



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE
BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: 5-26-21

CODE INFORMATION

Proposed change to: ☐ Building Code ☒ Fire Safety Code

Code section(s): Table 1207.6

PROPONENT INFORMATION

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PROPOSAL INFORMATION

Description of change and reason for change (attach additional information as needed):

Change "No" to "Yes" in Table and add new footnote. See Attached.

Proposed text change, addition or deletion (attach additional information as needed):

Change entry for Lithium-ion/Exhaust Ventilation. See Attached.

Supporting data and documents (attach additional information as needed)

See attached.

☒ **This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)

☐ **This Comment is not original material, its source (if known) is as follows:** (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)

☐ **I would like to make an in-person presentation of my proposal.**

Release

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Proponent's Signature

Scott Lang

Printed Name

PLEASE EMAIL (PREFERRED) TO DAS.CodesStandards@CT.GOV OR MAIL OR FAX (SEE BELOW)

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Affirmative Action/Equal Opportunity Employer

12/29/16

Description of change and reason for change (attach additional information as needed):

While lithium-ion battery installations do not produce flammable gases under normal conditions like lead-acid batteries, they do produce flammable gases when venting during abuse due to overheating or overcharging and also during thermal runaway. Exhaust ventilation should be provided if UL 9540A testing shows that these gases may be produced under abnormal conditions.

Proposed text change, addition or deletion (attach additional information as needed):

COMPLIANCE REQUIRED ^b		BATTERY TECHNOLOGY				OTHER ESS AND BATTERY TECHNOLOGIES ^b	CAPACITOR ESS ^b
Feature	Section	Lead-acid	Ni-Cd and Ni-MH	Lithium-ion	Flow		
Exhaust ventilation	1207.6.1	Yes	Yes	No Yes ^f	Yes	Yes	Yes
Explosion control	1207.6.3	Yes ^a	Yes ^a	Yes	No	Yes	Yes
Safety caps	1207.6.4	Yes	Yes	No	No	Yes	Yes
Spill control and neutralization	1207.6.2	Yes ^c	Yes ^c	No	Yes	Yes	Yes
Thermal runaway	1207.6.5	Yes ^d	Yes	Yes ^e	No	Yes ^e	Yes

a. Not required for lead-acid and nickel-cadmium batteries at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC.

b. Protection shall be provided unless documentation acceptable to the fire code official is provided in accordance with Section 104.8.2 that provides justification why the protection is not necessary based on the technology used.

c. Applicable to vented-type (i.e., flooded) nickel-cadmium and lead-acid batteries.

d. Not required for vented-type (i.e., flooded) lead-acid batteries.

e. The thermal runaway protection is permitted to be part of a battery management system that has been evaluated with the battery as part of the evaluation to UL 1973.

f. Exhaust ventilation is required when flammable gases are released under abnormal conditions.

Supporting data and documents (attach additional information as needed)

An example of the need for this requirement is the APS ESS incident in Surprise, AZ. In this incident, there was a single cell failure which vented and released gas. That single cell then propagated to the entire battery rack, releasing enough flammable gas to allow the container to reach an explosive level of gas. The investigation into the incident and the causes have been well documented by DNV-GL and Underwriters Laboratories.