

(Effective March 15, 2024)

**WAC 51-54A-0322 General.**

**322.1 General.** The storage of lithium-ion and lithium metal batteries shall comply with Section 322.

EXCEPTIONS:

1. New or refurbished batteries installed in the equipment, devices, or vehicles they are designed to power.
2. New or refurbished batteries packed for use with the equipment, devices, or vehicles they are designed to power.
3. Batteries in original retail packaging that are rated at 300 watt-hours or less for lithium-ion batteries or contain 25 grams or less of lithium metal for lithium metal batteries.
4. Temporary storage of batteries or battery components during the battery manufacturing process prior to completion of final quality control checks.
5. Temporary storage of batteries during the vehicle manufacturing or repair process.

**322.2 Permits.** Permits shall be required for an accumulation of more than 15 cubic feet (0.42 m) of lithium-ion and lithium metal batteries, other than batteries listed in the exceptions to Section 322.1, as set forth in Section 105.5.14.1.

**322.3 Fire safety plan.** A fire safety plan shall be provided in accordance with Section 403.10.6. In addition, the fire safety plan shall include emergency response actions to be taken upon detection of a fire or possible fire involving lithium-ion or lithium metal battery storage.

**322.4 Storage requirements.** Lithium-ion and lithium metal batteries shall be stored in accordance with Section 322.4.1, 322.4.2, or 322.4.3, as applicable.

**322.4.1 Limited indoor storage in containers.** Not more than 15 cubic feet (0.42 m) of lithium-ion or lithium metal batteries shall be permitted to be stored in containers in accordance with the following:

1. Containers shall be open-top and constructed of noncombustible materials or shall be approved for battery collection.
2. Individual containers and groups of containers shall not exceed a capacity of 7.5 cubic feet (0.21 m).
3. A second container or group of containers shall be separated by not less than 3 feet (914 mm) of open space, or 10 feet (3048 mm) of space that contains combustible materials.
4. Containers shall be located not less than 5 feet (1524 mm) from exits or exit access doors.

**322.4.2 Indoor storage areas.** Indoor storage areas for lithium-ion and lithium metal batteries, other than those complying with Section 322.4.1, shall comply with Sections 322.4.2.1 through 322.4.2.6.

**322.4.2.1 Technical opinion and report.** Where required by the *fire code official* a technical opinion and report complying with Section 104.8.2 shall be prepared to evaluate the fire and explosion risks associated with the indoor storage area 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 prior to issuance of a permit. In addition to the requirements of Section 104.8.2, the technical opinion and report shall specifically evaluate the following:

1. The potential for deflagration of flammable gases released during a thermal runaway event.
2. The basis of design for an automatic sprinkler system or other approved fire suppression system. Such design basis shall reference relevant full-scale fire testing or another approved method of demonstrating sufficiency of the recommended design.

**322.4.2.2 Construction requirements.** Where indoor storage areas for lithium-ion and lithium metal batteries are located in a building with other uses, battery storage areas shall be separated from the remainder of the building by 2-hour rated fire barriers or horizontal assemblies. Fire barriers shall be constructed in accordance with Section 707 of the International Building Code, and horizontal assemblies shall be constructed in accordance with Section 711 of the International Building Code.

EXCEPTIONS: 1. Where battery storage is contained in one or more approved prefabricated portable structures providing a complete two-hour fire resistance rated enclosure, fire barriers and horizontal assemblies are not required.  
2. Where battery storage is limited to new batteries in packaging that has been demonstrated to and approved by the fire code official as sufficient to isolate a fire in packaging to the package interior, fire barriers and horizontal assemblies are not required.

**322.4.2.3 Fire protection systems.** Indoor storage areas for lithium-ion and lithium metal batteries shall be protected by an automatic sprinkler system complying with Section 903.3.1.1 or an approved alternative fire suppression system. The system design shall be based on recommendations in the approved technical opinion and report required by Section 322.4.2.1.

**322.4.2.4 Fire alarm systems.** Indoor storage areas for lithium-ion and lithium metal batteries shall be provided with an approved automatic fire detection and alarm system complying with Section 907. The fire detection system shall use air-aspirating smoke detection, radiant energy-sensing fire detection, or both.

**322.4.2.5 Explosion control.** Where the approved technical opinion and report required by Section 322.4.2.1 recommends explosion control, explosion control complying with Section 911 shall be provided.

**322.4.2.6 Reduced requirements for storage of partially charged batteries.** Indoor storage areas for lithium-ion and lithium metal batteries with a demonstrated state of charge not exceeding 30 percent shall not be required to comply with Section 322.4.2.1, 322.4.2.2, or 322.4.2.5, provided that procedures for limiting and verifying that the state of charge will not exceed 30 percent have been approved.

**322.4.3 Outdoor storage.** Outdoor storage of lithium-ion or lithium metal batteries shall comply with Sections 322.4.3.1 through 322.4.3.3.

**322.4.3.1 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.

**322.4.3.2 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 sq. ft (83.6 m). 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) of open space.

**322.4.3.3 Fire detection.** Outdoor storage areas for lithium-ion or lithium metal batteries, 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.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 22-13-093, 23-12-107, and 23-20-027, § 51-54A-0322, filed 6/14/22, 6/7/23, and 9/25/23, effective 3/15/24.]

