



A BILL FOR AN ORDINANCE

TO AMEND CHAPTER 16 OF THE REVISED ORDINANCES OF HONOLULU 1990, AS AMENDED, RELATING TO THE BUILDING CODE.

BE IT ORDAINED by the People of the City and County of Honolulu:

SECTION 1. Purpose. The purpose of this ordinance is to update Chapter 16, Revised Ordinances of Honolulu 1990 ("Building Code"), by adopting the State Building Code, the State Residential Code, and the International Existing Building Code, subject to local amendments herein, and amending Article 14 ("State- and City-Owned High Occupancy Buildings—Design Criteria for Enhanced Hurricane Protection Areas").

SECTION 2. Article 1 of Chapter 16, Revised Ordinances of Honolulu 1990 ("Adoption of the International Building Code and International Residential Code for One- and Two-Family Dwellings"), is repealed.

SECTION 3. Chapter 16, Revised Ordinances of Honolulu 1990 ("Building Code"), is amended by adding a new Article 1 to read as follows:

"Article 1. Adoption of the Hawaii State Building Code and Hawaii State Residential Code

Sec. 16-1.1 Hawaii State Building Code.

The Hawaii State Building Code, as adopted by the State of Hawaii on November 13, 2018, which adopts, with modifications, the International Building Code, 2012 Edition (Tenth Printing), published by the International Code Council, Inc., 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001, is adopted by reference and made a part hereof, subject to the following amendments:

(1) Amending Subsection 101.1. Subsection 101.1 is amended to read:

101.1 Title. These regulations are part of the Building Code of the City and County of Honolulu, hereinafter referred to as "this code."

(2) Amending Subsection 101.2. Subsection 101.2 is amended to read:

101.2 Scope. The provisions of this code apply to the construction, alteration, moving, demolition, replacement, repair, and use of any *building* or structure within this jurisdiction inland of the shoreline, except where located primarily in a public way, public utility towers and poles,



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mechanical equipment not specifically regulated in this code, and hydraulic flood control structures.

Exceptions:

1. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than two stories high with separate means of egress and their accessory structures are permitted to comply with the International Residential Code. Prescriptive framing is not applicable for structures designed using Exception 4 in Section 1609.1.2 Protection of Openings of this code.
2. Existing buildings undergoing repair, alterations, or additions or undergoing change of occupancy are permitted to comply with the International Existing Building Code.

This code is not intended to create a procedure for the regulation of private nuisances by the city. All members of the public are responsible for resolving disputes arising from private nuisances through the appropriate legal process.

- (3) Amending Subsection 101.4. Subsection 101.4 is amended to read:

101.4 Referenced codes. The other codes referenced elsewhere in Sections 101.4.1 to 101.4.7 are considered part of the requirements of this code to the prescribed extent and scope of each such reference.

101.4.1 Electrical. The provisions of ROH Chapter 17, *Electrical Code*, apply.

101.4.2 Plumbing. Whenever the International Plumbing Code is referenced, the provisions of ROH Chapter 19, *Plumbing Code*, apply.

101.4.3 Fire prevention. Whenever the provisions of the International Fire Code are referenced, the provisions of ROH Chapter 20, *Fire Code* of the City and County of Honolulu, will apply to matters affecting or relating to structures, processes and premises from the hazard of fire and explosion arising from the storage, handling or use of structures, materials, or devices; from conditions hazardous to life, property, or public welfare in the occupancy of structures or premises; and from the construction, extension, repair, alteration, or removal of fire suppression



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and alarm systems or fire hazards in the structure or on the premises from occupancy or operation. The provisions of ROH Chapter 20, *Fire Code* of the City and County of Honolulu, will apply to existing construction, and to the extent specifically referenced by the Building Code to new construction. Where differences exist between this code and ROH Chapter 20, the provisions of this code will apply.

101.4.4 Energy. The provisions of ROH Chapter 32, *Building Energy Conservation Code* apply.

101.4.6 Housing. The provisions of ROH Chapter 27, *Housing Code*, apply.

101.4.7 Fixed transit and passenger rail systems. The provisions of the Standard for Fixed Guideway Transit and Passenger Rail Systems, NFPA 130, apply to fixed guideway transit and passenger rail stations to the prescribed extent of this standard.

101.8 Other Codes. Other referenced codes not listed in Section 101.4 are considered referenced guidelines and not mandatory.

- (4) Amending Subsection 102.6. Subsection 102.6 is amended to read:

102.6 Existing structures. *Buildings* in existence at the time of the adoption of this code may have their existing use or occupancy continued if such use or occupancy was legal at the time of the adoption of this code, provided such continued use does not constitute a hazard to the general safety and welfare of the occupants and the public.

- (5) Amending Section 103. Section 103 is amended to read:

SECTION 103 – ORGANIZATION AND ENFORCEMENT

103.1 Building official appointment authority. In accordance with the prescribed procedures and with the approval of the appointing authority, the *building official* may appoint technical officers, inspectors, plan examiners, and other personnel necessary to support this code enforcement agency. The *building official* may designate such inspectors or employees as may be necessary to carry out the functions of this code enforcement agency. Such employees have powers as delegated by the *building official*.



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The *building official* may deputize volunteers to temporarily carry out functions of the code enforcement agency in the event of a major natural disaster.

- (6) Amending Subsection 104.11. Subsection 104.11 is amended to read:

104.11 Alternative materials, design and methods of construction and equipment.

The *building official* may use the most current code edition of the International Code Council, or the most current standard of the International Code Council or the National Fire Protection Association or other approved national standard as an alternative to meeting the requirements of this code.

- (7) Amending Section 105. Section 105 is amended by adding the following:

105.1 Required.

Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a *building* or structure, or to erect, install, enlarge, alter, repair, remove, convert, or replace any electrical, gas, mechanical, or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the *building official* and obtain the required permit. See ROH Chapter 18 for the requirements for the consolidation of the *building*, electrical, and plumbing permits into one administrative permit.

- (8) Amending Subsection 106.1. Subsection 106.1 is amended to read:

106.1 Live loads posted. Where the live loads for which each floor or portion thereof of a commercial or industrial *building* is or has been designed to exceed 100 psf (4.80 kN/m²), such design live loads must be conspicuously posted by the owner in that part of each story in which they apply, using durable signs. It is unlawful to remove or deface such notices.



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- (9) Amending Section 107. Section 107 is amended by adding:

107.1 General. See ROH Chapter 18.

107.2 Construction documents. Construction documents must be in accordance with Sections 107.2.1 through 107.2.6.

107.2.1 Information on construction documents. Construction documents must be dimensioned and drawn upon suitable material. Electronic media documents are permitted when approved by the *building official*. Construction documents must be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it conforms to the provisions of this code and relevant laws, ordinances, rules and regulation, as determined by the *building official*.

107.2.1.1 All buildings. For any *building* construction, the construction documents must include, but not be limited to, the *building* occupancy group classification, the *building height* and area, the classification of *buildings* as to type of construction and the fire and smoke protection features.

