

City Code, Title 5, Chapter 12, Fire Prevention Code

Proposed Amendments (DRAFT 8/23/24)

- Amend City Code, Title 5, Chapter 12, Fire Prevention Code, Table of Contents (portions altered with new Sections added and renumbered Sections) as follows:

SECTION:

5-12-4 IFC Amendment, Section 103.3, Deputies.

5-12-~~4~~5 IFC Amendment, Add Section 104.2.1, Fire Department Plan Review.

5-12-6: IFC Amendment, Section 105.2.3, Time Limitation of Application

5-12-7: IFC Amendment, Section 105.3.2, Extensions

5-12-~~5~~8: IFC Amendment, Section 105.3.3, Occupancy Prohibited Before Approval

5-12-~~6~~9: IFC Amendment, Add Section 106.6, Re-Review Fee

5-12-~~7~~10: IFC Amendment, Add Section 106.7, Fire Protection System Plan Modification Fee

5-12-~~8~~11: IFC Amendment, Add Section 106.8, Reinspection Fees

5-12-~~9~~12: IFC Amendment, Section 109.1, Board of Appeals Established

5-12-~~10~~13: IFC Amendment, Section 110.4, Violation Penalties

5-12-~~11~~14: IFC Amendment, Section 112.4, Failure to Comply

5-12-~~12~~15: IFC Amendment, Section 202, General Definitions

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5-12-~~14~~17: IFC Amendment, Section 307.2, Permit Required

5-12-~~15~~18: IFC Amendment, Section 307.2.2, Air Quality Index

5-12-~~16~~19: IFC Amendment, Add Section 315.3.5, Storage Height Signage

5-12-~~17~~20: IFC Amendment, Add Section 401.8.1, Silencing Fire Alarms

5-12-~~18~~21: IFC Amendment, Section 503.1.1, Buildings And Facilities

5-12-~~19~~22: IFC Amendment, Section 503.2.4, Turning Radius

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5-12-~~21~~24: IFC Amendment, Add Section 503.3.1, Signage

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5-12-2326: IFC Amendment, Add Section 503.7, Dive Boat Access

5-12-2427: IFC Amendment, Add Section 505.1.1, Corner Lots

5-12-2528: IFC Amendment, Add Section 505.1.2, Tenant Space Identification

5-12-2629: IFC Amendment, Add Section 505.1.3, Addresses For Multifamily Dwellings

5-12-2730: IFC Amendment, Section 506.1, Key Boxes Where Required

5-12-2831: IFC Amendment, Section 507.2, Type Of Water Supply

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5-12-3033: IFC Amendment, Add Section 507.5.7, Fire Hydrant Supply Connections

5-12-3134: IFC Amendment, Section 701.6, Owner's Responsibility

5-12-3235: IFC Amendment, Add Section 901.4.2.1, Non-Required Fire Alarm Systems

5-12-3336: IFC Amendment, Add Section 903.3.1.1.3, Speculative Warehouse

5-12-3437: IFC Amendment, Add Section 903.3.1.3.1, NFPA 13D Alarms

5-12-3538: IFC Amendment, Add Section 903.3.5.3, Control Valve Location

5-12-3639: IFC Amendment, Add Section 903.3.5.4, Depth Of Cover

5-12-3740: IFC Amendment, Section 903.4.3, Floor Control Assembly

5-12-3841: IFC Amendment, Add Section 904.7.2, Use Of Foam-Water Suppression Systems

5-12-3942: IFC Amendment, Add Section 906.5.1, Multi-Story Installation Near Stairwells

5-12-43: **IFC AMENDMENT, ADD SECTION 907.6.6.3, Single Communications Path Monitoring Systems**

5-12-4044: IFC Amendment, Add Section 907.6.7, FACP Location And Identification

5-12-4145: IFC Amendment, Add Section 912.2.3, Distance To Access And Water Supply

5-12-4246: IFC Amendment, Section 914.3.1.2, Water Supply To Required Fire Pumps

5-12-4347: IFC Amendment, Add Section 914.8.3.3, Use Of Foam Systems In Aircraft Hangars

5-12-4448: IFC Amendment, Section 1101.1, Scope

5-12-4549: IFC Amendment, Section 2007.6, Foam Protection

5-12-4650: IFC Amendment, Section 3304.5, Fire Watch

5-12-4751: IFC Amendment, Add Section 3304.9, Fire Safety Requirements For Buildings Of Types IV-A, IV-B, And IV-C Construction

5-12-4852: IFC Amendment, Add Chapter 40, CHILDCARE FACILITIES

5-12-4953: IFC Amendment, Add Chapter 41, WILDLAND-URBAN INTERFACE (WUI) CODE

- 5-12-~~50~~54: IFC Amendment, Section 5601.1.3, Fireworks
- 5-12-~~51~~55: IFC Amendment, Section 5609, Fireworks Sales and Use
- 5-12-~~52~~56: IFC Amendment, Chapter 80, Referenced Standards
- 5-12-~~53~~57: IFC Amendment, Adopt Appendix B, Fire-Flow Requirements For Buildings
- 5-12-58: IFC Amendment, Appendix B Section B104.2, Area Separation, Add Exception
- 5-12-~~54~~59: IFC Amendment, Adopt Appendix C, Fire Hydrant Locations And Distribution
- 5-12-~~55~~60: IFC Amendment, Adopt Appendix D, Fire Apparatus Access Roads
- 5-12-~~56~~61: IFC Amendment, Amend Section D103.2, Grade
- 5-12-~~57~~62: IFC Amendment, Amend Section D103.5, Fire Apparatus Access Road Gates
- 5-12-~~58~~63: IFC Amendment, D107.1, One- Or Two-Family Dwelling Residential Developments
- 5-12-~~59~~64: IFC Amendment, Adopt Appendix F, Hazard Ranking
- 5-12-~~60~~65: IFC Amendment, Adopt Appendix L, Requirements for Fire Fighter Air Replenishment Systems
- 5-12-~~61~~66: IFC Amendment, Appendix L, L101.1, Scope
- 5-12-67: IFC Amendment, Add Chapter 42, Requirements for Storage, Manufacturing or Usage of Lithium Metal and Lithium-ion Batteries.

➤ After Section 5-12-3, add a new Section 5-12-4 to read as follows:

5-12-4: IFC Amendment, Section 103.3, Deputies

103.3 Deputies. In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the fire code official shall have the authority to appoint a deputy fire code official, other related technical officers, inspectors, code compliance officers, and other employees.