*(Effective March 16, 2024)*

**WAC 51-54A-0322 Lithium batteries.**

**322.1 General.** The storage of lithium-ion and lithium metal batteries shall comply with Section 322.

EXCEPTIONS:

1. New or refurbished batteries installed in the equipment, devices, or vehicles they are designed to power.
2. New or refurbished batteries packed for use with the equipment, devices, or vehicles they are designed to power.
3. Batteries in original retail packaging that are rated at 300 watt-hours or less for lithium-ion batteries or contain 25 grams or less of lithium metal for lithium metal batteries.
4. Temporary storage of batteries or battery components during the battery manufacturing process prior to completion of final quality control checks.
5. Temporary storage of batteries during the vehicle manufacturing or repair process.

**322.2 Permits.** Permits shall be required for an accumulation of more than 15 cubic feet (0.42 m<sup>3</sup>) of lithium-ion and lithium metal batteries, other than batteries listed in the exceptions to Section 322.1, as set forth in Section 105.5.14.1.

**322.3 Fire safety plan.** A fire safety plan shall be provided in accordance with Section 403.10.6. In addition, the fire safety plan shall include emergency response actions to be taken upon detection of a fire or possible fire involving lithium-ion or lithium metal battery storage.

**322.4 Storage requirements.** Lithium-ion and lithium metal batteries shall be stored in accordance with Section 322.4.1, 322.4.2, or 322.4.3, as applicable.

**322.4.1 Limited indoor storage in containers.** Not more than 15 cubic feet (0.42 m<sup>3</sup>) of lithium-ion or lithium metal batteries shall be permitted to be stored in containers in accordance with the following:

1. Containers shall be open-top and constructed of noncombustible materials or shall be approved for battery collection.
2. Individual containers and groups of containers shall not exceed a capacity of 7.5 cubic feet (0.21 m<sup>3</sup>).
3. A second container or group of containers shall be separated by not less than 3 feet (914 mm) of open space, or 10 feet (3048 mm) of space that contains combustible materials.

4. Containers shall be located not less than 5 feet (1524 mm) from exits or exit access doors.

**322.4.2 Indoor storage areas.** Indoor storage areas for lithium-ion and lithium metal batteries, other than those complying with Section 322.4.1, shall comply with Sections 322.4.2.1 through 322.4.2.6.

**322.4.2.1 Technical opinion and report.** Where required by the *fire code official* a technical opinion and report complying with Section 104.8.2 shall be prepared to evaluate the fire and explosion risks associated with the indoor storage area 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 prior to issuance of a permit. In addition to the requirements of Section 104.8.2, the technical opinion and report shall specifically evaluate the following:

1. The potential for deflagration of flammable gases released during a thermal runaway event.

2. The basis of design for an automatic sprinkler system or other approved fire suppression system. Such design basis shall reference relevant full-scale fire testing or another approved method of demonstrating sufficiency of the recommended design.

**322.4.2.2 Construction requirements.** Where indoor storage areas for lithium-ion and lithium metal batteries are located in a building with other uses, battery storage areas shall be separated from the remainder of the building by 2-hour rated fire barriers or horizontal assemblies. Fire barriers shall be constructed in accordance with Section 707 of the International Building Code, and horizontal assemblies shall be constructed in accordance with Section 711 of the International Building Code.

EXCEPTIONS:

1. Where battery storage is contained in one or more approved prefabricated portable structures providing a complete two-hour fire resistance rated enclosure, fire barriers and horizontal assemblies are not required.
2. Where battery storage is limited to new batteries in packaging that has been demonstrated to and approved by the fire code official as sufficient to isolate a fire in packaging to the package interior, fire barriers and horizontal assemblies are not required.

**322.4.2.3 Fire protection systems.** Indoor storage areas for lithium-ion and lithium metal batteries shall be protected by an automatic sprinkler system complying with Section 903.3.1.1 or an approved alternative fire suppression system. The system design shall be based on recommendations in the approved technical opinion and report required by Section 322.4.2.1.

**322.4.2.4 Fire alarm systems.** Indoor storage areas for lithium-ion and lithium metal batteries shall be provided with an approved automatic fire detection and alarm system complying with Section 907. The fire detection system shall use air-aspirating smoke detection, radiant energy-sensing fire detection, or both.

**322.4.2.5 Explosion control.** Where the approved technical opinion and report required by Section 322.4.2.1 recommends explosion control, explosion control complying with Section 911 shall be provided.

**322.4.2.6 Reduced requirements for storage of partially charged batteries.** Indoor storage areas for lithium-ion and lithium metal batteries with a demonstrated state of charge not exceeding 30 percent shall not be required to comply with Section 322.4.2.1, 322.4.2.2, or 322.4.2.5, provided that procedures for limiting and verifying that the state of charge will not exceed 30 percent have been approved.

**322.4.3 Outdoor storage.** Outdoor storage of lithium-ion or lithium metal batteries shall comply with Sections 322.4.3.1 through 322.4.3.3.

**322.4.3.1 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.

**322.4.3.2 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 sq. ft. (83.6 m<sup>2</sup>). 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) of open space.

**322.4.3.3 Fire detection.** Outdoor storage areas for lithium-ion or lithium metal batteries, 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.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 23-23-106, § 51-54A-0322, filed 11/15/23, effective 3/16/24; WSR 22-13-093, 23-12-107, and 23-20-027, § 51-54A-0322, filed 6/14/22, 6/7/23, and 9/25/23, effective 3/15/24.]