107.2.2 Fire protection. When automatic sprinkler systems are installed, construction drawings must contain all information as required by the referenced installation standards in Chapter 9.

For new installations, the construction drawings must include but not be limited to, the spacing, location, and position of all fire sprinkler heads, the sprinkler system monitoring and alarm system information, the system riser and fire department connection details with their location.

For existing construction, the construction drawings must include but not limited to, the locations of the existing and final fire sprinkler heads affected by the proposed work.

107.2.2.1 Fire protection system working drawings. Are required for new installations, including but not limited to, existing systems which: increase the coverage areas, change the hazard classification, provide in-rack sprinkler systems, and involve any storage in excess of 12 feet in height. Working drawings for the fire protection system(s) must be submitted to indicate conformance with this code and the construction documents and must be submitted by the fire protection special inspector in accordance to Section 916.1.2.



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107.2.3 Means of egress. The construction documents must show in sufficient detail the location, construction, size and character of all portions of the means of egress in compliance with the provisions of this code. In other than occupancies in Groups R-2, R-3, and I-1, the construction documents must designate the maximum number of occupants to be accommodated on every floor, and in all rooms and spaces.

107.2.4 Exterior wall envelope. Construction documents for all *buildings* must describe the exterior wall envelope in sufficient detail to allow the building official to determine compliance with this code. The construction documents must provide details of the exterior wall envelope as required, including flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves or parapets, means of drainage, water-resistive membrane and details around openings.

The construction documents must include manufacturer's installation instructions that provide supporting documentation that the proposed penetration and opening details described in the construction documents maintain the weather resistance of the exterior wall envelope. The supporting documentation must fully describe the exterior wall system which was tested, where applicable, as well as the test procedure used.

107.2.5 Site plan. In addition to the plot plan required in ROH Chapter 18, the construction documents submitted with the application for permit must be accompanied by a site plan showing to scale: the size and location of new construction and any existing structures on the site, distances from *lot lines*, the established street grades and the existing and proposed finished grades and, as applicable, location of fire hydrants, fire department apparatus roads, flood hazard areas, floodways, and design flood elevations. The site plan must be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan must show construction to be demolished and location and size of existing structures and construction that are to remain on the site or plot.

107.2.5.1 Special flood hazard areas. Where base flood elevations are not specified, they are established in accordance with ROH Chapter 21A.

107.2.5.2 Topographic survey. For new or additions to structures and *buildings* there must be provided a topographic survey of the existing lot.

107.2.6 Erosion and sediment control measures. An Erosion and Sediment Control Plan (ESCP) shall be prepared in compliance with the



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ROH Chapter 14 and the Rules Relating to Water Quality, Chapter 3 of the Administrative Rules, Title 20, Department of Planning and Permitting. The ESCP shall provide the best management practices (BMP) and good housekeeping practices during construction to minimize the discharge of runoff containing sediment and pollutants into the receiving waters.

107.3.1 Approval of construction documents. See ROH Chapter 18.

107.3.4 Design professional in responsible charge. All plans and specifications relating to work that affects the public safety or health and for which a *building* permit is required must be prepared by or under the supervision of a duly licensed professional engineer or architect, and construction must be under the observation of a duly licensed professional engineer or architect, as required by HRS Chapter 464.

Where special inspection is required by this code, all special inspection must be provided on the submitted plans as a condition for permit issuance. For special inspections, see Sections 110, 916, 1704, and 1707.

107.3.4.1 Deferred submittals. For the purposes of this section, deferred submittals are defined as those portions of the design that are not submitted at the time of the application and that are to be submitted to the *building official* within a specific period.

Deferral of any submittal items must have the prior approval of the *building official*. The design professional in responsible charge shall list the deferred submittals on the construction documents for review by the *building official*.

Documents for deferred submittal items must be submitted to the registered design professional in responsible charge who shall review them and forward them to the *building official* with a notation indicating that the deferred submittal documents have been reviewed and found to be in general conformance to the design.

107.4 Amended construction document. The *building official* may require amended construction documents when changes are made during construction that are not in compliance with the approved construction documents.



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(10) Amending Section 108. Section 108 is amended to read:

108.1 General. The *building official* may issue a permit for temporary structures and temporary uses. Such permits are limited as to time of service, but may not be permitted for more than 180 days. The *building official* may grant extensions for demonstrated cause.

Exemption: See ROH Section 18-3.4.

(11) Amending Section 109. Section 109 is amended to read:

109.1 General. See ROH Chapter 18.

(12) Amending Subsection 110.3. Subsection 110.3 is amended to read:

110.3 Required inspections. The *building official*, upon notification, shall make the inspections set forth in Sections 110.3.1 through 110.3.4.

110.3.1 Lowest floor elevation. In flood hazard areas, upon placement of the lowest floor, including the basement, and prior to further vertical construction, an elevation certification required in Section 1612.5 must be submitted to the *building official*.

110.3.2 Lath and/or gypsum board inspection. To be made after all lathing and gypsum board, interior and exterior, in construction is required to be fire-resistive, and is in place before any plastering is applied or before gypsum board joints and fasteners are taped and finished.

Exception: Lath and gypsum board installed in Group U Occupancies.

110.3.3 Other inspections. In addition to the inspections specified in Sections 110.3.1 through 110.3.3, the *building official* may make or require other inspections of any construction work to ascertain compliance with the provisions of this code and other laws that are enforced by this code.

110.3.4 Special inspections. The submitted plans must have all special inspections listed as a condition for permit issuance. For special inspections, see Chapters 9, 12 and 17.

110.3.5 Final inspection. To be made after all construction is completed and prior to final occupancy.



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- (13) Amending Subsection 111.1. Subsection 111.1 is amended by adding the following exceptions:

Exceptions: The provisions of Section 111.1 are not applicable to the following:

1. For R-3 Occupancies, see Residential Code Section R110.1.
2. Group U Occupancies.
3. For work exempted from permits.

- (14) Amending Section 113. Section 113 is amended to read:

SECTION 113 – BOARD OF APPEALS

113.1 Creation of Board of Appeals. There shall be a board of appeals consisting of nine members who are qualified by experience and training to pass upon matters pertaining to *building* construction and fire safety and who are appointed by the mayor with the approval of the council. Four members must be currently licensed as engineers or architects with the State of Hawaii board of registration of professional engineers, architects, land surveyors, and landscape architects. One member must be qualified by experience and training to pass on matters pertaining to electrical work. One member must be qualified by experience and training to pass on matters pertaining to plumbing work. Two members must be qualified by experience and training to pass on matters pertaining to fire safety. One member must be a general contractor licensed under HRS Chapter 444. The members of the board will serve for terms of five years and until their successors have been appointed and qualified. Any vacancy occurring other than by expiration of a term of office shall be filled for the remainder of such unexpired term in the same manner as for an original appointment. The board shall select a chair and vice-chair annually.

