
B432(2)-21; B433-21; EB604-21 1 message

From: **Moldovan, Florin** <florin.moldovan@dhcd.virginia.gov>
Date: Mon, May 16, 2022 at 3:39 PM
Subject: B432(2)-21; B433-21; EB604-21
To: <Samiri@arlingtonva.us>

Good afternoon Shahriar,

I hope you've enjoyed your time away from the office and were able to recharge your batteries.

We have processed the subject noted code change proposals but while doing so, have identified some potential issues. Given that the deadline for code change submission has passed, the proposals can no longer be modified in cdpVA. However, potential changes could still be made to the proposals that made the deadline of May 1st (yours obviously did make the deadline). Said changes would be introduced during the General Stakeholder Workgroup (GW) meetings in June, as floor modifications.

What we have done in the past is, request a word document from the proponent ahead of the meeting, clearly showing what has changed from the version of the proposal found in the cdpVA. Basically, the underlined and/or struck text in said document, would **show the changes from what was originally submitted in cdpVA**. As such, for your proposals, if you were to propose any changes via floor modifications, you could just remove the underlines to start with a fresh document and then show the changes to it via underlines/strikethroughs. As long as you send the documents to us a few days prior to the respective GW June meeting, that should be fine. That way, we could share the revisions on the screen during the meeting.

Attached you will find an annotated word document for each of the proposals in question (please disregard the somewhat wacky formatting issues - I've just downloaded the proposal from cdpVA in word format so that I can easily add comments to it. I've fixed the formatting some, as I was reviewing them, but it is not perfect by any means).

Please let me know if you have any questions, or if you want to meet and discuss this further.
Thank you.


Sincerely,


Florin Moldovan, MCP
Code and Regulation Specialist

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[Virginia Codes](#)

3 attachments

 **B432(2)-21_FM Notes and Comments.docx**
56K

 **B433-21_FM Notes and Comments.docx**
28K

 **EB604-21_ FM Notes and Comments.docx**
27K

B432(2)-21

VCC: 432 (New)

Proponents:

Shahriar Amiri (samiri@arlingtonva.us)

2018 Virginia Construction Code

Add new text as follows:

432 Energy Storage Systems (ESS).

Proponents: Shahriar Amiri
(samiri@arlingtonva.us)

3/15/2022

Revision 1:

3/21/2022

2021 Virginia Construction Code

SECTION 432

ELECTRICAL ENERGY STORAGE SYSTEMS (ESS)

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432.1 General. The provisions of this Section shall apply to installation, testing, and of stationary and mobile electrical energy storage systems (ESS).

Exception: ESS in Group R-3 and R-4 occupancies shall comply with Section 432.1.1.

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432.1.1 Scope. ESS having capacities exceeding the values shown in Table 432.1.1 shall comply with this section.

Commented [MF(1)]: Suggest "the" be inserted here.

Commented [MF(2)]: Suggest replacing comma with "and".

Commented [MF(3)]: "And" is out of place here, should be removed.

TABLE 432.1.1 ENERGY STORAGE SYSTEM (ESS) THRESHOLD QUANTITIES

TECHNOLOGY	ENERGY CAPACITY ^a
CapacitorESS	3 kWh
Flow batteries ^b	20 kWh
Lead-acid batteries, all types	70 kWh ^c
Lithium-ionbatteries	20 kWh
Nickel metal hydride (Ni-MH)	70 kWh

Nickel-cadmium batteries (Ni-Cd)	70 kWh
Other battery technologies	10 kWh
Other electrochemical ESS technologies	3 kWh

For SI: 1 kilowatt hour = 3.6 megajoules.

a. Energy capacity is the total energy capable of being stored (nameplate rating), not the usable energy rating. For units rated in amp-hours, kWh shall equal rated voltage times amp-hour rating divided by 1,000.

b. Shall include vanadium, zinc-bromine, polysulfide-bromide and other flowing electrolyte-type technologies.

c. Fifty gallons of lead-acid battery electrolyte shall be considered equivalent to 70 kWh.

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432.1.2 Construction documents. The following information shall be provided with the permit application:

1. Location and layout diagram of the room or area in which the ESS is to be installed.

2. Details on the hourly fire-resistance ratings of assemblies enclosing the ESS.

3. The quantities and types of ESS to be installed.

4. Manufacturer's specifications, ratings and listings of each ESS.

5. Description of energy (battery) management systems and their operation.

6. Location and content of required signage.

7. Details on fire suppression, smoke or fire detection, thermal management, ventilation, exhaust and deflagration venting systems, if provided.

8. Support arrangement associated with the installation, including any required seismic restraint.

9. A commissioning plan complying with Section 432.2.1.

10. A decommissioning plan complying with Section 432.2.3.

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432.1.3 Hazard mitigation analysis. A failure modes and effects analysis (FMEA) or other approved hazard mitigation analysis shall be provided in accordance with Section 104.8.2.1 under any of the following conditions:

1. Where ESS technologies not specifically identified in Table 432.1.1 are provided.

2. More than one ESS technology is provided in a room or enclosed area where there is a potential for adverse interaction between technologies.

3. Where allowed as a basis for increasing maximum allowable quantities. See Section 432.5.2.

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Commented [MF(4)]: Given that all the provisions under this proposal are new to the VCC, the struck text must not be shown/included here.

432.1.3.1 Fault condition. The hazard mitigation analysis shall evaluate the consequences of the following failure modes. Only single failure modes shall be considered.

1. A thermal runaway condition in a single ESS rack, module or unit.
2. Failure of any battery (energy) management system.
3. Failure of any required ventilation or exhaust system.
4. Voltage surges on the primary electric supply.
5. Short circuits on the load side of the ESS.
6. Failure of the smoke detection, fire detection, fire suppression or gas detection system.
7. Required spill neutralization not being provided or failure of a required secondary containment system.

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432.1.3.2 Analysis approval. The code official is authorized to approve the hazardous mitigation analysis provided that the consequences of the hazard mitigation analysis demonstrate:

1. Fires will be contained within unoccupied ESS rooms or areas for the minimum duration of the fire-resistance-rated separations identified in Section 432.7.4.
2. Fires in occupied work centers will be detected in time to allow occupants within the room or area to safely evacuate.
3. Toxic and highly toxic gases released during fires will not reach concentrations in excess of the IDLH level in the building or adjacent means of egress routes during the time deemed necessary to evacuate occupants from any affected area.
4. Flammable gases released from ESS during charging, discharging and normal operation will not exceed 25 percent of their lower flammability limit (LFL).
5. Flammable gases released from ESS during fire, overcharging and other abnormal conditions will be controlled through the use of ventilation of the gases, preventing accumulation, or by deflagration venting.

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432.1.4 Large-scale fire test. Where required elsewhere in Section 432, large-scale fire testing shall be conducted on a representative ESS in accordance with UL 9540A. The testing shall be conducted or witnessed and reported by an approved testing laboratory and show that a fire involving one ESS will not propagate to an adjacent ESS, and where installed within buildings, enclosed areas and walk-in units will be contained within the room, enclosed area or walk-in unit for a duration equal to the fire-resistance rating of the room separation specified in Section 432.7.4. The test report shall be provided to the code official for review and approval in accordance with Section 104.8.2.

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432.2 Commissioning shall be conducted in accordance with this section.

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432.2.1 Commissioning. Commissioning of newly installed ESS shall be subject to special inspection and conducted prior to the ESS being placed in service in accordance with a commissioning plan that has been approved prior to initiating commissioning. The commissioning plan shall include the following:

Commented [MF(5)]: This appears to be a remnant from the IFC. Suggest removing from the proposal as the reference is incorrect and would result in invalid provisions/references.

1. A narrative description of the activities that will be accomplished during each phase of commissioning, including the personnel intended to accomplish each of the activities.
2. A listing of the specific ESS and associated components, controls and safety-related devices to be tested, a description of the tests to be performed and the functions to be tested.
3. Conditions under which all testing will be performed, which are representative of the conditions during normal operation of the system.
4. Documentation of the owner's project requirements and the basis of design necessary to understand the installation and operation of the ESS.
5. Verification that required equipment and systems are installed in accordance with the *approved* plans and specifications.
6. Integrated testing for all fire and safety systems.
7. Testing for any required thermal management, ventilation or exhaust systems associated with the ESS installation.
8. Preparation and delivery of operation and maintenance documentation.
9. Training of facility operating and maintenance staff.
10. Identification and documentation of the requirements for maintaining system performance to meet the original design intent during the operation phase.
11. Identification and documentation of personnel who are qualified to service, maintain and decommission the ESS, and respond to incidents involving the ESS, including documentation that such service has been contracted for.
12. A decommissioning plan for removing the ESS from service, and from the facility in which it is located. The plan shall include details on providing a safe, orderly shutdown of energy storage and safety systems with notification to the code officials prior to the actual decommissioning of the system. The decommissioning plan shall include contingencies for removing an intact operational ESS from service, and for removing an ESS from service that has been damaged by a fire or other event.

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Exception: Commissioning shall not be required for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC. A decommissioning plan shall be provided and maintained where required by the *code official*.

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432.2.1.1 Initial acceptance testing. During the commissioning process an ESS shall be evaluated for proper operation in accordance with the manufacturer's instructions and the commissioning plan prior to final approval.

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432.2.1.2 Commissioning report. A report describing the results of the system commissioning, including the results of the initial acceptance testing required in Section 432.2.1.1, shall be provided to the *code official* prior to final inspection and approval and maintained at an *approved* on-site location.

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432.2.3 Decommissioning. Decommissioning shall be performed in accordance with the decommissioning plan that includes the following:

1. A narrative description of the activities to be accomplished for removing the ESS from service, and from the facility in which it is located.
2. A listing of any contingencies for removing an intact operational ESS from service, and for removing an ESS from service that has been damaged by a fire or other event.