➤ Amend Renumbered Section 5-12-5, Fire Department Plan Review as follows:

5-12-~~4~~5 IFC Amendment, Section 104.2.1, Fire Department Plan Review

104.2.1 Fire Department Plan Review. It is the intent of Council by passage of this section to adopt minimum standards of life and property safety by requiring that all commercial building plans be submitted to the Fire Department for review for compliance with the International Fire Code as adopted and amended. It is further the intent of the Council that to avoid confusion, any amendments, waivers, variances, or approved equivalents to sections of the International Building Code, or any other adopted code in the city, which are duplicated in the International Fire Code do not automatically constitute amendment, waiver, variance, or approved equivalent of the

affected section of the Fire Code, unless the fire code official has specifically approved an amendment, waiver, variance, or an equivalent of the affected section of the Fire Code. In addition to those items specified elsewhere in this code, the Fire Department shall review and approve plans for the following before a building permit is issued:

1. All new commercial buildings;
2. All remodels in commercial buildings requiring modification to fire sprinklers or fire alarms;
3. Any change of occupancy classification of a building or any part thereof;
4. New residential, or additions to existing residential occupancies that add fire area, and/or solar installations of three (3) or more units are to be reviewed for fire flow, fire hydrant distance, fire access, and hose reach only;
5. Commercial parking lots;
6. Commercial grading or drainage

➤ After Section 5-12-5, add a new Section 5-12-6 to read as follows:

5-12-6: IFC Amendment, Section 105.2.3, Time Limitation of Application.

105.2.3 Time Limitation of Application. An application for a permit for any proposed work or operation shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been diligently prosecuted or a permit shall have been issued; except that the fire code official is authorized to grant up to 3 extensions of time for additional periods not exceeding 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

➤ After new Section 5-12-6, add a new Section 5-12-7 to read as follows:

5-12-7: IFC Amendment, Section 105.3.2, Extensions.

105.3.2 Extensions. A permittee holding an unexpired permit shall have the right to apply for an extension of the time within which the permittee will commence work under that permit where work is unable to be commenced within the time required by this section for good and satisfactory reasons. The fire code official is authorized to grant, in writing, up to 3 extensions of the time period of a permit for periods of not more than 180 days each. Such extensions shall be requested by the permit holder in writing and justifiable cause demonstrated.

Then renumber all subsequent Sections 5-12-8 through 5-12-42.

➤ Amend Renumbered City Code 5-12-33, IFC Amendment, Add Section 507.5.7, Fire Hydrant Supply Connections, as follows:

5-12-~~30~~33: IFC AMENDMENT, ADD SECTION 507.5.7, FIRE HYDRANT SUPPLY CONNECTIONS:

507.5.7 Fire Hydrant Supply Connections. Fire hydrants and fire suppression systems shall be supplied with independent connections to the municipal supply mains. Looped private fire service mains that are supplied from two (2) points of connection to municipal supply mains shall be allowed.

Exception: Where sprinkler hydraulic calculations show that a minimum of 500 GPM can be provided at the hydrant while simultaneously supplying the fire sprinkler system hydraulic demand plus required hose allowance. Approval of this exception must be approved by the water purveyor prior to submitting for permit. The approval letter must be included in the fire sprinkler permit submittal package.

- Amend Renumbered City Code 5-12-41, IFC Amendment, Add Section 904.7.2, Use of Foam-Water Suppression Systems, as follows:

5-12-~~38~~41: IFC AMENDMENT, ADD SECTION 904.7.2, USE OF FOAM-WATER SUPPRESSION SYSTEMS:

904.7.2 Use of Foam-Water Suppression Systems. Only UL listed fluorine-free foam shall be used ~~Prior to the approval of any permit~~ for the installation or modification of a foam-water suppression system. ~~approval in writing shall be received from the fire code official. Approval shall only be permitted when in the opinion of the fire code official no reasonable alternative to these systems exist. Where permitted, mitigation measures~~ Proper disposal shall be provided for the fluorine foam being replaced as approved by the fire code official.

- After Renumbered Section 5-12-42, add a new Section 5-12-43 to read as follows:

5-12-43: IFC AMENDMENT, ADD SECTION 907.6.6.3, Single Communication Path Monitoring Systems:

907.6.6.3 Single Communication Path Monitoring Systems. IP based single communication path monitoring systems are prohibited unless approved by the Fire Marshal prior to submittal for permit. Approval shall only be permitted when, in the opinion of the fire code official, no reasonable alternative exists.

Then renumber all subsequent Sections 5-12-44 through 5-12-57.

- Amend Renumbered City Code 5-12-47, IFC Amendment, Add Section 914.8.3.3, Use of Foam Systems in Aircraft Hangars, as follows:

5-12-~~43~~47: IFC AMENDMENT, ADD SECTION 914.8.3.3, USE OF FOAM SYSTEMS IN AIRCRAFT HANGARS:

914.8.3.3 Use of Foam Systems in Aircraft Hangars

Only UL listed fluorine-free foam shall be used ~~Prior to the approval of any permit~~ for the installation or modification of a foam-water suppression system. ~~approval in writing shall be received from the fire code official. Approval shall only be permitted when in the opinion of the fire code official no reasonable alternative to these systems exist.~~ Where permitted, mitigation measures Proper disposal shall be provided for the fluorine foam being replaced as approved by the fire code official.

- Amend Renumbered City Code 5-12-49, IFC Amendment, Section 2007.6, Foam Protection, as follows:

5-12-~~45~~49: IFC AMENDMENT, SECTION 2007.6, FOAM PROTECTION:

Section 2007.6 Foam Protection. Add a paragraph to the end of 2007.6 to read as follows: Only UL listed fluorine-free foam shall be used ~~Prior to the approval of any permit~~ for the installation or modification of a foam-water suppression system. ~~approval in writing shall be received from the fire code official. Approval shall only be permitted when in the opinion of the fire code official no reasonable alternative to these systems exist.~~ Where permitted, mitigation measures Proper disposal shall be provided for the fluorine foam being replaced as approved by the fire code official.

- Amend Renumbered City Code 5-12-53, IFC Amendment, Add Chapter 41, Wildland-Urban Interface (WUI) Code, as follows:

5-12-~~49~~53: IFC AMENDMENT, ADD CHAPTER 41, WILDLAND-URBAN INTERFACE (WUI) CODE:

4103.1 Site Plan. In addition to the requirements for plans in the International Building Code, site plans shall include topography, width, and percent of grade of access roads, landscape and vegetation details, locations of structures or building envelopes, existing or proposed overhead utilities, occupancy classification of buildings, types of ignition-resistant construction of buildings, structures and their appendages, roof classification of buildings, and site water supply systems. The code official is authorized to waive or modify the requirement for a site plan where the application for permit is for alteration or repair or where otherwise warranted.

4103.2 Wildfire Safety ~~and Mitigation~~ Plan. Prior to or with a submittal of a preliminary plat or annexation, a Wildfire Safety ~~and Mitigation~~ Plan, ~~with site plan~~, shall be prepared and submitted to the code official for review and approved as a part of the plans required for a permit. The Wildfire Safety Plan shall be incorporated into the Covenants, Conditions, and Restrictions (CC&Rs) for developments (if established) to ensure implementation, maintenance, and adherence to these requirements.