113.2 Board action. All board action requires an affirmative vote of five or more board members.

113.3 Power and duties.

113.3.1 The board of appeals shall hear and determine appeals from the decisions of the *building official* in the administration of the Building Code, *Electrical Code*, *Plumbing Code*, *Housing Code*, *Energy Code*, *Building Energy Efficiency Standards*, and ROH Chapter 18, including, but not



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limited to, matters involving any approval or denial, the use of new or alternate materials, types of construction, equipment, devices or appliances, administrative enforcement, and the issuance, suspension or revocation of permits issued under ROH Chapter 18.

In the case of any denial of the use of new or alternative materials, types of construction, equipment, devices or appliances, an appeal may be sustained if the record shows that: (1) the new or alternate materials, types of construction, equipment, devices or appliances meet the required standards established by the codes being appealed from; (2) permitting the use thereof will not jeopardize life, limb or property, and; (3) the use will not be contrary to the intent and purpose of the code being appealed from. The appellant must pay all expenses necessary for tests that may be ordered by the board.

In all cases not involving the use of new or alternate materials, an appeal shall only be sustained if the record shows that the decision of the *building official* is based on an erroneous finding of material fact, arbitrary or capricious decision making, or a manifest abuse of discretion. The board may reverse, affirm, or modify, in whole or in part, the decision appealed from.

113.3.2 The board of appeals shall hear and determine appeals from the decisions of the fire official in the administration of the *Fire Code*, including the suspension or revocation of permits issued pursuant to the *Fire Code*, and any denial of the use of new or alternate materials, types of construction, equipment, devices or appliances. The standard of review for the use of new or alternate materials, types of construction, equipment, devices or appliance will be the same as for Section 113.3.1.

113.3.3 The board of appeals shall hear and determine petitions for varying the application of the *Building Code*, *Electrical Code*, *Plumbing Code*, *Fire Code*, or *Building Energy Efficiency Standards*. A variance may be granted if the board finds: (1) that the strict application, operation, or enforcement of the code provision or provisions being appealed from would result in practical difficulty or unnecessary hardship to the applicant; (2) that safety to life, limb, and property will not be jeopardized, and; (3) that the granting of a variance would not be injurious to the adjoining lots and the *buildings* thereon, would not create additional fire hazards and would not be contrary to the purposes of the code and public interest. In making its determination, the board shall take into account the character,



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use, and type of occupancy and construction of adjoining *buildings*, *buildings* on adjoining lots and the *building* involved.

113.3.4 The board of appeals shall hear and determine appeals from the decisions of the *building official* in the administration enforcement of ROH Chapter 29, Article 4. An appeal will only be sustained if the record shows that the decision of the *building official* is based on an erroneous finding of material fact, arbitrary or capricious decision making, or a manifest abuse of discretion. The board may reverse, affirm, or modify, in whole or in part, the decision appealed from.

113.3.5 The board of appeals shall hear and determine appeals concerning the summary removal of unlawful signs pursuant to ROH Chapter 29, Article 14. Such appeals shall be limited to a determination of whether a sign was properly removed pursuant to the provisions of that article. An appeal will only be sustained if the record shows that the decision of the *building official* is based on an erroneous finding of material fact, arbitrary or capricious decision making, or a manifest abuse of discretion. The board may reverse, affirm, or modify, in whole or in part, the decision appealed from.

113.3.6 Appeals from the decisions of the *building official* to issue, suspend, or revoke permits must be in writing and filed with the board within 10 working days of the permittee's receipt of the notice of issuance, suspension, or revocation. In all other cases, appeals from the decisions of the *building official* and fire official must be in writing and filed within 30 calendar days of the decision appealed from.

113.4 Compensation. Each member of the board is entitled to compensation at the rate of \$20 per day for each day's actual attendance at a meeting, but the compensation may not exceed, in the aggregate, \$60 in any one month.

113.5 Procedure. The proceedings of the board are subject to the provisions of HRS Chapter 91. The board shall adopt reasonable rules and regulations for conducting its meetings, hearings, and investigations in conformity therewith and may impose reasonable fees to cover the costs of such proceedings.

113.6 Fees. The filing fee for a petition for appeal from a decision of the Authority Having Jurisdiction in the administration of the Building Code, *Electrical Code*, *Fire Code*, *Plumbing Code*, *Housing Code*, ROH Chapter



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29, Article 4, ROH Chapter 18, and the *Building Energy Efficiency Standards*, or an application for varying the application of the *Building Code*, *Electrical Code*, *Plumbing Code*, *Fire Code*, or *Building Energy Efficiency Standards*, shall be \$200.00. No petition for appeal may be filed without payment of said fee.

- (15) Amending Section 114. Section 114 is amended to read:

SECTION 114 – VIOLATIONS AND PENALTIES.

For violation and penalty provisions, see ROH Chapter 16, Article 10.

- (16) Amending Section 115. Section 115 is amended to read:

SECTION 115 – STOP WORK ORDER See ROH Chapter 18, Section 18-7.5.

- (17) Amending Section 116. Section 116 is amended to read:

SECTION 116 – UNSAFE BUILDINGS

116.1 General. All *buildings* or structures that are structurally unsafe or not provided with adequate egress, or that constitute a fire hazard, or are otherwise dangerous to human life, or which in relation to existing use constitute a hazard to safety, health, or public welfare by reason of inadequate maintenance, dilapidation, obsolescence, fire hazard, or abandonment, as specified in this code or any other effective ordinance are, for the purpose of this section, unsafe *buildings*. An unsafe *building* also includes a dangerous *building* as defined by Chapter 2 of the International Existing Building Code. All such unsafe *buildings* or structures are hereby declared to be public nuisances and must be abated by repair, rehabilitation, demolition, removal, or other methods approved by the *building official* in accordance with the procedure specified in Sections 116.2, 116.3, and 116.4.

116.2 Notice to owner. The *building official* shall examine or cause to be examined every *building* or structure or portion thereof reported as dangerous or damaged and, if such is found to be an unsafe *building* as defined in this section, the *building official* shall give to the owner of such *building* or structure a written notice of violation stating the defects thereof. This notice may require the owner or person in charge of the *building* or premises, within 48 hours, to commence either the required repairs or



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improvements or demolition and removal of the *building* or structure or portions thereof, and all such work must be completed within 90 days from the date of notice, unless otherwise required by the *building official*. If necessary, such notice will also require the *building*, structure, or portion thereof to be vacated forthwith and not reoccupied until the required repairs and improvements are completed, inspected, and approved by the *building official*.

Proper service of such notice of violation must be by personal service or certified mail upon the owner of record, provided that if such notice is returned as undeliverable after mailing by certified mail, service may be by publication or posting a copy of the notice upon the property. The designated periods within which the owner or person in charge is required to comply with the order of the *building official* shall begin as of the date the owner or person in charge receives the notice of violation, in person or by certified mail, or, the date on which the notice is published or posted upon the property.