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432.3 Equipment. ESS equipment shall ~~be in accordance conform with~~ Sections 432.3.1 through 432.3.9.

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432.3.1 Energy storage system listings. ESS shall be *listed* in accordance with UL 9540.

Exception: Lead-acid and nickel-cadmium battery systems installed in facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76, are not required to be *listed*.

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432.3.2 Equipment listing. Chargers, inverters and energy storage management systems shall be covered as part of the UL 9540 listing or shall be *listed* separately.

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432.3.3 Utility interactive systems. Inverters shall be *listed* and *labeled* in accordance with UL 1741. Only inverters *listed* and *labeled* for utility interactive system use and identified as interactive shall be allowed to operate in parallel with the electric utility power system to supply power to common loads.

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432.3.4 Energy storage management system. Where required by the ESS listing, an *approved* energy storage management system that monitors and balances cell voltages, currents and temperatures within the manufacturer's specifications shall be provided. The system shall disconnect electrical connections to the ESS or otherwise place it in a safe condition if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage are detected.

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432.3.5 Enclosures. Enclosures of ESS shall be of noncombustible construction.

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432.4 General installations requirements. Stationary and mobile ESS shall comply with the requirements of Sections 432.4.1 through 432.4.12.

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432.4.1 Electrical disconnects. Where the ESS disconnecting means is not within sight of the main electrical service disconnecting means, placards or directories shall be installed at the location of the main electrical service disconnecting means indicating the location of stationary storage battery system disconnecting means in accordance with NFPA 70.

Commented [MF(6): Given that all the provisions under this proposal are new to the VCC, the struck text must not be shown/included here.

Commented [MF(7): The .3 series of subsections ends at 432.3.5. The 432.3.9 reference needs to be updated accordingly.

Exception: Electrical disconnects for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC shall be permitted to have electrical disconnects signage in accordance with NFPA 76.

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432.4.2 Working clearances. Access and working space shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment in accordance with NFPA 70 and the manufacturer's instructions.

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432.4.3 Fire-resistance-rated separations. Rooms and other indoor areas containing ESS shall be separated from other areas of the building in accordance with Section 432.7.4. ESS shall be permitted to be in the same room with the equipment they support.

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432.4.4 Seismic and structural design. Stationary ESS shall comply with the seismic design requirements in Chapter 16, and shall not exceed the floor loading limitation of the building.

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432.4.5 Vehicle impact protection. Where ESS are subject to impact by a motor vehicle, including forklifts, vehicle impact protection shall be provided in accordance with Section 312 of the International Fire Code.

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432.4.6 Combustible storage. Combustible materials shall not be stored in ESS rooms, areas or walk-in units. Combustible materials in occupied work centers covered by Section 432.4.10 shall be stored at least 3 feet (914 mm) from ESS cabinets.

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432.4.7 Toxic and highly toxic gases. ESS that have the potential to release toxic and highly toxic gas during charging, discharging and normal use conditions shall be provided with a hazardous exhaust system in accordance with Section 502.8 of the International Mechanical Code.

432.4.8 Signage. Approved signs shall be provided on or adjacent to all entry doors for ESS rooms or areas and on enclosures of ESS cabinets and walk-in units located outdoors, on rooftops or in open parking garages. Signs designed to meet both the requirements of this section and NFPA 70 shall be permitted. The signage shall include the following or equivalent:

1. "ENERGY STORAGE SYSTEM," "BATTERY STORAGE SYSTEM," "CAPACITOR ENERGY STORAGE SYSTEM" or the equivalent.

2. The identification of the electrochemical ESS technology present.

3. "ENERGIZED ELECTRICAL CIRCUITS."

4. Where water-reactive electrochemical ESS are present, the signage shall include "APPLY NO WATER."

5. Current contact information, including phone number, for personnel authorized to service the equipment and for fire mitigation personnel required by Section 432.1.6.1.

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Commented [MF(8): The proposal does not include Section 432.1.6.1 Either item 5 needs to be revised accordingly, or, the section must be added to the proposal.

432.4.9 Security of installations. Rooms, areas and walk-in units in which electrochemical ESS are located shall be secured against unauthorized entry and safeguarded in an approved manner. Security barriers, fences, landscaping and other enclosures shall not inhibit the required air flow to or exhaust from the electrochemical ESS and its components.

432.4.10 Occupied work centers. Electrochemical ESS located in rooms or areas occupied by personnel not directly involved with maintenance, service and testing of the systems shall comply with the following:

1. Electrochemical ESS located in occupied work centers shall be housed in locked noncombustible cabinets or other enclosures to prevent access by unauthorized personnel.
2. Where electrochemical ESS are contained in cabinets in occupied work centers, the cabinets shall be located within 10 feet (3048 mm) of the equipment that they support.
3. Cabinets shall include signage complying with Section 432.4.8.

432.4.11 Open rack installations. Where electrochemical ESS are installed in a separate equipment room and only authorized personnel have access to the room, they shall be permitted to be installed on an open rack for ease of maintenance.

432.4.12 Walk-in units. Walk-in units shall be entered only for inspection, maintenance and repair of ESS units and ancillary equipment, and shall not be occupied for other purposes.

432.5 Electrochemical ESS protection. The protection of electrochemical ESS shall be in accordance with Sections 432.5.1 through 432.5.8 where required by Sections 432.7 through 432.10.

TABLE 432.5 MAXIMUM ALLOWABLE QUANTITIES OF ELECTROCHEMICAL ESS

TECHNOLOGY	MAXIMUM ALLOWABLE QUANTITIES ^a
STORAGE BATTERIES	-
Flow batteries ^b	600 kWh
Lead-acid, all types	Unlimited
Lithium-ion	600 kWh
Nickel metal hydride (Ni-MH)	Unlimited
Nickel-cadmium (Ni-Cd)	Unlimited

Other battery technologies	200 kWh
CAPACITORS	-
All types	20 kWh
OTHER ELECTROCHEMICAL ESS	-
All types	20 kWh

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For SI: 1 kilowatt hour = 3.6 megajoules.

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- a. For electrochemical ESS units rated in amp-hours, kWh shall equal rated voltage times the amp-hour rating divided by 1,000.
- b. Shall include vanadium, zinc-bromine, polysulfide-bromide and other flowing electrolyte-type technologies.
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432.5.1 Size and separation. Electrochemical ESS shall be segregated into groups not exceeding 50 kWh (180 megajoules). Each group shall be separated a minimum of 3 feet (914 mm) from other groups and from walls in the storage room or area. The storage arrangements shall comply with Chapter 10.

1. Lead-acid and nickel-cadmium battery systems in facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76.

2. The code official is authorized to approve larger capacities or smaller separation distances based on large-scale fire testing complying with Section 432.1.5.

432.5.2 Maximum allowable quantities. Fire areas within rooms, areas and walk-in units containing electrochemical ESS shall not exceed the maximum allowable quantities in Table 432.5.

Exceptions:

1. Where approved by the code official, rooms, areas and walk-in units containing electrochemical ESS that exceed the amounts in Table 432.5 shall be permitted based on a hazardous mitigation analysis in accordance with Section 432.1.4 and large-scale fire testing complying with Section 432.1.5.

2. Lead-acid and nickel-cadmium battery systems installed in facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76.

3. Dedicated-use buildings in compliance with Section 432.7.1.

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Commented [MF(9)]: Large-scale fire testing is located in 432.1.4. Reference needs to be updated with the correct section (applies to several other instances throughout the proposal where the section is referenced).

Commented [MF(10)]: Although, this appears to have been copied/pasted from the IFC Section 1207.5.1, it is my belief that these are exceptions to the rule and the word "Exceptions:" should precede the two items. An errata request/inquiry has been submitted to the ICC for this item and we are awaiting response.

432.5.2.1 Mixed electrochemical energy systems. Where rooms, areas and walk-in units contain different types of electrochemical energy technologies, the total aggregate quantities of the systems shall be determined based on the sum of percentages of each technology-type quantity divided by the maximum allowable quantity of each technology type. The sum of the percentages shall not exceed 100 percent of the maximum allowable quantity.

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432.5.3 Elevation. Electrochemical ESS shall not be located in the following areas:

1. Where the floor is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.

2. Where the floor is located below the lowest level of exit discharge.

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Exceptions:

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1. Lead-acid and nickel-cadmium battery systems less than 50 VAC and 60 VDC installed in facilities under the exclusive control of communications utilities in accordance with NFPA 76.

2. Where approved, installations shall be permitted in underground vaults complying with NFPA 70, Article 450, Part III.

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432.5.4 Fire detection. An approved automatic smoke detection system or radiant energy-sensing fire detection system complying with Section 907.2 shall be installed in rooms, indoor areas and walk-in units containing electrochemical ESS. An approved radiant energy-sensing fire detection system shall be installed to protect open parking garage and rooftop installations. Alarm signals from detection systems shall be transmitted to a central station, proprietary or remote station service in accordance with NFPA 72, or where approved to a constantly attended location.

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432.5.4.1 System status. Where required by the code official, visible annunciation shall be provided on cabinet exteriors or in other approved locations to indicate that potentially hazardous conditions associated with the ESS exist.

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432.5.5 Fire suppression systems. Rooms and areas within buildings and walk-in units containing electrochemical ESS shall be protected by an automatic fire suppression system designed and installed in accordance with one of the following:

1. An automatic sprinkler system designed and installed in accordance with Section 903.3.1.1 with a minimum density of 0.3 gpm/ft² (1.14 L/min) based on the fire area or 2,500 square-foot (232 m²) design area, whichever is smaller.

2. Where approved, an automatic sprinkler system designed and installed in accordance with Section 903.3.1.1 with a sprinkler hazard classification based on large-scale fire testing complying with Section 432.1.5.

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Exception: Fire suppression systems for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities that operate at less than 50 VAC and 60 VDC shall be provided where required by NFPA 76.