4103.2.1 General. When required by the code official, a Wildfire Safety ~~and Mitigation~~ Plan shall be prepared.

4103.2.2 Content. The plan shall be based upon a site-specific, wildfire risk assessment that includes considerations of location, topography, aspect, flammable vegetation, climatic conditions, and fire history. The plan shall also address water supply, fire department access, requirements for ignition-resistant construction and other ignition-resistance factors, ~~structure ignition and fire resistance factors~~, fire protection systems and equipment, defensible space, and vegetation management, audit process, and other information as required by the fire code official.

4103.2.2.1 Vegetation Management. This section shall describe all actions that will be taken to prevent a fire from being carried toward or away from the structure(s), and shall include at least the following information:

1. Methods and timetables for controlling, changing, or modifying areas on the property to create and maintain defensible space. Elements of the plan shall include removal of slash, snags, vegetation that may grow into overhead electrical lines, other ground fuels, ladder fuels and dead trees, and the thinning of live trees, landscaping plans, etc.

2. A plan for maintaining the proposed hazardous fuel-reduction and mitigation measures.

3. A plan or process to monitor and report the implementation of the vegetation management actions.

4103.2.3 Maintenance. The Wildfire Safety ~~and Mitigation~~ Plan shall be incorporated into the CC&R's for subdivisions to ensure long-term maintenance and adherence to these requirements.

4103.2.4 Cost. The cost of plan preparation and review shall be the responsibility of the applicant.

4103.2.5 Plan Retention. The plan shall be retained by the code official.

4103.2.6 Qualifications. The plan shall be prepared by a special expert (e.g., ~~w~~Wildfire ~~m~~Mitigation ~~s~~Specialist) or other person demonstrating the competence and relevant wildfire mitigation experience or training. The preparer shall be acceptable and approved by the fire code official.

IGNITION-RESISTANT CONSTRUCTION, CLASS 1 (IR1), AND CLASS 2 (IR2) & CLASS 3 (IR3). A schedule of additional requirements for construction in wildland-urban interface areas based on representative fire hazard.

~~NON-COMBUSTIBLE~~ **NONCOMBUSTIBLE**. As applied to building construction material, means a material that, in the form in which it is used, is either one of the following:

1. Material of which no part will ignite and burn when subjected to fire. Any material conforming to ASTM E 136 shall be considered ~~non-combustible~~ noncombustible within the meaning of this section.

2. Material having a structural base of ~~non-combustible~~ noncombustible material as defined in Item 1 above, with a surfacing material not over 1/8-inch-thick, which has a flame spread index of 50 or less. Flame spread index as used herein refers to a flame spread index obtained according to tests conducted as specified in ASTM E 84 or UL 723.

~~"Non-combustible"~~ "Noncombustible" does not apply to surface finish materials. Material required to be ~~non-combustible~~ noncombustible for reduced clearances to flues, heating appliances or other sources of high temperature shall refer to material conforming to Item 1. No material shall be classified as ~~non-combustible~~ noncombustible that is subject to an increase in combustibility or flame spread index, beyond the limits herein established, through the effects of age, moisture, or other atmospheric condition.

~~NON-COMBUSTIBLE~~ NONCOMBUSTIBLE ROOF COVERING. A roof covering consisting of any of the following:

1. Cement shingles or sheets;
2. Exposed concrete slab roof;
3. Ferrous or copper shingles or sheets;
4. Slate shingles;
5. Clay or concrete roofing tile;
6. Approved roof covering of ~~non-combustible~~ noncombustible material.

OPEN BURNING. The burning of materials wherein products of combustion are emitted directly into the ambient air without passing through a stack or chimney from an enclosed chamber. Open burning does not include road flares, smudge-pots and similar devices associated with safety or occupational uses typically considered open flames. Recreational fires or use of portable outdoor fireplaces shall be considered open burning. For the purpose of this definition, a chamber shall be regarded as enclosed when, during the time combustion occurs, only apertures, ducts, stacks, flues, or chimneys necessary to provide combustion air and permit the escape of exhaust gas are open.

SPECIAL EXPERT. An individual who has demonstrated qualifications in a specific area, outside of the practice of architecture or engineering, through education, training, and experience.

WILDFIRE SAFETY AND MITIGATION PLAN. A document prepared for a specific project or development proposed for wildland-urban interface areas. It describes ways to

minimize and mitigate the fire problems created by the project or development, with the purpose of reducing the impact on the community's fire protection delivery system.

4105.2.2 General IR2 Areas. Areas required to utilize Class 2 Ignition-Resistant Construction (IR2) shall generally depict valley, desert, and other occluded fire hazard areas that do not include sloped terrain. Interior lots for ~~IR2~~ IR1 areas may be allowed to utilize Class ~~3~~ 2 Ignition-Resistant Construction (~~IR3~~) (IR2) as determined by the code official.

4108.1 General. Buildings and structures hereafter constructed, modified, or relocated into or within wildland-urban interface areas shall meet site-specific construction requirements based on a determination by the code official. Class 1 (IR1), and Class 2 (IR2), ~~and Class 3 (IR3)~~ ignition-resistant construction shall be in accordance with Sections 4109, and 4110 ~~and 4111~~, respectively. Materials required to be ignition-resistant materials shall comply with the requirements of Section 4108.2, the International Building Code, International Fire Code and Boise City Code.

4108.2 Ignition-Resistant Building Material. Ignition-resistant building materials shall comply with any one of the following:

1. Material shall be tested on all sides with the extended ASTM E 84 (UL 723) test or ASTM E 2768, except panel products shall be permitted to test only the front and back faces. Panel products shall be tested with a ripped or cut longitudinal gap of 1/8 inch (3.2 mm). Materials that, when tested in accordance with the test procedures set forth in ASTM E 84 or UL 723 for a test period of 30 minutes, or with ASTM E 2768, comply with the following:

1.1. Flame spread. Material shall exhibit a flame spread index not exceeding 25 and shall not show evidence of progressive combustion following the extended 30-minute test.

1.2. Flame front. Material shall exhibit a flame front that does not progress more than 10-1/2 feet (3200 mm) beyond the centerline of the burner at any time during the extended 30-minute test.

1.3. Weathering. Ignition-resistant building materials shall maintain their performance in accordance with this section under conditions of use. Materials shall meet the performance requirements for weathering (including exposure to temperature, moisture, and ultraviolet radiation) contained in the following standards, as applicable to the materials and the conditions of use:

1.3.1. Method A "Test Method for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing" in ASTM D 2898, for fire-retardant-treated wood, wood-plastic composite, and plastic lumber materials.

1.3.2. ASTM D 7032 for wood-plastic composite materials.

1.3.3. ASTM D 6662 for plastic lumber materials.

1.4. Identification. All materials shall bear identification showing the fire test results.

Exception: Materials comprised of a combustible core and a ~~non-combustible~~ noncombustible exterior covering, comprised of either aluminum at a minimum 0.019-inch (0.48 mm) thickness or corrosion-resistant steel at a minimum 0.0149-inch (0.38 mm) thickness shall not be required to be tested with a ripped or cut longitudinal gap.

2. ~~Non-combustible~~ Noncombustible material. Material that meets the definition of ~~non-combustible~~ noncombustible in Section 4104.