116.3 Posting of signs. The *building official* shall cause to be posted at each entrance to *buildings* ordered vacated a notice to read: DO NOT ENTER. UNSAFE TO OCCUPY. DEPARTMENT OF PLANNING AND PERMITTING, CITY AND COUNTY OF HONOLULU. Such notice must remain posted until the required repairs, demolition or removal is completed. Such notice must not be removed without written permission of the *building official*, and a person may not enter the *building* except for the purpose of making the required repairs or improvements or of demolishing the *building*.

In the event of a major disaster, the *building official* may post a "RESTRICTED USE" or "UNSAFE" placard at each entrance to a *building* or portion of a *building* if an inspection warrants such posting. Entry or occupancy in a *building* or portion of a *building* posted with a "RESTRICTED USE" placard is subject to the restrictions stated on the placard. No entry is permitted in a *building* or portion of a *building* posted within an "UNSAFE" placard. Placards must not be removed or altered unless authorized by the *building official*.

116.4 Action upon noncompliance. Where the owner of an unsafe structure fails, neglects or refuses to comply with a notice of violation requiring the repair, rehabilitation, or demolition and removal of an unsafe *building* or structure, or portions thereof, the *building official* may serve the owner of the *building* a notice of order in accordance with Article 10 of this



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Chapter and repair, rehabilitate, or demolish and remove the *building* or structure or portion thereof and to recover the cost of such work from the owner. Costs incurred by the *building official* in the repair, demolition, and removal of such *buildings* or structures will be considered civil fines that may be attached as a lien upon real property.

To the extent that repairs, alterations, or additions are made or a change of occupancy occurs during the restoration of the structure, such repairs, alterations, additions, or change of occupancy must comply with the requirements of this code and ROH Chapter 18, Article 3.

(18) Amending Section 202. Section 202 is amended as follows:

- a. By adding the following definition immediately before the definition of "ACCREDITATION BODY":

ACCESSORY DWELLING UNIT (ADU). ADU means a second *dwelling unit*, including separate *kitchen*, bedroom, and bathroom facilities, attached or detached from the primary *dwelling unit* on the zoning lot.

- b. By adding the following definition immediately before the definition of "ATRIUM":

ASSISTED LIVING FACILITIES. *Buildings* or parts thereof housing persons, on a 24-hour basis, who, because of age, mental disability, or other reasons, live in a supervised residential environment that provide *personal care services* and are licensed by the State.

- c. By amending the definition of "BUILDING" to read:

BUILDING. Any structure used or intended for supporting any use or occupancy. The term includes, but is not limited to, any structure mounted on wheels such as a trailer, wagon, or vehicle that is parked and stationary for any 24-hour period, and is used for business or living quarters; provided, however, that the term does not include a push wagon that is readily movable and does not exceed 25 square feet in area, nor does the term include a vehicle used exclusively for the purpose of selling any commercial product therefrom that holds a vehicle license and actually travels on public or private streets.



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- d. By adding the following definition immediately before the definition of "BUILDING HEIGHT":

BUILDING ENERGY EFFICIENCY STANDARDS. Energy standards as specified in ROH Chapter 32.

- e. By amending the definition of "BUILDING OFFICIAL" to read:

BUILDING OFFICIAL. The director of planning and permitting of the *City* or the director's authorized representative.

- f. By adding the following definition immediately before the definition of "CAST STONE":

CARPORT. A private garage that is at least 100 percent open on one side and with 50 percent net openings on another side or that is provided with an equivalent of such openings on two or more sides.

A private garage that is 100 percent open on one side and 25 percent open on another side with the latter opening so located to provide adequate cross ventilation may be considered a *carport* when approved by the *building official*.

- g. By adding the following definition immediately before the definition of "CLEAN AGENT":

CITY. Refers to the City and County of Honolulu.

- h. By amending the definition of "DWELLING UNIT" to read:

DWELLING UNIT. A *building* or portion thereof that contains living facilities, including permanent provisions for living, sleeping, eating, cooking and sanitation, as required by this code, for not more than one *family*, or a congregate residence for 16 or fewer persons.

- i. By adding the following definition immediately before the definition of "EMERGENCY ALARM SYSTEM":

ELECTRICAL CODE. Electrical standards as specified in ROH Chapter 17 as amended.



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- j. By adding the following definition immediately before the definition of "EXISTING CONSTRUCTION" to read:

EXISTING BUILDING. *A building for which a legal building permit has been issued and which complies with the Building Code in effect at the time the existing building was constructed.*

- k. By adding the following definition immediately before the definition of "FIBER CEMENT SIDING":

FAMILY. *As defined in the Land Use Ordinance, except that the number of residents in a licensed health adult residential care home, a licensed health special treatment facility, or other similar licensed health facility must be limited to six persons or fewer in order for the residents of the facility to be considered a family under this code. For the purpose of this definition, "licensed" refers to licensure or certification by the State of Hawaii.*

- l. By adding the following definition immediately before the definition of "FIRE AREA":

FIRE APPARATUS ACCESS ROAD. *A road that provides fire apparatus access from a fire station to a facility, building or portion thereof with access to a fire hydrant. This is a general term inclusive of all other terms such as fire lane, public street, private street, parking lot lane and access roadway.*

- m. By adding the definitions for "FIRE CODE" and "FIRE CODE OFFICIAL" immediately before the definition of "FIRE COMMAND CENTER":

FIRE CODE. *Wherever specific reference is made to Fire Code, Fire Code will be ROH Chapter 20.*

FIRE CODE OFFICIAL. *The fire chief or other designated authority charged with the administration and enforcement of the Fire Code, or a duly authorized representative.*



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- n. By amending the definition of "FIRE SEPARATION DISTANCE" to read:

FIRE SEPARATION DISTANCE. The distance measured from the *building face* to the closest *lot line*, to the centerline of a street, alley or public way, or to an imaginary line between two *buildings* on the property. For the purposes of this section, *lot lines* established within a joint, cluster, or similar development under the *Land Use Ordinance*, boundary lines established for condominium ownership purposes only and development under the jurisdiction of the State of Hawaii, are not considered as boundary lines. The distance must be measured at right angles from the face of the wall.

- o. By adding the following definition immediately before the definition of "HPM FLAMMABLE LIQUID":

HOUSING CODE. Housing standards as specified in ROH Chapter 27.

- p. By adding the following definition immediately before the definition of "LIGHT-DIFFUSING SYSTEM":

LAND USE ORDINANCE. Land use standards as specified in ROH Chapter 21.

- q. By adding the following definition after "NUISANCE ALARM":

NUISANCE IN FACT. An otherwise lawful use or condition on property that unreasonably interferes with the use of private or public property for its intended purposes.

- r. By amending the definition of "PERSONAL CARE SERVICE" to read:

PERSONAL CARE SERVICE. The care of residents who do not require chronic or convalescent health, medical, or nursing care. Personal care involves responsibility for fire safety of the resident while inside the *building*. The types of facilities providing *personal care services* include, but are not limited to, the following: *assisted living facilities*, residential care facilities, halfway houses, group homes, congregate care facilities, social rehabilitation facilities, and alcohol and drug abuse centers.



