



STATE OF WASHINGTON
STATE BUILDING CODE COUNCIL

May 2018
Log No. _____

1. State Building Code to be Amended:

- | | |
|---|---|
| <input type="checkbox"/> International Building Code | <input type="checkbox"/> International Mechanical Code |
| <input type="checkbox"/> ICC ANSI A117.1 Accessibility Code | <input type="checkbox"/> International Fuel Gas Code |
| <input type="checkbox"/> International Existing Building Code | <input type="checkbox"/> NFPA 54 National Fuel Gas Code |
| <input type="checkbox"/> International Residential Code | <input type="checkbox"/> NFPA 58 Liquefied Petroleum Gas Code |
| <input checked="" type="checkbox"/> International Fire Code | <input type="checkbox"/> Wildland Urban Interface Code |
| <input type="checkbox"/> Uniform Plumbing Code | |

For the Washington State Energy Code, please see specialized [energy code forms](#)

Section(s): 320.4.3, 320.4.3.1 (New), 320.4.3.1, 320.4.3.2, 320.4.3.3, 320.4.3.5 (New), 320.4.3.6 (New)

Title: Outdoor Storage, Technical opinion and report, Distance from storage to exposures, Storage area size limits and separation, fire detection, Containers, Weather protection

2. Proponent Name (Specific local government, organization or individual):

Proponent: Ken Brouillette
Title: Technical Code Coordinator
Date: 9/3/2024

3. Designated Contact Person:

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4. Proposed Code Amendment. Reproduce the section to be amended by underlining all added language, striking through all deleted language. Insert new sections in the appropriate place in the code in order to continue the established numbering system of the code. If more than one section is proposed for amendment or more than one page is needed for reproducing the affected section of the code, additional pages may be attached.

Clearly state if the proposal modifies an existing amendment or if a new amendment is needed. If the proposal modifies an **existing amendment**, show the modifications to the existing amendment by underlining all added language and striking through all deleted language. If a new amendment is needed, show the modifications to the **model code** by underlining all added language and striking through all deleted language.

Code(s) 2024 IFC Section(s) 320.4.3, 320.4.3.1 (New), 320.4.3.1, 320.4.3.2, 320.4.3.3, 320.4.3.5 (New), 320.4.3.6 (New) _____

Enforceable code language must be used.
Amend section to read as follows:

320.4.3 Outdoor storage. Outdoor storage of lithium-ion or lithium metal batteries shall comply with Sections 320.4.3.1 through ~~320.4.3.3~~ 320.4.3.6.

320.4.3.1 Technical opinion and report. A technical opinion and report complying with Section 104.8.2 shall be prepared to evaluate the fire and explosion risks associated with outdoor storage of lithium ion and lithium metal batteries and to make recommendations for fire and explosion protection. The report shall be submitted to the fire code official and shall require the fire code official's approval. In addition to the requirements of Section 104.2.2, the technical opinion and report shall evaluate all of the following:

1. Compliance with this section.
2. Firefighting access and water supply for emergencies involving outdoor battery storage.
3. Outdoor battery fire and explosion hazards
4. Hazards involving flying debris during fire incidents igniting adjacent storage areas, buildings, or other exposure hazards.
5. Handling, storage and monitoring of damaged batteries and post-fire monitoring.

~~**320.4.3.1**~~ **320.4.3.2 Distance from storage to exposures.** Outdoor storage of lithium-ion or lithium metal batteries, ~~including storage beneath weather protection in accordance with Section 414.6.1 of the International Building Code,~~ shall comply with one of the following:

1. Battery storage shall be located not less than 20 feet (6096 mm) from any building, lot line, public street, public alley, public way or means of egress.
2. Battery storage shall be located not less than 3 feet (914 mm) from any building, lot line, public street, public alley, public way or means of egress, where the battery storage is separated by a 2-hour fire-resistance-rated assembly without openings or penetrations and extending 5 feet (1524 mm) above and to the sides of the battery storage area.
3. Battery storage shall be located not less than 3 feet (914 mm) from any building, lot line, public street, public alley, public way or means of egress, where batteries are contained in approved, prefabricated portable structures providing a complete 2-hour fire-resistance-rated enclosure.
4. A maximum of 15 cubic feet of lithium-ion or lithium metal batteries or cells packaged in accordance with DOTn shipping requirements where not less than 3 feet (914 mm) from any building with non-combustible exterior walls, lot line, public street, public alley, public way or means of egress.

~~**320.4.3.2**~~ **320.4.3.3 Storage area size limits and separation.** Outdoor storage areas for lithium-ion or lithium metal batteries, ~~including storage beneath weather protection in accordance with Section 414.6.1 of the International Building Code,~~ shall not exceed 900 square feet (83.6 m²). The height of battery storage in such

areas shall not exceed 10 feet (3048 mm). Multiple battery storage areas shall be separated from each other by not less than ~~10 feet (3048 mm)~~ 20 feet (6096 mm) of open space.