3. Fire-retardant-treated wood. Fire-retardant-treated wood identified for exterior use and meeting the requirements of Section 2303.2 of the International Building Code.

4. Fire-retardant-treated wood roof coverings. Roof assemblies containing fire-retardant-treated wood shingles and shakes that comply with the requirements of Section 1505.6 of the International Building Code and classified as Class A roof assemblies as required in Section 1505.2 of the International Building Code.

4109.2 Roof Covering. Roofs shall have a roof assembly or roof covering, which shall comply with a Class A rating when tested in accordance with ASTM E 108 or UL 790. For roof coverings where the profile allows a space between the roof covering and roof decking, the space at the eave ends shall be fire-stopped to preclude entry of flames or embers, or have one layer of 72-pound mineral-surfaced, nonperforated cap sheet complying with ASTM D 3909 installed over the combustible decking.

Exceptions:

1. Class A roof assemblies include those with coverings of brick, masonry, or an exposed concrete roof deck.

2. Class A roof assemblies also include ferrous or copper shingles or sheets, metal sheets and shingles, clay or concrete roof tile or slate installed on ~~non-combustible~~ noncombustible decks or ferrous, copper or metal sheets installed without a roof deck on ~~non-combustible~~ noncombustible framing.

3. Class A roof assemblies include minimum 16 oz/sq. ft. copper sheets installed over combustible decks.

4109.4 Gutters and Downspouts. Gutters and downspouts shall be constructed of ~~non-combustible~~ noncombustible material. Gutters shall be provided with an approved means to prevent the accumulation of leaves and debris in the gutter.

4109.5 Exterior Walls. Exterior walls of buildings or structures shall be constructed with one of the following methods:

1. Materials approved for not less than 1-hour fire- resistance-rated construction on the exterior side;

2. Approved ~~non-combustible~~ noncombustible materials;

3. Heavy timber or log wall construction;

4109.7 Appendages and Projections. Unenclosed accessory structures attached to buildings with habitable spaces and projections, such as decks, shall be not less than 1-hour fire-resistance-rated construction or constructed of one of the following:

1. Approved ~~non-combustible~~ noncombustible materials;
2. Fire-retardant-treated wood identified for exterior use and meeting the requirements of Section 2303.2 of the International Building Code;
3. Ignition-resistant building materials in accordance with Section 4108.2;
4. Heavy timber construction with following minimum dimensions: 6 by 6-inches for columns, 4 by 8-inches for joists, 4 by 10-inches or 6 by 8-inches for beams and 3 by 4-inches for ledgers.

4109.9 Exterior Doors. Exterior doors shall be approved ~~non-combustible~~ noncombustible construction, solid core wood not less than 1-3/4 inches thick or have a fire protection rating of not less than 20 minutes. Windows within doors and glazed doors shall be in accordance with Section 4109.8.

Exception: Vehicle access doors.

4109.10 Vents. Attic ventilation openings, foundation or underfloor vents, or other ventilation openings in vertical exterior walls and vents through roofs shall not exceed 144 square inches each. Such vents shall be covered with ~~non-combustible~~ noncombustible corrosion-resistant mesh with openings not to exceed 1/8 inch or shall be designed and approved to prevent flame or ember penetration into the structure.

Exceptions:

1. Clothes dryer and plumbing vents are exempt from the installation of the mesh covering.
2. Appliance vents that are prohibited by the manufacturer to be covered by mesh.
3. Where noncombustible exhaust vents with louvers, and 1/4-inch wire mesh screens are provided, which prevent the intrusion of embers into a vent opening.
4. Where no acceptable alternative exists for air intake vents.

4109.10.2 Vent Materials. Plumbing and appliance vents are not required to be of a noncombustible material unless required by the manufacturer of the appliance.

4109.11 Detached Accessory Structures. Detached accessory structures, ~~greater than 200 square feet in floor area,~~ located less than 50 feet from a building containing habitable space shall have exterior walls constructed with materials approved for not less than 1-hour fire-resistance-rated construction, heavy timber, log wall construction, or constructed with approved ~~non-combustible~~ **noncombustible** materials or fire-retardant-treated wood on the exterior side. The fire-retardant-treated wood shall be labeled for exterior use and meet the requirements of Section 2303.2 of the International Building Code.

4111 CLASS 3 IGNITION-RESISTANT CONSTRUCTION (IR3)

4111.1 General. ~~Class 3 ignition resistant construction shall be in accordance with Sections 4111.2 through 4111.5~~

~~—4111.2 Roof Covering.~~ Roofs shall have at least a roof assembly that complies with a Class B rating when tested in accordance with ASTM E 108 or UL 790 or an approved ~~non-combustible~~ roof covering. For roof coverings where the profile allows a space between the roof covering and roof decking, the space at the eave ends shall be fire-stopped to preclude entry of flames or embers, or have one layer of 72-pound mineral-surfaced, nonperforated cap sheet complying with ASTM D 3909 installed over the ~~combustible~~ decking.

~~—4111.2.1 Roof Valleys.~~ Where provided, valley flashings shall be not less than 0.019-inch (No. 26 galvanized sheet gage) corrosion-resistant metal installed over a minimum 36-inch wide underlayment consisting of one layer of 72-pound mineral-surfaced, nonperforated cap sheet complying with ASTM D 3909 running the full length of the valley.

~~—4111.3 Underfloor Enclosure.~~ Buildings or structures shall have underfloor areas enclosed to the ground with exterior walls.

~~—Exception: Complete enclosure shall not be required where the underside of exposed floors and exposed structural columns, beams and supporting walls are protected as required for exterior 1-hour fire-resistance-rated construction, fire-retardant treated wood, or heavy timber construction. Fire-retardant-treated wood shall be labeled for exterior use and meet the requirements of Section 2303.2 of the International Building Code.~~

~~—4111.4 Gutters and Downspouts.~~ Gutters and downspouts shall be constructed of ~~non-combustible~~ material. Gutters shall be provided with an approved means to prevent the accumulation of leaves and debris in the gutter.

~~—4111.5 Exterior Glazing.~~ Exterior windows, window walls and glazed doors, windows within exterior doors, and skylights shall be tempered glass, multilayered glazed panels, glass block or have a fire protection rating of not less than 20 minutes.

~~—Exception: This does not apply to exterior glazing features that are located 30 feet or greater from an adjacent dwelling or accessory structure in an IR3 area.~~

4111 INSTALLATION, REPAIR AND REPLACEMENT OF FENCES

4111.1 General. This section shall apply for all new installations of fences and replacement of existing fence sections. All fence and/or gate sections within eight feet (8') of any habitable structure shall be constructed of noncombustible materials only. Combustible fencing shall not be allowed within eight feet (8') of a habitable structure.

4113 REPLACEMENT OR REPAIR OF SIDING

4113.1 General. The siding on buildings or structures in existence prior to the adoption of this code that are replaced or have 50 percent or more replaced in a 12-month period shall be replaced with siding required for new construction based on the type of ignition-resistant construction specified in accordance with Section 4108 through 4010 4111.