432.5.5.1 Water-reactive systems. Electrochemical ESS that utilize water-reactive materials shall be protected by an approved alternative automatic fire-extinguishing system in accordance with Section 904, where the installation is approved by the code official based on large-scale fire testing complying with Section 432.1.5.

432.5.6 Maximum enclosure size. Outdoor walk-in units housing ESS shall not exceed 53 feet by 8 feet by 9.5 feet high (16 154 mm x 2438 mm x 2896 mm), not including bolt-on HVAC and related equipment, as approved. Outdoor walk-in units exceeding these limitations shall be considered indoor installations and comply with the requirements in Section 432.7.

432.5.7 Vegetation control. Areas within 10 feet (3048 mm) on each side of outdoor ESS shall be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery or cultivated ground cover such as green grass, ivy, succulents or similar plants used as ground cover shall be permitted to be exempt provided that they do not form a means of readily transmitting fire.

432.5.8 Means of egress separation. ESS located outdoors and in open parking garages shall be separated from any means of egress as required by the code official to ensure safe egress under fire conditions, but in no case less than 10 feet (3048 mm).

Exception: The code official is authorized to approve a reduced separation distance if large-scale fire testing complying with Section 432.1.5 is provided that shows that a fire involving the ESS will not adversely impact occupant egress.

432.6 Electrochemical ESS technology-specific protection. Electrochemical ESS installations shall comply with the requirements of this section in accordance with the applicable requirements of Table 432.6.

TABLE 432.6 ELECTROCHEMICAL ESS TECHNOLOGY-SPECIFIC REQUIREMENTS

COMPLIANCE REQUIRED ^b	-	BATTERY TECHNOLOGY	-	-	-	OTHER ESS AND BATTERY TECHNOLOGIES ^b	- CAPACITOR ESS ^b
-	-	Lead- acid	Ni-Cd and	Lithium- ion	-	-	-

Feature	Section		Ni-MH		Flow		
Exhaust ventilation	432.6.1	Yes	Yes	No	Yes	Yes	Yes
Explosion control	432.6.3	Yes ^a	Yes ^a	Yes	No	Yes	Yes
Safetycaps	432.6.4	Yes	Yes	No	No	Yes	Yes
Spill control and neutralization	- 432.6.2	Yes ^c	Yes ^c	- No	- Yes	- Yes	- Yes
Thermal runaway	432.6.5	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 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.

Commented [MF(11)]: This appears to be a remnant from the IFC. Suggest removing from the proposal as the reference is incorrect and would result in invalid provisions/references.

432.6.1 Exhaust ventilation. Where required by Table 432.6 or elsewhere in this code, exhaust ventilation of rooms, areas and walk-in units containing electrochemical ESS shall be provided in accordance with the *International Mechanical Code* and Section 432.6.1.1 or 432.6.1.2.

432.6.1.1 Ventilation based on LFL. The exhaust ventilation system shall be designed to limit the maximum concentration of flammable gas to 25 percent of the lower flammable limit (LFL) of the total volume of the room, area or walk-in unit during the worst-case event of simultaneous charging of batteries at the maximum charge rate, in accordance with nationally recognized standards.

432.6.1.2 Ventilation based on exhaust rate. Mechanical exhaust ventilation shall be provided at a rate of not less than 1 ft³/min/ft² (5.1 L/sec/m²) of floor area of the room, area or walk-in unit. The ventilation shall be either continuous or shall be activated by a gas detection system in accordance with Section 432.6.1.2.4.

432.6.1.2.1 Standby power. Mechanical exhaust ventilation shall be provided with a minimum of 2 hours of standby power in accordance with Section 1203.2.5 of the International Fire Code.

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432.6.1.2.2 Installation instructions. Required mechanical exhaust ventilation systems shall be installed in accordance with the manufacturer's installation instructions and the *International Mechanical Code*.

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432.6.1.2.3 Supervision. Required mechanical exhaust ventilation systems shall be supervised by an *approved* central station, proprietary or remote station service in accordance with NFPA 72, or shall initiate an audible and visible signal at an *approved* constantly attended on-site location.

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432.6.1.2.4 Gas detection system. Where required by Section 432.6.1.2, rooms, areas and walk-in units containing ESS shall be protected by an *approved* continuous gas detection system that complies with Section 916 and with the following:

1. The gas detection system shall be designed to activate the mechanical ventilation system when the level of flammable gas in the room, area or walk-in unit exceeds 25 percent of the LFL.

2. The mechanical ventilation system shall remain on until the flammable gas detected is less than 25 percent of the LFL.

3. The gas detection system shall be provided with a minimum of 2 hours of standby power in accordance with Section 1203.2.5. of the International Fire Code.

4. Failure of the gas detection system shall annunciate a trouble signal at an *approved* central station, proprietary or remote station service in accordance with NFPA 72 or shall initiate an audible and visible trouble signal at an *approved* constantly attended on-site location.

432.6.2 Spill control and neutralization. Where required by Table 432.6 or elsewhere in this code, areas containing free-flowing liquid electrolyte or hazardous materials shall be provided with spill control and neutralization in accordance with this section.

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432.6.2.1 Spill control. Spill control shall be provided to prevent the flow of liquid electrolyte or hazardous materials to adjoining rooms or areas. The method shall be capable of containing a spill from the single largest battery or vessel.

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432.6.2.2 Neutralization. An *approved* method that is capable of neutralizing spilled liquid electrolyte from the largest battery or vessel to a pH between 5.0 and 9.0 shall be provided.

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432.6.2.3 Communications utilities. The requirements of Section 432.6.2 shall apply only when the aggregate capacity of multiple vessels exceeds 1,000 gallons (3785 L) for lead-acid and nickel-cadmium battery systems operating at less than 50 VAC and 60 VDC that are located at facilities under the exclusive control of communications utilities, and those facilities comply with NFPA 76 in addition to applicable requirements of this code.

432.6.3 Explosion control. Where required by Table 432.6 or elsewhere in this code, explosion control complying with Section 911 of IFC shall be provided for rooms, areas or walk-in units containing electrochemical ESS technologies.

Exceptions:

1. Where *approved*, explosion control is permitted to be waived by the *code official* based on large-scale fire testing complying with Section 432.1.5 that demonstrates that flammable gases are not liberated from electrochemical ESS cells or modules where tested in accordance with UL 9540A.

2. Where *approved*, explosion control is permitted to be waived by the *code official* based on documentation provided that demonstrates that the electrochemical ESS technology to be used does not have the potential to release flammable gas concentrations in excess of 25 percent of the LFL anywhere in the room, area, walk-in unit or structure under thermal runaway or other fault conditions.

432.6.4 Safety caps. Where required by Table 432.6 or elsewhere in this code, vented batteries and other ESS shall be provided with flame- arresting safety caps.

432.6.5 Thermal runaway. Where required by Table 432.6 or elsewhere in this code, batteries and other ESS shall be provided with a *listed* device or other *approved* method to prevent, detect and minimize the impact of thermal runaway.

432.7 Indoor installations. Indoor ESS installations shall be in accordance with Sections 432.7.1 through 432.7.4.

TABLE 432.7 INDOOR ESS INSTALLATIONS

<u>COMPLIANCE REQUIRED</u>	-	- <u>DEDICATED-USE BUILDINGS^a</u>	- <u>NONDEDICATED-USE BUILDINGS^b</u>
<u>Feature</u>	<u>Section</u>	-	-
Dwelling units and sleeping units	<u>432.7.3</u>	NA	<u>Yes</u>
Elevation	<u>432.5.3</u>	<u>Yes</u>	<u>Yes</u>
Fire suppression systems	<u>432.5.5</u>	<u>Yes^c</u>	<u>Yes</u>

Fire-resistance-rated separations	432.7.4	Yes	Yes
General installation requirements	432.4	Yes	Yes
Maximum allowable quantities	432.5.2	No	Yes
Size and separation	432.5.1	Yes	Yes
Smoke and automatic fire detection ^e	432.5.4	Yes ^d	Yes
Technology specific protection	432.6	Yes	Yes

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NA = Not Allowed.

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a. See Section 432.7.1.

b. See Section 432.7.2.

c. Where approved by the code official, fire suppression systems are permitted to be omitted in dedicated-use buildings located more than 100 feet (30.5 m) from buildings, lot lines, public ways, stored combustible materials, hazardous materials, high-piled stock and other exposure hazards.

d. Where approved by the code official, alarm signals are not required to be transmitted to a central station, proprietary or remote station service in accordance with NFPA 72, or a constantly attended location where local fire alarm annunciation is provided and trained personnel are always present.

e. Lead-acid and nickel-cadmium battery systems installed in Group U buildings and structures less than 1,500 square feet (139 m²) under the exclusive control of communications utilities, and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76, are not required to have an approved automatic smoke or fire detection system.

-

432.7.1 Dedicated-use buildings. For the purpose of Table 432.7, dedicated-use ESS buildings shall be classified as Group F-1 occupancies and comply with all the following:

1. The building shall only be used for ESS, electrical energy generation and other electrical grid-related operations.
2. Occupants in the rooms and areas containing ESS are limited to personnel that operate, maintain, service, test and repair the ESS and other energy systems.
3. No other occupancy types shall be permitted in the building.
4. Administrative and support personnel shall be permitted in areas within the buildings that do not contain ESS, provided that:

-

4.1. The areas do not occupy more than 10 percent of the building area of the story in which they are located.

4.2. A means of egress is provided from the incidental use areas to the public way that does not require occupants to traverse through areas containing ESS or other energy system equipment.

-

432.7.2 Nondedicated-use buildings. For the purpose of Table 432.7, nondedicated-use buildings include all buildings that contain ESS and do not comply with Section 432.7.1 dedicated-use building requirements.

-

432.7.3 Dwelling units and sleeping units. ESS shall not be installed in *sleeping units* or in *habitable spaces of dwelling units*.