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- s. By adding the following definition immediately before the definition of "POSITIVE ROOF DRAINAGE":

PLUMBING CODE. Plumbing standards as specified in ROH Chapter 19.

- t. By adding the following definition immediately after the definition of "PRISM":

PRIVATE NUISANCE. *A nuisance in fact* that does not affect the health, safety, or welfare of the general public.

- u. By amending the definition of "STRUCTURAL OBSERVATION" to read:

STRUCTURAL OBSERVATION. *Structural observation* is equivalent to "observation of construction" of the structural system, as defined in Chapter 16-115, Hawaii Administrative Rules, implementing HRS Chapter 464. *Structural observation* does not include or waive the responsibility for the inspection required by Section 110, 1704 or other sections of this code.

- v. By amending the definition of "WIND-BORNE DEBRIS REGION" to read:

WIND-BORNE DEBRIS REGION. Areas in Hawaii where the effective ultimate design wind speed is 130 mph (63 m/s) or greater. For Risk Category II *buildings* and structures and Risk Category III *buildings* and structures, except health care facilities, the *Wind-Borne Debris Region* must be based on Fig. 1609.3.2.2. For Risk Category III health care facilities and Risk Category IV *buildings* and structures, the windborne debris region must be based on Fig. 1609.3.2.3. For Exceptions, see Appendix "W" of the Building Code of the State of Hawaii.

- (19) Adding Subsection 303.2.1. Subsection 303.2.1 is added to read:

303.2.1 Sanitation. In a *building* or portion of a *building* containing a new Group A Occupancy such as an entertainment center, movie theatre, sports area, or other similar occupancy, the number of water closets available to females who are not employed in that *building* or portion must



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be at least twice the number available to males who are not employed in that *building* or portion.

This section will further apply to any bathroom open to the general public in any specified place of public assembly that is altered where the cost of making alterations in any twelve-month period will exceed \$500,000.

The cost of making alterations and the value of the *building* or space will be determined by the *building official*.

Where urinals are permitted, urinals may be provided in bathrooms in lieu of water closets, but the number or urinals must not exceed fifty percent of the required number of water closets.

(20) Amending Subsection 310.5. Subsection 310.5 is amended to read:

310.5 Residential Group R-3. Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-4 or I, including:

- Assisted living facilities* that provide accommodations for five or fewer persons receiving care;
- Buildings* that do not contain more than two *dwelling units*;
- Boarding houses (non-transient) with 16 or fewer occupants;
- Boarding houses (transient) with 10 or fewer occupants;
- Congregate living facilities (non-transient) with 16 or fewer occupants; and
- Congregate living facilities (transient) with 10 or fewer occupants.

(21) Amending Subsection 310.6. Subsection 310.6 is amended by adding a new section 310.6.1 to read:

310.6.1 Assisted living facilities within a dwelling. *Assisted living facilities* for more than five but not more than 16 occupants, excluding staff, receiving care that are within a *single-family dwelling* are permitted to comply with the International Residential Code, provided that an automatic sprinkler system is installed in accordance with Section 903.3.1.3 of this code or with Section P2904 of the International Residential Code. Residents must meet the ability to evacuate requirements and other limitations as required in Group I-1.



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- (22) Amending Subsection 403.4.5. Subsection 403.4.5 is amended to read:

403.4.5 Emergency responder radio coverage. Emergency responder radio coverage must be provided in accordance with Section 11.10 of the *Fire Code*.

- (23) Amending Subsection 403.4.6. Subsection 403.4.6 is amended to read:

403.4.6 Fire command. Fire command stations must comply with Section 11.9 of the *Fire Code*.

- (24) Amending Subsection 403.5.4. Subsection 403.5.4 is amended to read:

403.5.4 Smoke-proof enclosures. Every *interior exit stairway* provided, serving floors more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access, must be a *smoke-proof enclosure* in accordance with Sections 909.20 and 1022.10.

Exception: When the required exit stairways are exterior exit stairways and ramps, the exterior stairways and ramps must have natural ventilation in accordance with Section 909.20.3.

- (25) Amending Subsection 404.2. Subsection 404.2 is amended to read:

404.2 Use. The floor of the atrium may not be used for other than low fire hazard uses and only approved materials and decorations in accordance with ROH Chapter 20, are permitted.

- (26) Amending Subsection 406.4.3. Subsection 406.4.3 is amended to read:

406.4.3 Vehicle barriers. Vehicle barriers not less than 2 feet 9 inches (835 mm) in height must be placed where the vertical distance from the floor to the ground or surface directly below is greater than 1 foot (305 mm) from the floor of a drive lane or parking spaces adjacent to exterior walls.

Exception: Vehicle barriers are not required in vehicle storage compartments in a mechanical access parking garage.



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- (27) Amending Subsection 406.7. Subsection 406.7 is amended by amending Subsection 406.7 and adding Subsections 406.7.3 and 406.7.4 to read:

406.7 Motor fuel-dispensing facilities. Motor fuel-dispensing facilities must comply with Sections 406.7.1 through 406.7.4. Fuel-dispensing areas within *buildings* must conform to Section 30.1.6 of the *Fire Code*.

406.7.3 Location of dispensing devices. Dispensing devices must be located as follows:

1. Ten feet (3,048 mm) or more from *lot lines*.
2. Ten feet (3,048 mm) or more from *buildings* having combustible exterior wall surfaces or *buildings* having noncombustible exterior wall surfaces that are not part of a 1-hour fire-resistance-rated assembly or *buildings* having combustible overhangs.

Exception: Canopies constructed in accordance with the *International Building Code* providing weather protection for the fuel islands.

3. Such that all portions of the vehicle being fueled will be on the premises of the motor fuel-dispensing facility.
4. Such that the nozzle, when the hose is fully extended, will not reach within 5 feet (1,524 mm) of *building* openings.
5. Twenty feet (6,096 mm) or more from fixed sources of ignition.

406.7.4 Operational requirements. Fuel-dispensing operations must be in accordance to Chapter 42 of the *Fire Code*.

- (28) Amending Subsection 406.8. Subsection 406.8 is amended by amending Subsection 406.8 and adding Sections 406.8.1 through 406.8.13 to read:

406.8 Repair garages. Repair garages must be constructed in accordance with Sections 406.8.1 through 406.8.13.

406.8.3.1 Below-grade areas. Pits and below-grade work areas in repair garages must comply with Sections 406.8.3.1.1 through 406.8.3.1.3.

406.8.3.1.1 Construction. Construction must be of concrete, masonry, steel, or similar noncombustible materials.



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406.8.3.1.2 Means of egress. Pits and below-grade work areas must be provided means of egress in accordance with Chapter 10 of the IBC.

406.8.3.1.3 Ventilation. Where Class I liquids of LP-gas are stored or used within a *building* having a basement or pit wherein flammable vapors could accumulate, the basement or pit must be provided with mechanical ventilation in accordance with the International Mechanical Code, at a minimum rate of 1½ cubic feet per minute per square foot (cfm/ft²) [0.008 m³/(s • m²)] to prevent the accumulation of flammable vapors.