4115.3 Fuel Modification. Buildings or structures in designated wildland-urban interface (WUI) areas, shall comply with defensible space fuel modification distances as required by the code official. Fuel modification distance shall be at least 30 feet. Distances shall be measured on a horizontal plane from the perimeter or projection of the building or structure. Distances may be increased by the code official per requirements in the Wildfire Safety Plan, or because of a other site-specific analysis based on local conditions. ~~and the wildfire safety and mitigation plan.~~

Exception: Fuel modification from any portion of the structure, including appendages, to a lot line that adjoins a neighboring residential lot or development. The fuel modification in this area shall be to the lot line if the distance is less than 30 feet. ~~and to a minimum of 30 feet if available.~~

4115.3.4 Fuel-Free Area. A fuel-free area of 5 feet is required around all structures. This area shall utilize and maintain only approved fire-resistant vegetation and ~~non-~~ combustible noncombustible mulches (e.g., rock mulch).

4116.4 Trees. Tree crowns extending to within 10 feet of any structure shall be pruned to maintain a minimum horizontal clearance of 10 feet. Tree crowns within the defensible space shall be pruned to remove limbs located less than 6 feet above the ground surface adjacent to the trees.

Exception: Shorter-stature trees shall be pruned to remove all limbs located above the ground to 1/3 of the tree crown height (e.g., a nine-foot tree shall be limbed up three feet from the ground).

4121.7.1 General. Persons shall not build, ignite, or maintain any outdoor fire of any kind for any purpose, in an IR1 wildland-urban interface area, except by the authority of a written permit from the code official. Outdoor fires on residential lots or designated campsites, where such fires are in an outdoor fireplace, incinerator, or grill, shall be located not less than 30 feet from any combustible material or non-fire-resistive

vegetation; and shall have openings protected with an approved spark arrestor, screen or door, unless otherwise approved by the code official.

Exceptions:

Propane-fired or natural gas-fired outdoor fireplaces, on residential lots, which are located not less than 15 feet from any combustible material or non-fire-resistive vegetation.

~~1. Outdoor fires within inhabited premises or designated campsites where such fires are in an outdoor fireplace, incinerator or grill and are not less than 30 feet from any combustible material or non-fire-resistive vegetation; and which have openings protected with an approved spark arrestor, screen or door, unless otherwise approved by the code official.~~

~~2. Propane-fired portable outdoor fireplaces within inhabited premises and are not less than 15 feet from any combustible material or non-fire-resistive vegetation.~~

➤ After Section 5-12-57, add a new Section 5-12-58 to read as follows:

5-12-58: IFC AMENDMENT, APPENDIX B, SECTION B104.2, AREA SEPARATION, ADD EXCEPTION:

Add the following Exception to Section B104.2:

Exception: For additions to detached single-family dwellings, area separations shall be in accordance with 901.4.3.

Then renumber all subsequent Sections 5-12-59 through 5-12-66.

➤ After Section 5-12-66, add a new Section 5-12-67 to read as follows:

5-12-67: IFC Amendment, Chapter 42, REQUIREMENTS FOR STORAGE, MANUFACTURING, OR USAGE OF LITHIUM METAL AND LITHIUM-ION BATTERIES

CHAPTER 42
Requirements for Storage, Manufacturing, or Usage of Lithium Metal and Lithium-ion Batteries

Section 4201

4201.1 DEFINITIONS:

4201.1.1 POWERED MICROMOBILITY DEVICES. Motorized bicycles, motorized scooters and other personal mobility devices powered by a lithium-ion or lithium metal battery.

The term does not include motor vehicles that are required to be registered with the Department of Motor Vehicles for the state or jurisdiction.

4201.1.2 ELECTRIC VEHICLE (EV) PARKING SPACE. Is a parking space that is provided with an EV charging port. (A single charging station may provide EV charging capabilities for more than one parking space utilizing extension charging ports connected to the same charging station.)

4201.1.3 Energy Storage System, Electrochemical. An energy storage system that stores energy and produces electricity using chemical reactions. It includes, among others, battery ESS and capacitor ESS.

SECTION 4202

4202.1 Permits

4202.2 Lithium batteries. An operational permit is required for an accumulation of more than 15 cubic feet (0.42 m³) of lithium-ion and lithium metal batteries, where required by Section 4203.

4202.3 Permits. Permits shall be required as set forth in Section 105.6 for the activities or uses regulated by Sections 307, 308, 315, and 4203.

SECTION 4203

4203.1 Storage of lithium-ion and lithium metal batteries

4203.2 General. The storage of lithium-ion and lithium metal batteries shall comply with Section 4203.5.

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.

4203.3 Permits. Permits shall be required for an accumulation of more than 15 cubic feet (0.42 m³) of lithium-ion and lithium metal batteries, other than batteries listed in the exceptions to Section 322.1, as set forth in Section 105.6.25

4203.4 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.

4203.5 Storage requirements. Lithium-ion and lithium metal batteries shall be stored in accordance with Section 4203.5.1, 4203.5.2 and 4203.5.3, as applicable.

4203.5.1 Limited indoor storage in containers. Not more than 15 cubic feet (0.42 m³) of lithium-ion or lithium metal batteries shall be permitted to be stored in containers in accordance with all of 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 m³).

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 (3,048 mm) of space that contains combustible materials.

4. Containers shall be located not less than 5 feet (1,524 mm) from exits or exit access doors.

4203.5.2 Indoor storage areas. Indoor storage areas for lithium-ion and lithium metal batteries, other than those complying with Section 4203.5.1, shall comply with Sections 4203.5.2.1 through 4203.5.2.6.

4203.5.2.1 Technical opinion and report. A technical opinion and report complying with Section 104.7.2 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 104.7.2, 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.

4203.5.2.2 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 2-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.

4203.5.2.3 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 4203.5.2.1.

4203.5.2.4 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.

4203.5.2.5 Explosion control. Where the approved technical opinion and report required by Section 4203.5.2.1 recommends explosion control, explosion control complying with Section 911 shall be provided.

4203.5.2.6 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 Sections 4203.5.2.1, 4203.5.2.2, or 4203.5.2.5, provided that procedures for limiting and verifying that the state of charge will not exceed 30 percent have been approved.

4203.5.3 Outdoor Storage. Outdoor storage of lithium-ion or lithium metal batteries shall comply with Sections 4203.5.3.1 through 4203.5.3.3.

4203.5.3.1 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 (6,096 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 (914mm) 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 (1,524 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.

4203.5.3.2 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 m²). The height of battery storage in such areas shall not exceed 10 feet (3,048 mm). Multiple battery storage areas shall be separated from each other by not less than 10 feet (3,048 mm) of open space.

4203.5.3.3 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.

SECTION 4204

4204.1 Powered micromobility devices

4204.2 General. Lithium-ion and lithium metal battery powered micromobility devices shall be operated and maintained in accordance with this section.