-

432.7.4 Fire-resistance-rated separations. Rooms and areas containing ESS shall include *fire-resistance-rated separations* as follows:

1. In dedicated-use buildings, rooms and areas containing ESS shall be separated from areas in which administrative and support personnel are located.

2. In non dedicated-use buildings, rooms and areas containing ESS shall be separated from other areas in the building.

-

-

Separation shall be provided by 2-hour *fire barriers* and 2-hour *horizontal assemblies*, as appropriate.

-

-

432.8 Outdoor installations. Outdoor installations shall be in accordance with Sections 432.8.1 through 432.8.3. Exterior wall installations for individual ESS units not exceeding 20 kWh shall be in accordance with Section 432.8.4.

-

TABLE 432.8 OUTDOOR ESS INSTALLATIONS^a

-

COMPLIANCE REQUIRED	-	REMOTE INSTALLATIONS ^a	INSTALLATIONS NEAR EXPOSURES ^b
Feature	Section	-	-
All ESS installations	432.4	Yes	Yes
Clearance to exposures	432.8.3	Yes	Yes
Fire suppression systems	432.5.5	Yes ^c	Yes

Maximum allowable quantities	<u>432.5.2</u>	No	Yes
Maximum enclosure size	<u>432.5.6</u>	Yes	Yes
Means of egress separation	<u>432.5.8</u>	Yes	Yes
Size and separation	<u>432.5.1</u>	No	Yes ^d
Smoke and automatic fire detection	<u>432.5.4</u>	Yes	Yes
Technology-specific protection	<u>432.6</u>	Yes	Yes
Vegetation control	<u>432.5.7</u>	Yes	Yes

a. See Section 432.8.1.

b. See Section 432.8.2.

c. Where approved by the code official, fire suppression systems are permitted to be omitted.

d. In outdoor walk-in units, spacing is not required between ESS units and the walls of the enclosure.

-

-

432.8.1 Remote outdoor installations. For the purpose of Table 432.8, remote outdoor installations include ESS located more than 100 feet (30 480 mm) from buildings, lot lines, public ways, stored combustible materials, hazardous materials, high-piled stock and other exposure hazards.

-

432.8.2 Installations near exposures. For the purpose of Table 432.8, installations near exposures include all outdoor ESS installations that do not comply with Section 432.8.1 remote outdoor location requirements.

-

432.8.3 Clearance to exposures. ESS located outdoors shall be separated by a minimum of 10 feet (3048 mm) from the following exposures:

1. Lot lines.

2. Public ways.

3. Buildings.

4. Stored combustible materials.

5. Hazardous materials.

6. High-piled stock.

7. Other exposure hazards.

-

-

Exceptions:

-

1. Clearances are permitted to be reduced to 3 feet (914 mm) where a 1-hour *fire-resistance-rated construction* suitable for exterior use and extending 5 feet (1524 mm) above and 5 feet (1524 mm) beyond the physical boundary of the ESS installation is provided to protect the exposure.

2. Clearances to buildings are permitted to be reduced to 3 feet (914 mm) where noncombustible exterior walls with no openings or combustible overhangs are provided on the wall adjacent to the ESS and the *fire-resistance rating* of the exterior wall is a minimum of 2 hours.

3. Clearances to buildings are permitted to be reduced to 3 feet (914 mm) where a weatherproof enclosure constructed of noncombustible materials is provided over the ESS, and it has been demonstrated that a fire within the enclosure will not ignite combustible materials outside the enclosure based on large-scale fire testing complying with Section 432.1.5.

-

432.8.4 Exterior wall installations. ESS shall be permitted to be installed outdoors on exterior walls of buildings when all of the following conditions are met:

1. The maximum energy capacity of individual ESS units shall not exceed 20 kWh.

2. The ESS shall comply with applicable requirements in Section 432.

3. The ESS shall be installed in accordance with the manufacturer's instructions and their listing.

4. Individual ESS units shall be separated from each other by at least 3 feet (914 mm).

5. The ESS shall be separated from doors, windows, operable openings into buildings or HVAC inlets by at least 5 feet (1524 mm).

-

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Exception: Where *approved*, smaller separation distances in Items 4 and 5 shall be permitted based on large-scale fire testing complying with Section 432.1.5.

-

432.9 Special installations. Rooftop and open parking garage ESS installations shall comply with Sections 432.9.1 through 432.9.6.

TABLE 432.9 SPECIAL ESS INSTALLATIONS

-

COMPLIANCE REQUIRED	-	-	-	-
		ROOFTOPS ^a	OPENPARKINGGARAGES ^b	
Feature	Section	-	-	-
All ESS installations	432.4	Yes	Yes	-

<u>Clearance to exposures</u>	<u>432.9.3</u>	<u>Yes</u>	<u>Yes</u>	-
<u>Fire suppression systems</u>	<u>432.9.4</u>	<u>Yes</u>	<u>Yes</u>	-
<u>Maximum allowable quantities</u>	<u>432.5.2</u>	<u>Yes</u>	<u>Yes</u>	-
<u>Maximum enclosure size</u>	<u>432.5.6</u>	<u>Yes</u>	<u>Yes</u>	-
<u>Means of egress separation</u>	<u>432.5.8</u>	<u>Yes</u>	<u>Yes</u>	-
<u>Open parking garage installations</u>	<u>432.9.6</u>	<u>No</u>	<u>Yes</u>	-
<u>Rooftop installations</u>	<u>432.9.5</u>	<u>Yes</u>	<u>No</u>	-
<u>Size and separation</u>	<u>432.5.1</u>	<u>Yes</u>	<u>Yes</u>	-
<u>Smoke and automatic fire detection</u>	<u>432.5.4</u>	<u>Yes</u>	<u>Yes</u>	-
<u>Technology-specific protection</u>	<u>432.6</u>	<u>Yes</u>	<u>Yes</u>	-

-
a. See Section 432.9.1.

b. See Section 432.9.2.

-
432.9.1 Rooftop installations. For the purpose of Table 432.9, rooftop ESS installations are those located on the roofs of buildings.

-
432.9.2 Open parking garage installations. For the purpose of Table 432.9, open parking garage ESS installations are those located in a structure or portion of a structure that complies with Section 406.5.

-
432.9.3 Clearance to exposures. ESS located on rooftops and in open parking garages shall be separated by a minimum of 10 feet (3048 mm) from the following exposures:

1. Buildings, except the building on which rooftop ESS is mounted.
2. Any portion of the building on which a rooftop system is mounted that is elevated above the rooftop on which the system is installed.
3. Lot lines.
4. Public ways.
5. Stored combustible materials.
6. Locations where motor vehicles can be parked.
7. Hazardous materials.

8. Other exposure hazards.

-
-

Exceptions:

-

1. Clearances are permitted to be reduced to 3 feet (914 mm) where a 1-hour fire-resistance-rated construction suitable for exterior use and extending 5 feet (1524 mm) above and 5 feet (1524 mm) beyond the physical boundary of the ESS installation is provided to protect the exposure.

2. Clearances are permitted to be reduced to 3 feet (914 mm) where a weatherproof enclosure constructed of noncombustible materials is provided over the ESS, and it has been demonstrated that a fire within the enclosure will not ignite combustible materials outside the enclosure based on large-scale fire testing complying with Section 432.1.5.

-

432.9.4 Fire suppression systems. ESS located in walk-in units on rooftops or in walk-in units in open parking garages shall be provided with automatic fire suppression systems within the ESS enclosure in accordance with Section 432.5.5. Areas containing ESS other than walk-in units in open parking structures on levels not open above to the sky shall be provided with an automatic fire suppression system complying with Section 432.5.5.

Exception: A fire suppression system is not required in open parking garages if large-scale fire testing complying with Section 432.1.5 is provided that shows that a fire will not impact the exposures in Section 432.9.3.

-

432.9.5 Rooftop installations. ESS and associated equipment that are located on rooftops and not enclosed by building construction shall comply with the following:

1. Stairway access to the roof for emergency response and fire department personnel shall be provided.

-

2. Service walkways at least 5 feet (1524 mm) in width shall be provided for service and emergency personnel from the point of access to the roof to the system.

3. ESS and associated equipment shall be located from the edge of the roof a distance equal to at least the height of the system, equipment or component but not less than 5 feet (1524 mm).

4. The roofing materials under and within 5 feet (1524 mm) horizontally from an ESS or associated equipment shall be noncombustible or shall have a Class A rating when tested in accordance with ASTM E108 or UL 790.

5. A Class I standpipe outlet shall be installed at an *approved* location on the roof level of the building or in the stairway at the top level.

6. The ESS shall be the minimum of 10 feet (3048 mm) from the fire service access point on the rooftop.

-
-

432.9.6 Open parking garages. ESS and associated equipment that are located in open parking garages shall comply with all of the following:

1. ESS shall not be located within 50 feet (15 240 mm) of air inlets for building HVAC systems.

-

Exception: This distance shall be permitted to be reduced to 25 feet (7620 mm) if the automatic fire alarm system monitoring the radiant-energy sensing detectors de-energizes the ventilation system connected to the air intakes upon detection of fire.

2. ESS shall not be located within 25 feet (7620 mm) of exits leading from the attached building where located on a covered level of the parking structure not directly open to the sky above.

3. An approved fence with a locked gate or other approved barrier shall be provided to keep the general public at least 5 feet (1524 mm) from the outer enclosure of the ESS.

