lighting and ventilation controlled inside the elevator cab turn off after 15 minutes from the start of an unoccupied condition.

b) Verify that the signal sensitivity is adequate to achieve desired control. The sensor should not detect motion in the elevator lobby.

c) Verify that lighting and ventilation immediately turn "on" when an unoccupied condition becomes occupied.

d) Verify that the lighting and ventilation will not shut off when occupied. Stand in the elevator with the door closed.