Exceptions:

1. Storage, repair and charging in residential occupancies of battery powered mobility devices, provided that such devices are for personal use by its owner.

2. Charging of a single powered mobility device in any occupancy by its owner.

4204.2.1 Prohibited locations. The use of a residential occupancy as a business for the charging of commercially owned powered mobility devices as part of a rental or sales service shall not be permitted.

4204.3 Battery chargers and equipment. Powered micromobility devices shall be charged in accordance with their listing and the manufacturer's instructions using only the original equipment manufacturer-supplied charging equipment or charging equipment in accordance with the listing and manufacturer's instructions.

4204.4 Listing. Powered micromobility devices shall be listed and labeled in accordance with UL 2272 or UL 2849, as applicable.

4204.5 Battery charging areas. Where approved, powered micromobility devices shall be permitted to be charged in a room or area that complies with all of the following:

1. Only listed devices utilizing listed charging equipment shall be permitted to be charged.

2. Is provided with sufficient electrical receptacles to allow the charging equipment for each device to be directly connected to a receptacle. Extension cords and relocatable power taps shall not be used.

3. Storage of combustible materials, combustible waste or hazardous materials shall not be permitted.

4. The charging operation shall not be conducted in or obstruct any required means of egress.

5. Removable storage batteries shall not be stacked or charged in an enclosed cabinet unless the cabinet is specially designed and approved for such purpose.

6. A minimum distance of 18 inches (457.2 mm) shall be maintained between each removable storage battery during charging operations unless each battery is isolated from neighboring batteries by an approved fire-resistant material.

7. A minimum of 18 inches (457.2 mm) shall be maintained between the locations of the batteries on each powered micromobility devices during charging operations.

8. The indoor room or area shall be protected by a fire alarm system.

SECTION 4205

4205.1 Fire safety plans.

4205.2 Fire safety plans. A fire safety plan shall be provided in accordance with Section 4205.3. 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.

4205.3 Lithium-ion and Lithium Metal batteries. An approved fire safety and evacuation plan in accordance with Section 404 shall be prepared and maintained for occupancies that involve activities for the research and development, testing,

manufacturing, handling, or storage of lithium-ion batteries or lithium metal batteries, or the repair or servicing of vehicles powered by lithium-ion batteries or lithium metal batteries.

Exceptions: A fire safety and evacuation plan is not required for the storage or merchandizing of any of the following:

1. New or refurbished batteries installed for use in the equipment or vehicles they are designed to power.

2. New or refurbished batteries packed for use with the equipment or vehicles they are designed to power for merchandizing purposes.

3. New or refurbished lithium-ion batteries rated at not more than 300 watt-hours and lithium metal batteries containing not more than 25 grams of lithium metal in their original retail packaging.

4. The storage, repair and charging activities in detached one-and two-family dwellings and townhouses, provided that such devices are for personal use.

5. The storage, repair and charging activities associated with personal use in sleeping units and dwelling units of Group R-1 and R-2 occupancies.

4205.4 Lithium-ion and lithium metal batteries. An approved fire safety and evacuation plan in accordance with Section 404 shall be prepared manufacturing, handling, storage of lithium-ion batteries or lithium metal batteries or the repair or servicing of vehicles powered by lithium-ion batteries or lithium metal batteries.

Exceptions. A fire safety and evacuation plan is not required for the storage or merchandizing of any of the following:

1. New or refurbished batteries installed for use in the equipment or vehicles they are designed to power.

2. New or refurbished batteries packed for use with the equipment or vehicles they are designed to power.

3. New or refurbished lithium-ion batteries rated at no more than 300 Watt-hours and lithium metal batteries containing no more than 25 grams of lithium metal in their original retail packaging.

4. The storage, repair and charging activities in detached one- and two-family dwellings and townhouses, provided that such devices are for personal use.

5. The storage, repair and charging activities associated with personal use in sleeping units and dwelling units of Group R-1 and R-2 occupancies.

4205.4 Buildings with lithium-ion or lithium metal battery storage. An approved fire safety plan in accordance with Section 404 shall be prepared and maintained for buildings with lithium-ion or lithium metal battery storage.

4205.4.1 Mitigation planning. The approved fire safety and evacuation plan shall include thermal runaway event mitigation measures addressing activities undertaken to prevent thermal runaway, early detection of a thermal runaway event and mitigations measures to be undertaken to limit the size and impact of the event on occupants and the facility.

SECTION 4206

4206.1 Additional Fire Sprinkler Requirements.

4206.2 Group B. An automatic sprinkler system shall be provided for Group B occupancies as follows:

4206.2.1 Laboratories; research and development or testing. An automatic sprinkler system shall be installed throughout the fire areas utilized for the research and development or testing of lithium-ion or lithium metal batteries.

4206.3 Group F-1. An automatic sprinkler system shall be provided for Group F-1 occupancies as follows:

4206.3.1. A Group F-1 occupancy used to manufacture lithium-ion or lithium metal batteries.

4206.3.2. A Group F-1 occupancy used to manufacture vehicles, energy storage systems or equipment containing lithium-ion or lithium metal batteries where the batteries are installed as part of the manufacturing process.

4206.4 Group M. An automatic sprinkler system shall be provided for Group M occupancies as follows:

4206.4.1. An automatic sprinkler system shall be provided in a room or space within a Group M occupancy where required for the storage of lithium-ion or lithium metal batteries by Section 4203 or Chapter 32 of this code.

4206.5 Group S-1. An automatic sprinkler system shall be provided for Group S-1 occupancies as follows:

4206.5.1. A Group S-1 fire area used for the storage of lithium-ion or lithium metal powered vehicles where the fire area exceeds 500 square feet (46.4 m²)

4206.5.2. Repair Garages. Add the following condition to this section.

4206.5.2.1. A Group S-1 fire area used for the repair of vehicles powered by lithium-ion or lithium metal batteries that exceeds 500 square feet (46.4 m²).

4206.6 Lithium-ion or Lithium metal batteries. Where automatic sprinkler systems are required by this code for areas containing lithium-ion or lithium metal batteries, the design of the system shall be based upon a series of fire tests conducted or witnessed and reported by an approved testing laboratory involving test scenarios that address the range of variables associated with the intended arrangement of the hazards to be protected.

SECTION 4207

4207.1 Additional Fire Alarm Requirements.

4207.2 Laboratories; research and development or testing. A fire alarm system activated by an air sampling-type smoke detection system, or a radiant energy-sensing detection system shall be installed throughout the entire fire area utilized for the research and development or testing of lithium-ion or lithium metal batteries.

4207.3 Manufacturing involving lithium-ion or lithium metal batteries. A fire alarm system activated by an air sampling-type smoke detection system, or a radiant energy-sensing detection system shall be installed throughout the entire fire area where lithium-ion or lithium metal batteries are manufactured; and where the manufacturer of vehicles, energy storage systems or equipment containing lithium-ion or lithium metal batteries where the batteries are installed as part of the manufacturing process.