-

432.10 Mobile ESS equipment and operations. Mobile ESS equipment shall comply with Sections 432.10.1 through 432.10.7.7.

TABLE 432.10 MOBILE ENERGY STORAGE SYSTEMS (ESS)

-

<u>COMPLIANCE REQUIRED</u>	-	- <u>DEPLOYMENT^a</u>
<u>Feature</u>	<u>Section</u>	-
<u>All ESS installations</u>	<u>432.4</u>	<u>Yes^b</u>
<u>Fire suppression systems</u>	<u>432.5.5</u>	<u>Yes^c</u>
<u>Maximum allowable quantities</u>	<u>432.5.2</u>	<u>Yes</u>
<u>Maximum enclosure size</u>	<u>432.5.6</u>	<u>Yes</u>
<u>Means of egress separation</u>	<u>432.5.8</u>	<u>Yes</u>
<u>Size and separation</u>	<u>432.5.1</u>	<u>Yes^d</u>
<u>Smoke and automatic fire detection</u>	<u>432.5.4</u>	<u>Yes^e</u>
<u>Technology-specific protection</u>	<u>432.6</u>	<u>Yes</u>
<u>Vegetation control</u>	<u>432.5.7</u>	<u>Yes</u>

-

a. See Section 432.10.2.

b. Mobile operations on wheeled vehicles and trailers shall not be required to comply with Section 432.4.4 seismic and structural load requirements.

c. Fire suppression system connections to the water supply shall be permitted to use approved temporary connections.

d. In walk-in units, spacing is not required between ESS units and the walls of the enclosure.

e. Alarm signals are not required to be transmitted to an approved location for mobile ESS deployed 30 days or less.

-

-

432.10.1 Charging and storage. For the purpose of Section 432.10, charging and storage covers the operation where mobile ESS are charged and stored so they are ready for deployment to another site, and where they are charged and stored after a deployment.

-

432.10.2 Deployment. For the purpose of Section 432.10, deployment covers operations where mobile ESS are located at a site other than the charging and storage site and are being used to provide power.

-

432.10.3 Permits. Construction permits shall be provided for charging and storage of mobile ESS.

-

432.10.4 Construction documents. Construction documents complying with Section 432.1.3 shall be provided with the construction permit application for mobile ESS charging and storage locations.

-

432.10.4.1 Deployment documents. The following information shall be provided with the permit applications for mobile ESS deployments:

1. Relevant information for the mobile ESS equipment and protection measures in the construction documents required by Section 432.1.3.

2. Location and layout diagram of the area in which the mobile ESS is to be deployed, including a scale diagram of all nearby exposures.

3. Location and content of signage, including no smoking signs.

4. Description of fencing to be provided around the ESS, including locking methods.

5. Details on fire suppression, smoke and automatic fire detection, system monitoring, thermal management, exhaust ventilation and explosion control, if provided.

6. For deployment, the intended duration of operation, including anticipated connection and disconnection times and dates.

7. Location and description of local staging stops during transit to the deployment site. See Section 432.10.7.5.

8. Description of the temporary wiring, including connection methods, conductor type and size, and circuit overcurrent protection to be provided.

9. Description of how fire suppression system connections to water supplies or extinguishing agents are to be provided.

Commented [MF(12)]: Section 432.1.3 covers hazard mitigation analysis. The correct section appears to be 432.1.2.

Commented [MF(13)]: Section 432.1.3 covers hazard mitigation. The correct section appears to be 432.1.2.

Commented [MF(14)]: This appears to have been intended as a reference to a section equivalent to the IFC Section 1207.10.7.5. However, those provisions have been removed from this proposal (rightfully so).

10. Contact information for personnel who are responsible for maintaining and servicing the equipment and responding to emergencies as required by Section 432.1.6.1.

-

432.10.5 Approved locations. Locations where mobile ESS are charged, stored and deployed shall be restricted to the locations established on the construction permits.

-

432.10.6 Charging and storage. Installations where mobile ESS are charged and stored shall be treated as permanent ESS indoor or outdoor installations, and shall comply with the following sections, as applicable:

1. Indoor charging and storage shall comply with Section 432.7.

2. Outdoor charging and storage shall comply with Section 432.8.

3. Charging and storage on rooftops and in open parking garages shall comply with Section 432.9.

-

-

Exceptions:

-

1. Electrical connections shall be permitted to be made using temporary wiring complying with the manufacturer's instructions, the UL 9540 listing and NFPA 70.

2. Fire suppression system connections to the water supply shall be permitted to use *approved* temporary connections.

-

-

432.10.7 Deployed mobile ESS requirements. Deployed mobile ESS equipment shall comply with this section and Table 432.10.

-

432.10.7.1 Duration. The duration of mobile ESS deployment shall not exceed 30 days.

Exceptions:

-

1. Mobile ESS deployments that provide power for durations longer than 30 days shall comply with Section 432.10.6.

2. Mobile ESS deployments shall not exceed 180 days unless additional permits are obtained.

-

-

432.10.7.2 Restricted locations. Deployed mobile ESS operations shall not be located indoors, in covered parking garages, on rooftops, below grade or under building overhangs.

Commented [MF(15): The proposal does not include Section 432.1.6.1 Either item 5 needs to be revised accordingly, or, the section must be added to the proposal.

-
432.10.7.3 Clearance to exposures. Deployed mobile ESS shall be separated by a minimum of 10 feet (3048 mm) from the following exposures:

1. Public ways.
 2. Buildings.
 3. Stored combustible materials.
 4. Hazardous materials.
 5. High-piled storage.
 6. Other exposure hazards.
-
-

Deployed mobile ESS shall be separated by a minimum of 50 feet (15 240 mm) from public seating areas and from tents, canopies and membrane structures with an *occupant load* of 30 or more.

-

432.10.7.4 Electrical connections. Electrical connections shall be made in accordance with the manufacturer's instructions and the UL 9540 listing. Temporary wiring for electrical power connections shall comply with NFPA 70. Fixed electrical wiring shall not be provided.

-

432.10.7.5 Fencing. An *approved fence* with a locked gate or other *approved barrier* shall be provided to keep the general public at least 5 feet (1524 mm) from the outer enclosure of a deployed mobile ESS.

-

432.10.7.6 Smoking. Smoking shall be prohibited within 10 feet (3048 mm) of mobile ESS. Signs shall be posted in accordance with Section 310 of IFC.

Commented [MF(16): Should "the" be inserted here?

-

432.11 ESS in Group R-3, and R-4, occupancies. ESS in Group R-3, and R-4 occupancies shall be installed and maintained in accordance with Sections 432.11.1 through 432.11.9. The temporary use of an *owner or occupant's* electric-powered vehicle as an ESS shall be in accordance with Section 432.11.10.

-

432.11.1 Equipment listings. ESS shall be *listed and labeled* in accordance with UL 9540. ESS *listed and labeled* solely for utility or commercial use shall not be used for residential applications.

Exceptions:

Commented [MF(17): It appears that the 2nd exception from the equivalent IFC Section (1207.11.1) has not been included in this proposal. As such, this should be "exception" (singular).

-

_____ ESS less than 1 kWh (3.6 megajoules).

-

-

432.11.2 Installation. ESS shall be installed in accordance with the manufacturer's instructions and their listing.

-

432.11.2.1 Spacing. Individual units shall be separated from each other by at least 3 feet (914 mm) of spacing unless smaller separation distances are documented to be adequate based on large-scale fire testing complying with Section 432.1.5.

-

432.11.3 Location. ESS shall be installed only in the following locations:

1. Detached garages and detached accessory structures.
2. Attached garages separated from the dwelling unit living space and sleeping units in accordance with Section 406.3.2.
3. Outdoors on exterior walls located a minimum of 3 feet (914 mm) from doors and windows.
4. Utility closets and storage or utility spaces within dwelling units and sleeping units.

-

-

432.11.4 Energy ratings. Individual ESS units shall have a maximum rating of 20 kWh. The aggregate rating structure shall not exceed:

1. 40 kWh within utility closets and storage or utility spaces.
2. 80 kWh in attached or detached garages and detached accessory structures.
3. 80 kWh on exterior walls.
4. 80 kWh outdoors on the ground.

-

-

432.11.5 Electrical installation. ESS shall be installed in accordance with NFPA 70. Inverters shall be listed and labeled in accordance with UL 1741 or provided as part of the UL 9540 listing. Systems connected to the utility grid shall use inverters listed for utility interaction.

-

432.11.6 Fire detection. Rooms and areas within dwellings units, sleeping units and attached garages in which ESS are installed shall be protected by smoke alarms in accordance with Section 907.2.11 A heat detector listed and interconnected to the smoke alarms shall be installed in locations within dwelling units, sleeping units and attached garages where smoke alarms cannot be installed based on their listing.

-

432.11.7 Protection from impact. Stationary storage battery systems installed in a location subject to vehicle damage shall be protected by approved barriers. Appliances in garages shall also be installed in accordance with Section 304.3 of the International Mechanical Code.

-

432.11.8 Ventilation. Indoor installations of ESS that include batteries that produce hydrogen or other flammable gases during charging shall be provided with exhaust ventilation in accordance with Section 432.6.1.

-

432.11.9 Toxic and highly toxic gas. ESS that have the potential to release toxic or highly toxic gas during charging, discharging and normal use conditions shall not be installed within Group R-3 or R-4 occupancies.

-

432.11.10 Electric vehicle use. The temporary use of an owner or occupant's electric-powered vehicle to power a dwelling unit or sleeping unit while parked in an attached or detached garage or outside shall comply with the vehicle manufacturer's instructions and NFPA 70.

1705.19 Commissioning and decommissioning of Energy Storage System. Commissioning and decommissioning of energy storage system shall be subject to special inspection. Special inspector shall ensure that the commissioning and decommissioning is conducted in accordance with Section 432, as applicable.

Reason Statement:

An increased number of electrical energy storage systems (ESS) utilizing stationary storage batteries are appearing on the market to help meet the energy needs of society. This proposal does not mandate that ESS or stationary battery storage systems be provided but includes basic safety requirements and minimum safeguards for the installation that should be applied if such systems are provided.

This proposal incorporates the building related provisions from the 2021 edition of the International Fire Code into the Virginia Construction Code. Doing so is intended to reduce confusion and clearly define the building parameters necessary for the evolving technology, distinct from the operational needs.

Commented [MF(18): The Resiliency Impact statement is missing.