406.8.7 Fire extinguishers. Fire extinguishers must be provided in accordance with Chapter 906.

406.8.8 Drainage and disposal of liquids and oil-soaked waste. Garage floor drains, where provided, must drain to approved oil separators or traps discharging to a sewer in accordance with the *Plumbing Code*. Contents of oil separators, traps, and floor drainage systems must be collected at sufficiently frequent intervals and removed from the premises to prevent oil from being carried into the sewers.

406.8.8.1 Disposal of liquids. Crankcase draining and liquids must not be dumped into sewers, streams, the *City's* storm drainage system, or on the ground, but must be stored in approved tanks or containers in accordance to Chapters 4 and 5 of NFPA 30A, until removed from the premises.

406.8.9 Sources of ignition. Sources of ignition must not be located within 18 inches (457 mm) of the floor.

406.8.9.1 Equipment. Appliances and equipment installed in a repair garage must comply with the provisions of the International Mechanical Code and NFPA 70.

406.8.10 Operational requirements. Dispensing of flammable and combustible liquids must be in accordance to Section 30.3 of the *Fire Code*.

406.8.11 General. Repair garages must comply with this section. Repair garages for vehicles that use more than one type of fuel must comply with the applicable provisions of this section for each type of fuel used.



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Where a repair garage also includes a motor fuel-dispensing facility, the fuel-dispensing operation must comply with the requirements of this chapter for motor fuel-dispensing facilities.

406.8.11.1 Repair garages for vehicles fueled by lighter-than-air fuels. Repair garages for the conversion and repair of vehicles which use CNG, liquefied natural gas (LNG), hydrogen or other lighter-than-air motor fuels will comply with Sections 406.8.11.1.1 through 406.8.13.3.

406.8.11.1.1 Ventilation. Repair garages used for the repair of natural gas- or hydrogen-fueled vehicles must be provided with an approved mechanical ventilation system. The mechanical ventilation system must be in accordance with the *International Mechanical Code* and Sections 406.8.11.1.1 and 406.8.11.1.1.2.

Exception: Repair garages with natural ventilation when *approved*.

406.8.11.1.1.1 Design. Indoor locations must be ventilated utilizing air supply inlets and exhaust outlets arranged to provide uniform air movement to the extent practical. Inlets must be uniformly arranged on exterior walls near floor level. Outlets must be located at the high point of the room in exterior walls or the roof.

Ventilation must be by a continuous mechanical ventilation system or by a mechanical ventilation system activated by a continuously monitoring natural gas detection system or, for hydrogen, a continuously monitoring flammable gas detection system, each activating at a gas concentration of not more than 25 percent of the lower flammable limit (LFL). In all cases, the system must shut down the fueling system in the event of failure of the ventilation system.

The ventilation rate must be at least 1 cubic foot per minute per 12 cubic feet [$0.00139 \text{ m}^3 \times (\text{s} \cdot \text{m}^3)$] of room volume.

406.8.11.1.1.2 Operation. The mechanical ventilation system must operate continuously.

Exceptions:

1. Mechanical ventilation systems that are interlocked with a gas detection system designed in accordance with Sections 406.8.12 through 406.9.2.3.



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2. Mechanical ventilation systems in repair garages that are used only for repair of vehicles fueled by liquid fuels or odorized gases, such as CNG, where the ventilation system is electrically interlocked with the lighting circuit.

406.8.12 Gas detection system. Repair garages used for repair of vehicles fueled by non-odorized gases, such as hydrogen and non-odorized LNG, must be provided with a flammable gas detection system.

406.8.12.1 System design. The flammable gas detection system must be *listed* or *approved* and must be calibrated to the types of fuels or gases used by vehicles to be repaired. The gas detection system must be designed to activate when the level of flammable gas exceeds 25 percent of the lower flammable limit (LFL). Gas detection must also be provided in lubrication or chassis service pits of repair garages used for repairing non-odorized LNG-fueled vehicles.

406.8.12.1.1 Gas detection system components. Gas detection system control units must be *listed* and *labeled* in accordance with UL 864 or UL 2017. Gas detectors must be *listed* and *labeled* in accordance with UL 2075 for use with the gases and vapors being detected.

406.8.12.2 Operation. Activation of the gas detection system must result in all the following:

1. Initiation of distinct audible and visual alarm signals in the repair garage.
2. Deactivation of all heating systems located in the repair garage.
3. Activation of the mechanical ventilation system, when the system is interlocked with gas detection.

406.8.12.3 Failure of the gas detection system. Failure of the gas detection system must result in the deactivation of the heating system, activation of the mechanical ventilation system and, where the system is interlocked with gas detection, cause a trouble signal to sound in an *approved* location.



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406.8.13 Defueling of hydrogen from motor vehicle fuel storage containers. The discharge or defueling of hydrogen from motor vehicle fuel storage tanks for the purpose of maintenance, cylinder certification, calibration of dispensers or other activities must be in accordance with 406.8.13.1 through 406.8.13.1.2.4.

406.8.13.1 Methods of discharge. The discharge of hydrogen from motor vehicle fuel storage tanks must be accomplished through a closed transfer system in accordance with Section 406.8.13.1.1 or an *approved* method of atmospheric venting in accordance with Section 406.8.13.1.2.

406.8.13.1.1 Closed transfer system. A documented procedure that explains the logic sequence for discharging the storage tank must be provided to the *fire code official* for review and approval. The procedure must include what actions the operator is required to take in the event of a low-pressure or high-pressure hydrogen release during discharging activity. Schematic design documents must be provided illustrating the arrangement of piping, regulators, and equipment settings. The *construction documents* must illustrate the piping and regulator arrangement and must be shown in spatial relation to the location of the compressor, storage vessels, and emergency shutdown devices.

406.8.13.1.2 Atmospheric venting of hydrogen from motor vehicle fuel storage containers. When atmospheric venting is used for the discharge of hydrogen from motor vehicle fuel storage tanks, such venting must be in accordance with Sections 406.8.13.1.2.1 through 406.8.13.1.2.4.

406.8.13.1.2.1 Defueling equipment required at vehicle maintenance and repair facilities. All facilities for repairing hydrogen systems on hydrogen-fueled vehicles must have equipment to defuel vehicle storage tanks. Equipment used for defueling must be *listed* and *labeled* for their intended use.

406.8.13.1.2.1.1 Manufacturer's equipment required. Equipment supplied by the vehicle manufacturer will be used to connect the vehicle storage tanks to be defueled to the vent pipe system.

406.8.13.1.2.1.2 Vent pipe maximum diameter. Defueling vent pipes must have a maximum inside diameter of 1 inch (25 mm).



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406.8.13.1.2.1.3 Maximum flow rate. The maximum rate of hydrogen flow through the vent pipe system must not exceed 1,000 cfm at NTP (0.47 m³/s) and must be controlled by means of the manufacturer's equipment, at low pressure and without adjustment.

406.8.13.1.2.1.4 Isolated use. The vent pipe used for defueling must not be connected to another venting system used for any other purpose.