4207.4 Storage of lithium-ion or lithium metal batteries. A fire alarm system activated by an air sampling-type smoke detection system, or a radiant energy-sensing detection system shall be installed in a room or space within a Group M occupancy where required for the storage of lithium-ion or lithium metal batteries by Section 4203.

4207.5 Storage of lithium-ion or lithium metal batteries. A fire alarm system activated by an air sampling-type smoke detection system, or a radiant energy-sensing detection system shall be installed throughout the entire fire area where required for the storage of lithium-ion batteries or lithium metal batteries By Section 4203 of this code.

SECTION 4208

4208.1 Energy Storage Systems

4208.2 Lithium-ion technology energy storage systems. The owner of an energy storage system (ESS) utilizing lithium-ion battery technology having capacities exceeding the values in Table 1206.2 and that was installed prior to the jurisdiction's adoption of the 2018 or later edition of the International Fire Code shall provide the fire code official a failure modes and effects analysis (FMEA) or other approved hazard mitigation analysis in accordance with Section 1206.2.3 for review and approval.

Exception: Detached one- and two-family dwellings and townhouses.

4208.2.1 Early detection. In addition to the requirements of Section 1207.1.8.1 and 1207.1.8.2, the analysis shall include an assessment of the ability of the installed protection systems to provide for early detection and notification of a thermal runaway event in relation to the ability of emergency responders to safely mitigate the size and impact of a thermal runaway event.

4208.2.2 Corrective action plan. Where hazards are identified by the analysis, a plan that includes a timetable for corrective action shall be submitted to the fire code official for review and approval. The plan shall include actions and system improvements necessary for eliminating or mitigating any identified hazards, including listed methods for early detection and notification of a thermal runaway event.

SECTION 4209

4209.1 Commodity Classification

TABLE 4209.1
EXAMPLES OF COMMODITY CLASSIFICATION

| | | |
|------------------|--------------------|--------------------|
| <u>Batteries</u> | <u>Lithium-ion</u> | <u>High-hazard</u> |
|------------------|--------------------|--------------------|

SECTION 4210

4210.1 Referenced Standards

UL2272-2016 – Electrical Systems for Personal E-Mobility Devices

UL2849-2020 – Electrical Systems for eBikes

SECTION 4211

4211.1 Technical Assistance

4211.2 Technical assistance. To determine the acceptability of technologies, processes, products, facilities, materials and uses attending the design, operation or use of a building or premises subject to inspection by the fire code official, the fire code official is authorized to require the owner or owner's authorized agent to provide, without charge to the jurisdiction, a technical opinion and report. The opinion and report shall be prepared by a qualified engineer, specialist, laboratory, or fire safety specialty organization acceptable to the fire code official and shall analyze the fire safety properties of the design, operation or use of the building or premises and the facilities and appurtenances situated thereon, to recommend necessary changes. The fire code official is authorized to require design submittals to be prepared by, and bear the stamp of, a registered design professional.

SECTION 4212

4212.1 Scope of Section 4212

4212.2 The provisions of this section shall apply to detached one- & two-family dwellings and townhouses not more than three stories above grade plane in height with a separate means of egress and their accessory structures not more than three stories above grade plane in height.

4212.3 Electric Vehicle Charging Systems. Where provided, electric vehicle charging systems shall be installed in accordance with NFPA 70. Electric vehicle charging systems 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.

4212.4 Energy Storage Systems.

4212.4.1 General. Energy storage systems (ESS) shall comply with the provisions of this section.

EXCEPTIONS:

1. ESS listed and labeled for use in habitable spaces, in accordance with UL 9540 and where installed in accordance with the listing, the manufacturer's instructions and NFPA70.
2. ESS less than 1kWh (3.6 megajoules).

4212.4.2 Equipment Listings. Energy storage systems (ESS) shall be listed and labeled in accordance with UL 9540.

EXCEPTIONS:

1. Where approved, repurposed unlisted battery systems from electric vehicles are allowed to be installed outdoors or in detached sheds located not less than 5 feet from exterior walls, property lines and public ways.

4212.4.3 Installation. ESS shall be installed in accordance with the manufacturer's instructions and their listing.

4212.4.4 Spacing. Individual units shall be separated from each other by not less than 3 feet except where other separation distances are specified by the ESS listing and the manufacturer's installation instructions.

4212.4.5 Locations. 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 in accordance with Section R302.6 of the International Residential Code.
3. Outdoors or on the exterior side of the exterior walls located not less than 3 feet from doors and windows directly entering the dwelling unit, except where smaller separation distances are permitted by the UL 9540 listing and manufacturers installation instructions.
4. Enclosed utility closets, basements, storage, or utility spaces within dwelling units with finished or noncombustible walls and ceilings. Walls and ceilings of unfinished wood framed construction shall be provided with not less than 5/8" inch type X gypsum wallboard. Openings into the dwelling shall be equipped with solid wood doors not less than 1-3/8" in thickness, solid or honeycomb-core steel doors not less than 1-3/8" in thickness, or doors with a 20-minute fire protection rating. Doors shall be self-latching and equipped with self-closing or automatic-closing device. Penetrations through the required gypsum wallboard into the dwelling shall be protected as required by Section R302.11, Item 4. of the International Residential Code.

ESS shall not be installed in sleeping rooms, or closets or spaces opening directly into sleeping rooms.

4212.4.6 Energy Ratings. Individual ESS units shall have a maximum rating of 20kWh. The aggregate rating of the ESS shall not exceed:

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

ESS installations exceeding the permitted individual or aggregate ratings shall be installed in accordance with Section 1206 of the International Fire Code.

4212.4.7 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.

4212.4.8 Fire Detection. Rooms and areas within dwelling units, basements and attached garages in which ESS are installed shall be protected by smoke alarms in accordance with Section R314 of the International Residential Code. A heat detector,

listed and interconnected to the smoke alarms, shall be installed in locations within dwelling units and attached garages where smoke alarms cannot be installed based on their listing.

4212.4.9 Protection From Impact. ESS installed in a location subject to vehicle damage shall be protected in accordance with Section 4212.4.10 and 4212.4.11.

4212.4.10 Garages. Where an ESS is installed in the normal driving path of vehicle travel within the garage, impact protection complying with Section 4212.4.12 shall be provided. The normal travel path is a space between opening and the interior face of the back wall to a height of 48 inches above finished floor. The width of the normal driving path shall be equal to the width of the garage door opening. Impact protection shall also be provided for an ESS installed at either of the following locations. (see figure 4212.4.10.)

1. On the interior face of the back wall and located within 36" inches to the left or right of the normal driving path.
2. On the interior face of a side wall and located within 24" inches from the back wall and 36" inches of the normal driving path.

EXCEPTION: Where the clear height of the vehicle garage opening is 7' feet 6" inches or less, ESS installed not less than 36" inches above finished floor are not subject to vehicle impact protection requirements.