Cost Impact:

The code change proposal will not increase or decrease the cost of construction

Cost Impact: The code change proposal will not increase or decrease the cost of construction. Some of the requirements in this proposal have the potential to increase the cost of providing ESS installations. However, the provisions in this proposal better address risks and owner/user needs in buildings and outdoor installations. Any increased cost addresses the hazards that were not contemplated in previous code editions due to energy storage technology advancements.

Attached Files

- **Energy Storage Systems with Revisions.docx**
<https://va.cdpass.com/proposal/1188/1630/files/download/680/>

B432(2)-21; B433-21; EB604-21 1 message

From: **Moldovan, Florin** <florin.moldovan@dhcd.virginia.gov>
Date: Mon, May 16, 2022 at 3:39 PM
Subject: B432(2)-21; B433-21; EB604-21
To: <Samiri@arlingtonva.us>

Good afternoon Shahriar,

I hope you've enjoyed your time away from the office and were able to recharge your batteries.

We have processed the subject noted code change proposals but while doing so, have identified some potential issues. Given that the deadline for code change submission has passed, the proposals can no longer be modified in cdpVA. However, potential changes could still be made to the proposals that made the deadline of May 1st (yours obviously did make the deadline). Said changes would be introduced during the General Stakeholder Workgroup (GW) meetings in June, as floor modifications.

What we have done in the past is, request a word document from the proponent ahead of the meeting, clearly showing what has changed from the version of the proposal found in the cdpVA. Basically, the underlined and/or struck text in said document, would **show the changes from what was originally submitted in cdpVA**. As such, for your proposals, if you were to propose any changes via floor modifications, you could just remove the underlines to start with a fresh document and then show the changes to it via underlines/strikethroughs. As long as you send the documents to us a few days prior to the respective GW June meeting, that should be fine. That way, we could share the revisions on the screen during the meeting.

Attached you will find an annotated word document for each of the proposals in question (please disregard the somewhat wacky formatting issues - I've just downloaded the proposal from cdpVA in word format so that I can easily add comments to it. I've fixed the formatting some, as I was reviewing them, but it is not perfect by any means).

Please let me know if you have any questions, or if you want to meet and discuss this further.
Thank you.


Sincerely,

Florin Moldovan, MCP
Code and Regulation Specialist

Department of Housing & Community Development (DHCD)
600 East Main Street; Suite 1100
Richmond, VA 23219
Phone: 804-385-2166
Email: florin.moldovan@dhcd.virginia.gov
www.dhcd.virginia.gov
[Virginia Codes](#)

3 attachments

 **B432(2)-21_FM Notes and Comments.docx**
56K

 **B433-21_FM Notes and Comments.docx**
28K

 **EB604-21_ FM Notes and Comments.docx**
27K

EV Charging Stations (1190)

VCC: 433 (New)

Proponents:

Shahriar Amiri (samiri@arlingtonva.us)

2018 Virginia Construction Code

Add new text as follows:

433 Electric Vehicle (EV) Charging Stations.

Proponents: Shahriar Amiri
(samiri@arlingtonva.us)

4/25/2022

2021 Virginia Construction Code

SECTION 433

ELECTRICAL VEHICLE (EV) CHARGING STATIONS

433.1 General. The provisions of this Section shall apply to installation of Electric Vehicle Charging Stations

Exception: EV CHARGING STATION in Group R-3 and R-4 occupancies shall comply with Section 433.11.

433.2 Construction documents. The following information shall be provided with the permit application:

1. Location and layout diagram of the room or area in which the EV CHARGING STATION is to be installed.

2. The quantities and types of EV CHARGING STATION to be installed.

3. Manufacturer's specifications, ratings and listings of each EV CHARGING STATION.

4. Description of energy (battery) management systems and their operation.

5. Location and content of required signage.

6. Details on fire suppression EV Charging Station, smoke or fire detection, thermal management, ventilation, exhaust and deflagration venting systems, if provided.

7. Support arrangement associated with the installation, including any required seismic restraint.

433.3 Installation and Listing. Where provided, electric vehicle charging stations shall be installed in accordance with NFPA 70. Electric vehicle charging system equipment shall be listed and labeled in accordance with UL 2202. Electric vehicle supply equipment shall be listed and labeled in accordance with UL 2594. Accessibility to electric vehicle charging stations shall be provided in accordance with Chapter 11.

433.3.1 Electrical disconnects. Where the EV CHARGING STATION disconnecting means is not within sight of the main electrical service disconnecting means, placards or directories shall be installed at the location of the main electrical service disconnecting means indicating the location of EV Charging Station(s) disconnecting means in accordance with NFPA 70.

433.3.2 Vehicle impact protection. Where EV CHARGING STATION are subject to impact by a motor vehicle, impact protection shall be provided in accordance with this code.

Commented [MF(1)]: This appears to be an incorrect Section - a remnant from an earlier version of the proposal, maybe? Perhaps was meant to reference Section 432.11 which is part of a separate proposal?

Commented [MF(2)]: What if the charging system/station does not have any batteries associated with them?

Commented [MF(3)]: Was the text meant to be included here? Should it be deleted to avoid confusion?

Commented [MF(4)]: It appears to be unclear what this item requires?

Commented [MF(5)]: This is already covered in IBC Section 406.2.7. Is it needed to duplicate here? Could potentially create conflicts in the future?

Commented [MF(6)]: The IBC does not set forth vehicle impact protection requirements. The appropriate citation here would appear to be Section 312 of the IFC.

433.4 Location. 433.5.3 Elevation. EV CHARGING STATION shall not be located in the following areas:

1. Where the floor is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle
2. Where the floor is located more than one level below the lowest level of exit discharge

433.5 Fire detection. An approved automatic smoke detection system or radiant energy-sensing fire detection system shall be installed in EV charging station area where located in enclosed parking garages. An approved radiant energy-sensing fire detection system shall be installed to protect open parking garage and rooftop installations. Alarm signals from detection systems shall be transmitted to a central station, proprietary or remote station service in accordance with NFPA 72, or where approved to a constantly attended location.

433.5.1 System status. Where required by the fire code official, visible annunciation shall be provided on cabinet exteriors or in other approved locations to indicate that potentially hazardous conditions associated with the EV CHARGING STATION exist.

433.6 Fire suppression systems: Enclosed parking garages containing EV CHARGING STATION shall be protected by an automatic sprinkler system designed and installed in accordance with the following:

1. An automatic sprinkler system designed and installed in accordance with Section 903.3.1.1 with a minimum density of 0.3 gpm/ft² (1.14 L/min) based on the fire area or 2,500 square-foot (232 m²) design area, whichever is smaller.

433.8 Exhaust ventilation. Where installed in enclosed parking garages, exhaust ventilation of areas and containing EV charging stations shall be provided in accordance with the International Mechanical Code and Section 433.8.1 or 433.8.2.

433.8.1. Ventilation based on LFL. The exhaust ventilation system shall be designed to limit the maximum concentration of flammable gas to 25 percent of the lower flammable limit (LFL) of the total volume of the room, area or walk-in unit during the worst-case event of simultaneous charging of batteries at the maximum charge rate, in accordance with nationally recognized standards.

433.8.2 Ventilation based on exhaust rate. Mechanical exhaust ventilation shall be provided at a rate of not less than 1 ft³/min/ft² (5.1 L/sec/m²) of floor area of the room, area or walk-in unit. The ventilation shall be either continuous or shall be activated by a gas detection system in accordance with Section 432.6.1.2.4.

433.8.2.1 Standby power. Mechanical exhaust ventilation shall be provided with a minimum of 2 hours of standby power in accordance with Section 1203.2.5.

433.8.2.2 Installation instructions. Required mechanical exhaust ventilation systems shall be installed in accordance with the manufacturer's installation instructions and the International Mechanical Code.

433.8.2.3 Supervision. Required mechanical exhaust ventilation systems shall be supervised by an approved central station, proprietary or remote station service in accordance with NFPA 72 or shall initiate an audible and visible signal at an approved constantly attended on-site location.

433.9 Separation. The EV CHARGING STATION shall be separated from doors, windows, operable openings into buildings or HVAC inlets by at least 10 feet (1524 mm). 433.7 Means of egress separation from EV Charging Station. EV CHARGING STATION located outdoors and in open parking garages shall be separated from any exit as required by the fire code official to ensure safe egress from EV under fire conditions, but in no case EV Charging Station shall be separated less than 10 feet (3048 mm). EV charging stations located in enclosed parking structures shall be located no less than 25 feet from any exit.

433.10 Special installations. Rooftop and open parking garage EV CHARGING STATION installations shall comply with this section.

Commented [MF(7)]: Either the "Location" or the "Elevation" would appear to be unnecessary and should be deleted along with "433.5.3".

Commented [MF(8)]: Was it meant "code official" and not "fire code official"? Is this perhaps a remnant from the IFC text?

Commented [MF(9)]: This type of language works well on ESS but it does not appear to work as well on EV Charging Systems as the latter do not normally have "cabinets" associated with them... Also, the alleged hazard is directly related to the car's battery and not the EV Charging Station itself.

Commented [MF(10)]: The numbered list does not appear to be necessary since there's only one item.

Commented [MF(11)]: This section appears to apply the IFC provisions applicable to ESS. While appropriate to require this for ESS, it would seem very difficult to enforce, as currently written. I.e. what is the total volume of the room? The volume of all the garage floors? There are no EV Charging Stations "walk-in" units. Etc.

Commented [MF(12)]: Similar with above.

Commented [MF(13)]: This appears to be a reference to a Section in proposal "Energy Storage System (1188)". As such, if this proposal would be approved but the other would not, the reference would be invalid.

Commented [MF(14)]: This appears to be a reference to the IFC Section 1203.2.5. As such, it would have to be updated accordingly.

Commented [MF(15)]: Should it be "code official" and not "fire code official"?