406.8.13.1.2.2 Construction documents. *Construction documents* will be provided illustrating the defueling system to be utilized. Plan details must be of sufficient detail and clarity to allow for evaluation of the piping and control systems to be utilized and include the method of support for cylinders, containers, or tanks to be used as part of a closed transfer system, the method of grounding and bonding, and other requirements specified herein.

406.8.13.1.2.3 Stability of cylinders, containers and tanks. A method of rigidly supporting cylinders, containers, or tanks used during the closed transfer system discharge or defueling of hydrogen must be provided. The method must provide not less than two points of support and must be designed to resist lateral movement of the receiving cylinder, container, or tank. The system must be designed to resist movement of the receiver based on the highest gas-release velocity through valve orifices at the receiver's rated service pressure and volume. Supporting structures or appurtenances used to support receivers must be constructed of noncombustible materials in accordance with the *International Building Code*.

406.8.13.1.2.4 Grounding and bonding. Cylinders, containers, or tanks and piping systems used for defueling must be bonded and grounded. Structures or appurtenances used for supporting the cylinders, containers, or tanks must be grounded in accordance with NFPA 70. The valve of the vehicle storage tank must be bonded with the defueling system prior to the commencement of discharge or defueling operations.

406.8.13.1.3 Repair of hydrogen piping. Piping systems containing hydrogen must not be opened to the atmosphere for repair without first purging the piping with an inert gas to achieve 1 percent hydrogen or less by volume. Defueling operations and exiting purge flow must be vented in accordance with Section 406.8.13.1.2.



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406.8.13.1.3.1 Purging. Each individual manufactured component of a hydrogen generating, compression, storage, or dispensing system must have a label affixed as well as a description in the installation and owner's manuals describing the procedure for purging air from the system during startup, and regular maintenance, and for purging hydrogen from the system prior to disassembly (to admit air).

For the interconnecting piping between the individual manufactured components, the pressure rating must be at least 20 times the absolute pressure present in the piping when any hydrogen meets any air.

406.8.13.1.3.2 System purge required. After installation, repair, or maintenance, the hydrogen piping system will be purged of air in accordance with the manufacturer's procedure for purging air from the system.

- (29) Amending Subsection 410.4. Subsection 410.4 is amended to read:

410.4 Platform construction. Permanent platforms shall be constructed of materials as required for the type of construction of the *building* in which the permanent platform is located. Permanent platforms are permitted to be constructed of fire-retardant-treated wood for Types I, II, and IV construction where the platforms are not more than 30 inches (762 mm) above the main floor, and not more than one-third of the room floor area and not more than 3,000 square feet (279 square meters) in area. Where the space beneath the permanent platform is used for storage or any purpose other than equipment, wiring, or plumbing, the floor assembly must be of not less than 1-hour fire resistance-rated construction or of heavy timber floor construction. Where the space beneath the permanent platform is used for equipment, wiring, or plumbing, the underside of the permanent platform need not be protected.

- (30) Amending Subsection 413.1. Subsection 413.1 is amended by amending Subsection 413.1 and adding Sections 413.1.1 through 413.1.14 to read:

413.1 General. Fire protection and life-safety features for high-piled areas must be in accordance with Sections 413.1.1 through 413.1.13.

413.1.1 Extent and type of protection. When required, fire detection systems, smoke and heat removal, draft curtains, and automatic sprinkler design density must extend the lesser of 15 feet (4572 mm) beyond the high-piled storage area or to a permanent partition. Where portions of



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high-piled storage areas have different fire protection requirements because of commodity, method of storage or storage height, the fire protection features must be based on the most restrictive design method.

413.1.2 Separation of high-piled storage areas. High-piled storage areas must be separated from other portions of the *building* where required by Sections 413.1.2.1 through 413.1.2.2.

413.1.2.1 Separation from other uses. Mixed occupancies must be separated in accordance with Sections 508 and 509.

413.1.2.2 Multiple high-piled storage areas. Multiple high-piled storage areas must be in accordance with Section 413.1.2.2.1 or 413.1.2.2.2.

413.1.2.2.1 Aggregate area. The aggregate area is the area of all high-piled storage areas within a *building*, unless such areas are separated from each other by 1-hour fire barriers constructed in accordance with Section 707. Openings in such fire barriers must be protected by opening protectives having a 1-hour fire protection rating.

413.1.2.2.2 Multiclass high-piled storage areas. High-piled storage areas classified as Class I through IV not separated from high-piled storage areas classified as high hazard must utilize the aggregate of all high-piled storage areas as high hazard. To be considered as separated, 1-hour fire barriers must be constructed between the areas in accordance with Section 707. Openings in such fire barriers must have a 1-hour fire protection rating.

Exception: Designation based on engineering analysis.

413.1.3 Automatic sprinklers. Automatic sprinkler systems must be provided as required by Table 413.1.

Exception: High-expansion foam extinguishing systems installed in addition to automatic sprinkler systems must comply with Section 904.7.

413.1.4 Fire detection. Where fire detection is required by Table 413.1, an approved automatic fire detection system must be installed throughout any high-piled storage area. The system must be monitored and be in accordance with Section 907.



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413.1.5 Smoke and heat removal. Where smoke and heat removal are required by Section 910, smoke and heat vents must be provided.

**TABLE 413.1
GENERAL FIRE PROTECTION AND LIFE SAFETY REQUIREMENTS**

COM-MODITY CLASS	SIZE OF HIGH-PILED AREA (square feet)	ALL STORAGE AREA				SOLID-PILED STORAGE SHELF STORAGE AND PALLETIZED STORAGE		
		Automatic fire extinguishing system	Fire detection system	Smoke and heat removal	Draft curtains	Maximum pile dimension (feet)	Maximum permissible storage height (feet)	Maximum pile volume (cubic feet)
I - IV ^a	2,501-12,000 Public access	Yes	Not required	Not required	Not required	100	40	400,000
	2,501 - 12,000 Nonpublic access	Yes	Not required	Not required	Not required	100	40	400,000
	2,501-12,000 Nonpublic access	Not required	Yes	Yes	Yes	100	30	200,000
	Greater than 12,000	Yes	Not required	Yes	Not required	100	40	400,000
High hazard ^b	501 - 2,500 Public access	Yes	Not required	Not required	Not required	50	30	75,000
	501-2,500 Nonpublic access	Yes	Not required	Not required	Not required	50	30	75,000
	501-2,500 Nonpublic access	Not required	Yes	Yes	Yes	50	30	50,000
	Greater than 2,500	Yes	Not Required	Yes	Not Required	50	30	75,000

a. Commodity classifications I-IV is defined in the *Fire Code*.

b. High hazard is defined in Section 415.

413.1.6 Building access. *Fire apparatus access roads* must be provided within 150 feet of all portions of the exterior wall of *buildings* used for high-piled storage in which the aggregate area of all high-piled storage areas within a *building* is greater than 12,000 square feet. Aggregate areas of high-piled storage areas must be permitted to be separated by 1-hour fire barriers constructed in accordance with Section 707.