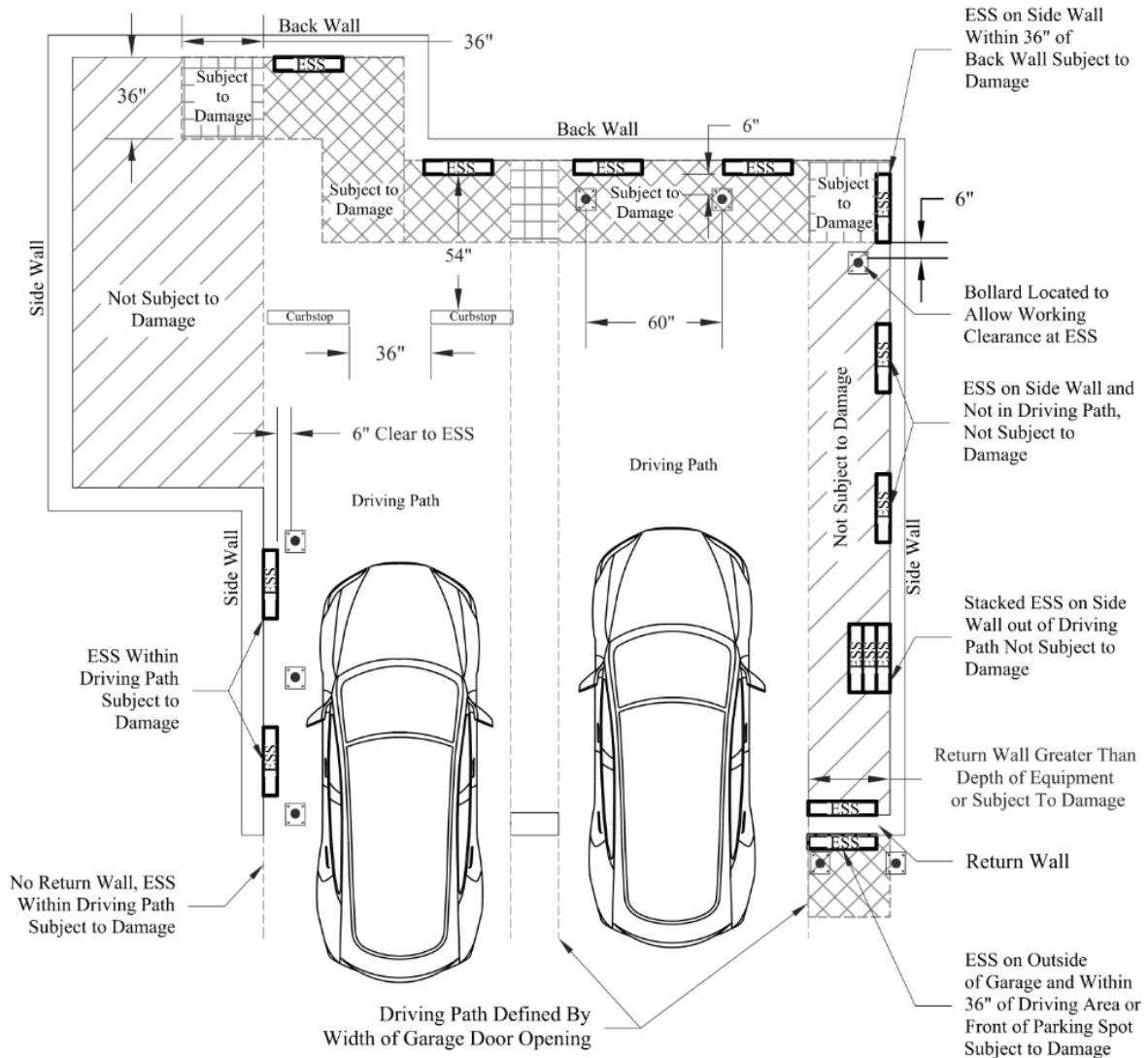


Figure 4212.4.10 ESS Vehicle Impact Protection

4212.4.11 Other Locations Subject To Vehicle Impact. Where an ESS is installed in a location other than as defined in Section 4212.4.10 and is subject to vehicle damage, impact protection shall be provided in accordance with Section 4212.4.12.

4212.4.12 Impact Protection Options. ESS protection shall comply with one of the following:

1. Bollards constructed in accordance with one of the following:

1.1 Minimum 48" inches in length by 3" inches in diameter Schedule 80 steel pipe embedded in a concrete pier not less than 12" inches deep and 6" inches in diameter, with not less than 36" inches of pipe exposed filled with concrete and spaced at a maximum interval of 5' feet. Each bollard shall be located not less than 6" inches from an ESS.

1.2 Minimum 36" inches in height by 3" in diameter Schedule 80 steel pipe fully welded to a steel plate not less than 8" inches in length by 1/4" inch in thickness and bolted to a concrete floor by means of 4-1/2" inch concrete anchors imbedded not less than 3" inches. Spacing shall be not greater than 60" inches, and each bollard shall be located not less than 6" inches from the ESS.

1.3 Premanufactured steel pipe bollards filled with concrete and anchored in accordance with the manufacturer's installation instructions, with spacing not greater than 60" inches. Each bollard shall be located not less than 6" inches from the ESS.

2. Wheel barriers constructed in accordance with one of the following:

2.1 Concrete or polymer 4" inches in height by 5" inches in width by 70" inches in length, anchored to the concrete floor not less than 36" inches and located not less than 54" inches from the ESS. Concrete anchors not less than 3-1/2" inches in diameter with 3" inch embedment per barrier shall be used. Spacing between barriers shall be not greater than 36" inches.

2.2 Premanufactured wheel barriers shall be anchored in accordance with the manufacturer's installation instructions.

3. An approved method designed to resist an impact of 2,000pounds per square foot in the direction of travel at 24" inches above grade.

4212.4.13 Ventilation. Indoor installations of ESS that produce hydrogen or other flammable gases during charging shall be provided with mechanical ventilation in accordance with Section M1307.4 of the International Residential Code.

4212.4.14 Electric Vehicle Use. The temporary use of an owner or occupant's electric-powered vehicle to power a dwelling unit while parked in an attached or detached garage or outdoors shall comply with the vehicle manufacturer's instructions and NFPA70.

4212.4.15 Documentation and Labeling. The following information shall be provided:

1. A copy of the manufacturer's installation, operation, maintenance, and decommissioning instructions shall be provided to the owner or placed in a conspicuous location near the ESS equipment.
2. A label on the installed system containing the contact information for the qualified maintenance and service providers.

4213 Stationary Engine Generators

4213.1 General. Stationary engine generators shall be listed and labeled in accordance with UL 2200 and shall comply with this section. The connection of stationary engine generators to the premise wiring system shall be by means of a listed transfer switch.

4213.2 Installation. The installation of stationary engine generators shall be in an approved location and in accordance with the listing, the manufacturer's installation instructions and Chapters 34 through 43 of the International Residential Code.

4214 Stationary Fuel Cell Power Systems.

4214.1 General. Stationary fuel cell power systems in new and existing buildings and structures shall comply with Section 1206 of the International Fire Code.