Commented [MF(16)]: The section appears to be misplaced? Was it meant to be located before Section 433.8?

Commented [MF(17)]: As noted above, it appears that the alleged hazard is related to the car's battery and not the charging equipment. This requirement places restrictions on "parking spaces" where EV are charged but there are no other similar code restrictions on regular parking spaces on which an EV could just simply park w/out charging? Could this be viewed as discriminatory enforcement?

1. A Class I standpipe outlet shall be installed at an *approved* location on the roof level of the building or in the stairway at the top level.

2. The EV CHARGING STATION shall be the minimum of 10 feet (3048 mm) from the fire service access point on the rooftop.

433.11 Spill control and neutralization. Areas containing free-flowing liquid electrolyte or hazardous materials shall be provided with spill control and neutralization in accordance with this section.

433.11.1 Spill control. Spill control shall be provided to prevent the flow of liquid electrolyte or hazardous materials to adjoining rooms or areas.

432.11.2 Neutralization. An *approved* method that is capable of neutralizing spilled liquid electrolyte from the largest battery or vessel to a pH between 5.0 and 9.0 shall be provided.

Reason Statement:

An increased number of Electric Vehicle (EV) Charging Station installations is occurring to help meet the electric vehicle charging needs of society. This proposal does not mandate that (EV) Charging Stations be provided but includes basic safety requirements and minimum safeguards for the installation of these stations that should be applied if such stations are provided.

This proposal incorporates the building related provisions from the 2021 edition of the International Fire Code into the Virginia Construction Code. Doing so is intended to reduce confusion and clearly define the building parameters necessary for the evolving technology, distinct from the operational needs.

| |

Cost Impact:

The code change proposal will not increase or decrease the cost of construction

The code change proposal will not increase or decrease the cost of construction. Some of the requirements in this proposal have the potential to increase the cost of providing ESS installations. However, the provisions in this proposal better address risks and owner/user needs in buildings and outdoor installations. Any increased cost addresses the hazards that were not contemplated in previous code editions due to energy storage technology advancements.

Commented [MF(18): Similar with comment on Section 433.5.1.

Commented [MF(19): The Resiliency Impact Statement is missing.

Residential Sprinklers Study Group
Meeting Summary: May 17, 2022 9:00 a.m.
Virtual Meeting: <https://vadhcd.adobeconnect.com/va2021cdc/>

ATTENDEES:

VA Department of Housing and Community Development (DHCD) Staff:

Jeff Brown: *State Building Codes Office Director, State Building Codes Office (SBCO)*

Richard Potts: *Code Development and Technical Support Administrator, SBCO*

Paul Messplay: *Code and Regulation Specialist, SBCO*

Florin Moldovan: *Code and Regulation Specialist, SBCO*

Study Group Members:

Andrew Clark: *Homebuilders Association of Virginia (HBAV)*

Keith Johnson: *Virginia Fire Chiefs Association (VFCA), Virginia Fire Services Board (VFSB) Vice Chair, and member of the Board of Housing and Community Development (BHCD)*

Mike Nannery: *Assistant Director of Engineering and Development for Chesterfield County Utilities*

Ron Clements: *Chesterfield County Building Official, Virginia Building and Code Officials Association (VBCOA)*

Jason Laws (Stand-In for Mike Eutsey): *Chesterfield County Deputy Building Official; VBCOA*

Jimmy Csizmadia: *Secretary of Virginia Fire Prevention Association (VFPA) and Inspector with the Prince William County Fire Marshal's Office*

Other Interested Parties:

Andrew Milliken: *VFCA, VFSB Chairman of Fire Codes and Standards Sub-Committee*

Jeffrey Shapiro: *International Code Consultants*

John Ainslie

Sean Farrell: *Prince William County*

Glenn Dean

Study Group Members not in attendance:

Mike Eutsey: *First Vice President of Virginia Building and Code Officials Association (VBCOA) and Assistant Chief Building Official for Hanover County*

Reid Walters: *Town Manager of the Town of Independence*

Robbie McCraw: *Carroll County Board of Supervisors and E&L Diamond Electric, Heating, Cooling and Plumbing*

Meredith Raetz: *Planning Engineer with Virginia American Water*

Overton McGehee: *Habitat for Humanity*

Ellis McKinney: *Virginia Plumbing and Mechanical Inspectors Association (VPMIA)*

Garrett Dyer: *Virginia Department of Fire Programs; State Fire Marshal's Office*

Mike Poole: *American Institute of Architect – Virginia Chapter*

AGENDA AND DISCUSSION ITEMS:

Welcome

Jeff Brown: Agenda and documents were sent earlier to Study Group members, and are also in the file pod. The meeting is being recorded. DHCD staff can help with any technical problems. There will be a break every hour, and an hour for lunch from 12-1 if the meeting runs that long. Only Study Group members will discuss topics in the meeting, but others are welcome to sit in and listen and contact Study Group members outside of the meeting.

Discussion

Townhouse Sprinkler Plans:

Staff shared a set of plans, previously submitted by Jimmy Csizmadia on the screen for the group.

Jeff: Explained the at the first couple of items on the agenda (townhouse sprinkler plans and documents submitted by Andrew Clark) were continued from the last meeting. Opens the floor for comments.

Keith Johnson: Sprinkler systems being allowed to use a single pipe in a row of townhouses is a huge benefit. Not having to install a window well is a huge cost savings. When you look at these plans, these aren't the only way to do business. There are lots of tradeoffs that can be done when looking at the installation of a sprinkler system. It's very hard to get plans from the sprinkler contractors since there's so much competition.

Andrew Clark: Asks Jeff Shapiro to send out his presentation that presented to interested group members prior to today's meeting. Some of these plans include 1" water meters and costs from localities for upsizing to a 1" meter is costly. These plans validate some of the concerns about the key driver of costs, which are water connection fees and meter fees. The incentives mentioned for developers are great, but they are outside the scope of the building code. Thanks, Jeff Shapiro, for the presentation.

Keith: The cost in Loudon County to upsize to a 1" meter is not expensive at all.

Andrew: I compiled costs from localities. We found places like Henrico got up to \$17,000 when you move up to a 1" meter. Chesterfield went up to \$14,000. This is one of those rare incidences where Loudon is on the low-end of the cost spectrum. To Keith's point, it does run the gamut, but it does jump up significantly in some localities.

Documents submitted by SG Member Andrew Clark:

Jeff: Turns the floor over to Andrew to provide any comments on the documents he submitted.

Andrew: What I attempted to do in these documents is show how the industry approaches not only sprinklers but building codes in general. The data here is fascinating, which has

been done by the general assembly. On Page 6 you'll see a number of households where housing is a cost burden, which is the threshold where housing costs become unsustainable. Nearly 30% of households are facing those cost burdens. On page 8 you'll see a table that shows the median home sales prices increasing. We're seeing a crisis where people can't afford houses. When we're approaching codes, we try to find a balance of costs and try and fit it into a bigger picture. We pulled these documents together to show some insight. This isn't anything to do with profit. These are costs passed on to the consumer. I know we'll probably disagree on the code proposals but it's at least important to know where folks are coming from. The first document is related to fire data. It's important to support the department of fire programs to help pull together all of these essential data points from localities to find where the pain points are so we can evaluate that as a committee or as the Board of Housing every time we have a code cycle to really prioritize our initiatives and figure out what are the best ways to tackle the problems that we're seeing in VA. That's outside of this discussion but hopefully this information is helpful.

Keith Johnson: What Andrew is saying regarding affordable housing was forefront at the BHCD retreat and meeting last week, and I agree that we should look toward affordable housing to not price any homebuyer out of the market. I don't think you can blame the fire services for those costs. My ask was to look for affordable safe housing. It's the charge of fire and building codes. If I, as a fire chief, have a way to prevent injuries and deaths to civilians and firefighters, that's my charge. That's what I'm going to do. I can't put a price on a life or an injury. What I will offer is that the incentives offered by the building codes will help offset the cost of these systems. The ultimate goal is to not cost anything more for these systems and I think we can get there through the incentives and some of the insurance and tax credits for these systems.

Andrew: Would anyone from the fire services side agree that the development incentives are outside of the building code and are local-driven?

Keith: We mentioned the developer cost savings vs the building cost savings and many times those are the same entity. Those incentives are built into the building codes now, so there's nothing we need to do to put them in the code. I always get confused when we talk about costs because if we are saving money for the developer, certainly the builder is going to pay less because of the development process and ultimately the consumer will pay less.

Andrew: The land development side incentives are options provided by the locality, correct? I get that there are some references to them in the code, but there's nothing that requires, say, Halifax County to provide development incentives for a developer for residential sprinklers. Reduction in street widths, connectivity requirements, all of which would be beneficial, but none of that is required. That's purely at the discretion at the local gov't.

Documents submitted by SG Member Keith Johnson:

Jeff: Turns the floor over to Keith to provide comments on the documents he provided.

Keith: Just a couple of things. The HFSC Fact Sheet complements the NFPA documents I provided. I don't need to go through the benefits of sprinklers since everyone agrees on the benefits, so I'll focus on costs. Things have changed since the early 80's. Lumber is different,

furnishings in the home are different. Residents have less than 2 minutes to get out of a house in the event of a fire. When sprinklers are present, 96% of fires are kept in the room of origin. Sprinklers aren't designed to totally put the fire out, but they are designed to get civilians out of homes. There's also data that shows that homebuyers, especially millennials who make up 80% of homebuyers, want sprinklers in their homes once they learn about them, but builders aren't offering them. There are two different documents I'd encourage the group to focus on: US Fire Experience with Sprinklers and US Fire Loss Data. From 2015-2019 sprinklers operating in home fires contained 96% of fires to the area of origin. The data that's all provided goes into great detail in the reduction of fires civilian injury and death, and firefighter injury and death.