~~320.4.3.3~~ 320.4.3.4 Fire detection. Outdoor storage areas for lithium-ion or lithium metal batteries exceeding 900 sq. ft. (371 m²), regardless of whether such areas are open, under weather protection or in a prefabricated portable structure, shall be provided with an approved automatic fire detection and alarm system complying with Section 907. The fire detection system shall use radiant energy-sensing fire detection.

320.4.3.5 Containers. Containers for outdoor storage of used or waste batteries shall be open-top and constructed of noncombustible materials; containers complying with DOTn regulations for lithium-ion and lithium metal transportation or shall be approved for battery collection and storage.

320.4.3.6 Weather protection. Where weather protection is provided for sheltering outdoor lithium ion or lithium metal battery storage or use areas, such areas shall be considered outdoor storage or use where the weather protection structure complies with all of the following:

1. Walls shall not obstruct more than one side or more than 25 percent of the perimeter of the storage area.
2. The overhead structure shall be of approved noncombustible construction with a maximum area of 3,600 square feet (334.5 m²).
3. The distance from the structure to buildings, lot lines, public ways or means of egress to a public way shall be not less than the distance required for an outside storage in Section 320.4.3.2.
4. Weather protection structures used for sheltering lithium ion or lithium metal battery storage shall be separated from lithium ion or lithium metal battery piles or additional weather protection structures used to shelter lithium ion or lithium metal battery storage by no less than 20 feet (4572mm).
5. The height of battery storage in such areas shall not exceed 10 feet (3048 mm).

5. Briefly explain your proposed amendment, including the purpose, benefits and problems addressed.
This proposal accomplishes the following:

320.4.3.1 removed reference to IBC Weather protection which only applies to hazardous materials, currently we don't treat this battery storage as hazardous materials, but we were pointing to a hazardous material provision for the weather protection. Added 320.4.3.6 to provide weather protection specific to battery storage which is consistent with the requirements of NFPA 855.

320.4.3.1 #4: provides some relief by adding a provision for limited storage for waste batteries as they are collected/packaged for offsite shipping (typically in 55-gallon drums) with batteries in bags to prevent short circuiting, and space between filled with vermiculite. This is common practice and allows for waste pack containers to be outside vs inside, which is generally a much safer option. The quantity limit is still limited to 15 cf consistent with indoor storage allowance. See <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2021-09/Lithium-Battery-Guide.pdf>

320.4.3.2 eliminates the reference to IBC weather protection, it is now addressed directly in its own section.

320.4.3.4 Adds a size threshold for fire detection, which can be complicated and expensive for outdoor design and maintenance. Increases consistency with NFPA 855.

320.4.3.5 Adds a container section for outdoor storage which prescribes allowable container types. .

320.4.3.5 Adds the weather protection requirements.

6. Specify what criteria this proposal meets. You may select more than one.

- The amendment is needed to address a critical life/safety need.
- The amendment clarifies the intent or application of the code.

- The amendment is needed to address a specific state policy or statute.
- The amendment is needed for consistency with state or federal regulations.
- The amendment is needed to address a unique character of the state.
- The amendment corrects errors and omissions.

7. **Is there an economic impact:** Yes No

If no, state reason: The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction.

The provisions of this revised section are focused upon outdoor storage and generally do not affect construction costs. This proposal increases storage options at locations where lithium-ion or lithium metal batteries are being stored outside, though the required technical report could present additional cost for locations that only have outdoor storage, (the report is currently necessary for any indoor storage over 15 cu. ft.), the permit costs are what are potentially increased in the short term, but overall costs are reduced in the long term by providing for an increase in storage options, increased weather protection structure size and allowance for small quantities in DOT shipping containers.

The justification is that by providing for recognition of approved DOT shipping container use and increasing the permissible size of the weather enclosure the overall costs to a site storing batteries outside are reduced. Increasing storage options provides for cost containment. Requiring the technical report upfront identifies hazards and mitigation methods for those hazards, reducing long term operational costs for the facility and the emergency responders.

If yes, provide economic impact, costs and benefits as noted below in items a – f.

- a. **Life Cycle Cost.** Use the OFM Life Cycle Cost [Analysis tool](#) to estimate the life cycle cost of the proposal using one or more typical examples. Reference these [Instructions](#); use these [Inputs](#). Webinars on the tool can be found [Here](#) and [Here](#)). If the tool is used, submit a copy of the excel file with your proposal submission. If preferred, you may submit an alternate life cycle cost analysis.
- b. **Construction Cost.** Provide your best estimate of the construction cost (or cost savings) of your code change proposal.

\$[Click here to enter text.](#)/square foot

(For residential projects, also provide \$[Click here to enter text.](#)/ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages
- c. **Code Enforcement.** List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application:
- d. **Small Business Impact.** Describe economic impacts to small businesses:
- e. **Housing Affordability.** Describe economic impacts on housing affordability:
- f. **Other.** Describe other qualitative cost and benefits to owners, to occupants, to the public, to the environment, and to other stakeholders that have not yet been discussed:

Please send your completed proposal to: sbcc@des.wa.gov

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.