Jimmy: Wants to go on the record stating that the presentation from Jeff Shapiro this morning was great and the documents provided by Keith are great.

Keith: To touch on Andrew's incentives question earlier. The incentives are built into the code so aren't the localities providing those incentives? How can a locality deny that?

Ron Clements: We need to separate the building code incentives from the site work incentives. The way the fire prevention code is set up, in section 503, that's the only provision I can find for building code incentives, which isn't to say there aren't others, but section 503.1.1 does allow an exception to the maximum distance a building can be from the fire apparatus road when an NFPA 13d or 13r system is provided in a building. The problem is, if you look at 503.1, the first exception allows the locality to have their own access road requirements, which they may not allow those exceptions. And Ch. 1 of the fire prevention code allows localities to have more restrictive ordinances. It may be a worthy conversation to have to look into that. Is there more that could be done on the site side? Should there be some limitation put into Title 27 with regard to localities overriding the fire prevention code with more restrictive requirements.

Keith: Also references 507.5.1.2 for incentives.

Jimmy: The problem is with the developers – they want to put as many homes as possible in a given area.

Ron: Just to clarify what I meant by the exception. I do not see any such exception in 507 similar to 503 that allows a local written policy to override these sections. The broader point is in 101.5, which allows a locality to override the requirements of the fire prevention code via local amendment. It may be worth looking at this at the statutory level to prohibit removing sprinkler incentives in local regulations.

Jeff: The regs do say the localities can do something more restrictive. When dealing with things like fire roads and fire hydrants, which are outside the scope of construction, the localities could do something with those. If we want to guarantee these tradeoffs should be made available to everyone, that's something we should look at further.

Other Documents and Considerations

Code Change Proposals:

Jeff: The three proposals have been submitted in cdpVA and will be discussed at the June General Stakeholder Workgroup meetings. Since they are related to townhouse sprinkler systems, we wanted this group to have an opportunity to discuss them today, ahead of the June meetings, so we can capture any comments in the study group report. We will look at each of these and see if there's any thought or discussion surrounding them. If you see

something you really like, we can look into the study group supporting it. We will allow code change proponents to provide an overview of their proposal and answer related questions from study group members.

RB313.1-21 – Andrew Milliken

Andrew M.: Provides an overview of the proposal, which requires automatic fire sprinkler systems in townhouses.

Andrew Clark: When we started this initial conversation, and Keith has mentioned it on several occasions, our focus was going to be only on townhouses. Now, we have proposals for townhomes and single-family homes - I thought the intent of this workgroup was to focus on townhomes.

Keith: All three proposals cover townhomes, but Glenn Dean's also covers single-family homes. When you look at the different types of systems, the code allows them to be installed in accordance with P2904, 13D, or 13R. So that's up to the builder.

Andrew Clark: Maybe we can pull up the meeting minutes from one of our prior discussions, but I thought the comment was made that there was no point in having a conversation about 13R.

Jeff: This is just intended to be an opportunity for this group to look at and discuss these residential sprinkler proposals that were submitted in cdpVA by individuals that are not part of this study group. If a member does not want to support a proposal because they feel it is outside of the scope, they are welcome to do that.

Keith: I would be fine recommending disapproval for proposals that deal with single-family homes and having the focus of the group being only townhomes.

Jeff: Asks the group how they want to proceed with proposals that reference single-family homes.

Keith: Fine with removing single-family dwelling discussions.

Andrew Clark: We can make it clear that the group did not discuss single-family and two-family system design. Or we move the single-family proposals as consensus for disapproval. This was a workgroup for townhomes and here we are covering the entire gamut of houses.

Jeff: We do not expect an official recommendation on these proposals from this group. Our thought is to collect comments on these proposals from this group to provide to the Board. If we feel like we do have complete consensus and we want to shift gears and make a recommendation we can do that, but the intent was never to make a recommendation. The intent is only to collect comments to provide to the Board.

Andrew Clark: I'm good with that. I'll respect the process. If the workgroup will not make a formal recommendation, then I'm good with that. I'll let the proponents figure out how they want to handle their individual proposals.

Andrew Milliken: Just to clarify. This proposal does not change or modify anything with regard to P2904, 13D or 13R. That's existing

language not being changed by this proposal. That's good feedback if there's a desire to limit it to P2904 and 13D systems.

Keith: In the spirit of collaboration, I agree with Andrew Clark 100%. This workgroup has not spoken about and will not be speaking about residential sprinkler systems in residential single-family homes. We are focusing on P2904 and 13D systems. 13R is existing language.

Jeff: Staff will capture everyone's thoughts on that and will be clear on that in the report. We will have the group review it and provide any feedback or needed corrections. We will get that report drafted and sent out to the group as soon as we can to give everyone 4 or 5 days to review it and provide comments.

Jimmy: I agree with excluding residential single-family homes. Andrew, I think the biggest thing here is that there are townhouses now that require a 13R system. That's why the NFPA standards are there. Once you get above 3 stories, it's got to be a 13R system.

Andrew Clark: If the 13R system language is in there, could a locality require the home be built to that standard?

Jimmy: We can't arbitrarily pick which system we want the builder to use. It's based on the design of the building. We can't force a builder to use a 13R system.

Ron Clements: The permit applicant or the designer would choose which system to use. The code official does not have the authority to pick the system.

Mike Nannery: My recollection for the task of the workgroup is to focus on townhouses, not single-family homes.

RB313.1(2)-21 – Glenn Dean

Jeff: Opens the floor to Glenn Dean

Glenn: Given the discussions so far, no further comments at this time.

RB313.1(3)-21 – Jeff Shapiro

Jeff Brown: Opens the floor to Jeff Shapiro.

Jeff Shapiro: Would like to bring up a couple of points. The terminology used in VA – I'm not sure why you vary from the model code. Model code language is "automatic sprinkler system" instead of "automatic residential fire sprinkler system." I would like to point out that the model codes do not include NFPA 13 or 13R. When I submitted my proposal last cycle, I was told that I had to include NFPA 13 and 13R. I think it would be better to remove 13 and 13R. My proposal here is a bit different than Andrew's. I looked at the approach taken in Washington State, which over the course of two cycles eventually passed a statewide requirement for townhouses to be fully sprinklered. My proposal provides an exception to only require townhouses to be sprinklered when they are over three townhouse units to accommodate smaller builders in rural areas. My desire was to provide an option to build townhouses without sprinklers up to three units.

Andrew Clark: Has the department of fire programs weighed in on these proposals? Do they support one over the other? Are they neutral?

Keith: No, the codes and standards committee is meeting today so they will be looking at them today.

Andrew Clark: So that is the Board, correct? But what about the department?

Keith: The department itself? No. The Fire Services Board is a part of the Department of Fire Programs and the Codes and Standards Committee is a part of the Fire Services Board. And I just wanted to comment on Jeff's proposal that the nuances of Virginia's code and the model codes are interesting and I appreciate those being brought up. The exception in the proposal for more than three townhomes is another example of trying to get consensus between all of the stakeholders. I don't know what else we can do to try and improve the civilian safety, firefighter safety, and building safety in our communities.

Andrew Clark: It would be nice to figure out what the position of the Fire Services Board is. I don't know what we do about the group expanding its scope beyond its original intent from focusing to townhomes to include single-family homes.

Keith Johnson: The VFCA is in support of both Andrew Milliken's proposal and Jeff Shapiro's proposal.

Andrew Clark: Asks staff to send him the audio and minutes from the previous meeting to review comments by Keith Johnson regarding 13R systems.

Jeff Brown: It seems like there is consensus from the group to remove 13 and 13R systems from the proposals. What does everyone think about that?

Keith: Can we ask the proponents of both code proposals if they are okay with that?

Jeff Brown: Yes. Andrew Clark, would that help with some of your concerns if the proponents did that?

Andrew Clark: Yes, it would certainly bring us consistent with the intent of the workgroup. I'd ask to strike the one and two-family language as well.

Jeff Brown: Andrew Milliken, would you be comfortable suggesting that floor amendment when we get to June on your proposal?

Andrew Milliken: Sure, I would have no objection to that.

Jeff Brown: Jeff Shapiro, are you in agreement with suggesting that floor amendment in June?

Jeff Shapiro: Actually, it would be best to just strike Virginia's amendment to get us back to the model code. It should be done in townhouses and one- and two-family dwellings.

Jeff Brown: Basically, what we are recommending is taking R313.1.1 and reverting it to the model language: "Automatic sprinkler systems for townhouses shall be designed and installed in accordance with Section P2904 or NFPA 13D." Andrew Milliken are you good with that for your proposal, as well?

Andrew Milliken: Yes.

Jeff Brown: We will get those floor amendments in a document based on discussions from the study group. I know Andrew Clark had concerns with one- and two-family dwellings in Glenn Dean's proposal, but he's not here right now so we can't ask him for a friendly amendment. Andrew Clark, we will capture your comments regarding the scope and intent of the study group.

Keith Johnson: I'm happy to meet with Andrew Clark and Glenn Dean to discuss removing that part from his proposal.

Other

Andrew Clark: I should know this, but are the June workgroup meetings in person, virtual, or hybrid?

Jeff Brown: They will be virtual

Andrew Clark: Alright, and there's opportunity from anyone from the public to speak on any of the proposals that are submitted or should folks submit public comment prior to that through cdp? How do you anticipate comments during that meeting?

Jeff Brown: Those will be open to anyone who wants to attend. We will always accept written comments via email. If there are comments in cdp VA before the agenda goes out, we will include those.

Andrew Clark: Thanks DHCD staff for all the work they do.

Jeff Shapiro: Wants to know the end time for the general workgroup meetings?

Jeff Brown: So far, we've just gone through the items on the agenda and some have been completed in a few hours. We typically try to wrap up around 3pm. It will not go past 5pm. If we have to end for the day without addressing everything on the agenda, we will take care of those at another date. I'd say mark your calendar to at least 3pm and 5pm at the latest.