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413.1.7 Access doors. Fire department access doors must be provided in accordance with this section. Access doors must be accessible without the use of a ladder.

413.1.8 Number of doors required. A minimum of one access door must be provided in each 100 linear feet (30,480 mm), or fraction thereof, of the exterior walls that face a required *fire apparatus access road*. The required access doors must be distributed such that the linear distance between adjacent access doors does not exceed 100 feet (30 480 mm).

413.1.9 Door size and type. Access doors must not be less than 3 feet (914 mm) in width and 6 feet 8 inches (2,032 mm) in height. Access doors must be of the pivoted or side-hinged swinging type.

413.1.10 Designation of storage heights. A visual method of indicating the maximum allowable storage height must be provided within stock or storage areas.

413.1.11 Aisles. Aisles providing access to exits and fire department access doors must be provided in high-piled storage areas exceeding 500 square feet (46 m²), in accordance with Sections 413.1.11.1.1 to 413.1.11.1.2. Aisles separating storage piles or racks must comply with NFPA 13. Aisles must also comply with Chapter 10.

413.1.11.1 Width. Aisle width must be in accordance with Sections 413.1.11.1.1 and 413.1.11.1.2.

Exceptions:

1. Aisles crossing rack structures or storage piles, which are used only for employee access, must be a minimum of 24 inches (610 mm) wide.
2. Aisles separating shelves classified as shelf storage must be a minimum of 30 inches (762 mm) wide.

413.1.11.1.1 Sprinklered Buildings. Aisles in sprinklered *buildings* must be not less than 44 inches (1,118 mm) wide. Aisles may be not less than 96 inches (2438 mm) wide in high-piled storage areas exceeding 2,500 square feet (232 m²) in area that are accessible to the public and designated to contain high-hazard commodities.



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Exception: Aisles in high-piled storage areas exceeding 2,500 square feet (232 m²) in area, that are accessible to the public and designated to contain high-hazard commodities, are protected by a sprinkler system designed for multiple-row racks of high-hazard commodities must be a minimum of 44 inches (1118 mm) wide.

413.1.11.1.2 Nonsprinklered buildings. Aisles in nonsprinklered *buildings* must be a minimum of 96 inches (2,438 mm) wide.

413.1.11.2 Clear height. The required aisle width must extend from floor to ceiling. Rack structural supports and catwalks are allowed to cross aisles at a minimum height of 6 feet 8 inches (2,032 mm) above the finished floor level, provided that such supports do not interfere with fire department hose stream trajectory.

413.1.11.3 Dead ends. Dead-end sides must be in accordance to Chapter 10 of the IBC.

413.1.12 Portable fire extinguishers. Portable fire extinguishers must be provided in accordance with Section 906.

413.1.13 Housekeeping and maintenance.

413.1.13.1 Rack structures. The structural integrity of racks must be maintained.

413.1.13.2 Ignition sources. Hot ashes, cinders, smoldering coals, or greasy or oily materials subject to spontaneous ignition must not be deposited in a combustible receptacle, within 10 feet (3,048 mm) of other combustible material, including combustible walls and partitions, or within 2 feet (610 mm) of openings to *buildings*.

413.1.13.3 Smoking. Smoking must be prohibited. *Approved* "No Smoking" signs must be conspicuously posted throughout high-piled storage areas

413.1.13.4 Aisle maintenance. When restocking is not being conducted, aisles must be kept clear of storage, waste material and debris. Fire department access doors, aisles and *exit* doors must not be obstructed. During restocking operations using manual stocking methods, a minimum unobstructed aisle width of 24 inches (610 mm) must be maintained in 48-inch inside (1,219 mm) or narrow aisles, and a minimum unobstructed



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aisle width of one-half of the required aisle width must be maintained in aisles greater than 48 inches (1,219 mm). During mechanical stocking operations, a minimum unobstructed aisle width of 44 inches (1,118 mm) must be maintained in accordance with Section 413.1.11.

413.1.13.5 Pile dimension and height limitations. Pile dimensions and height limitations must comply with Table 413.1.

413.1.13.6 Array. Where an *automatic sprinkler system* design utilizes protection based on a closed array, array clearances must be provided and maintained as specified by the standard used.

413.1.13.7 Flue spaces. Flue spaces must be provided in accordance with Table 413.2. Required flue spaces must be maintained.

**TABLE 413.2
REQUIRED FLUE SPACES FOR RACK STORAGE**

RACK CONFIGURATION	AUTOMATIC SPRINKLER PROTECTION		SPRINKLER AT THE CEILING WITH OR WITHOUT MINIMUM IN-RACK SPRINKLERS			IN-RACK SPRINKLERS AT EVERY TIER	NON - SPRINKLERED
			≤ 25 feet		> 25 feet		
			Storage height	Option 1		Option 2	Any height
Single-row rack	Transverse flue space	Size ^b	3 inches	Not Applicable	3 inches	Not Required	Not Required
		Vertically aligned	Not Required	Not Applicable	Yes	Not Applicable	Not Required
	Longitudinal flue space		Not Required	Not Applicable	Not Required	Not Required	Not Required
Double-row rack	Transverse flue space	Size ^b	6 inches ^a	3 inches	3 inches	Not Required	Not Required
		Vertically aligned	Not Required	Not Required	Yes	Not Applicable	Not Required
	Longitudinal flue space		Not Required	6 inches	6 inches	Not Required	Not Required
Multi-row rack	Transverse flue space	Size ^b	6 inches	Not Applicable	6 inches	Not Required	Not Required
		Vertically aligned	Not Required	Not Applicable	Yes	Not Applicable	Not Required
	Longitudinal flue space		Not Required	Not Applicable	Not Required	Not Required	Not Required

Flue spaces will comply with subsection 413.1.13.7.



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413.1.14 Storage arrangement. Storage arrangement must be in accordance to Sections 34.7.3.1, 34.7.3.2 of ROH Chapter 20, *Fire Code*.

- (31) Amending Subsection 420.2. Subsection 420.2 is amended by adding the following exception:

Exception: An *accessory dwelling unit (ADU)* is permitted to be separated from the primary *dwelling unit* with a single layer of 5/8-inch Type X gypsum board or the equivalent fire resistive construction on the walls and ceilings of the ADU portion.

- (32) Amending Appendix U, Subsection 423.1. Appendix U, Subsection 423.1, is amended to read:

423.1 General. In addition to other applicable requirements in this code, storm shelters must be constructed in accordance with ICC-500, and ROH Chapter 16, Articles 13 and 14.

- (33) Adding Section 425. Section 425 is added to read:

SECTION 425 - FENCES

425.1 General. Fences must be constructed in accordance with this code, the *Land Use Ordinance*, and ROH Section 15-24.6. In areas where fence height is not regulated under the *Land Use Ordinance*, fences over 6 feet (1,829 mm) in height are subject to the approval of the fire department as to access.

425.2 Barbed or razor wire fences. Barbed or razor wire must not be used for construction of any fence.

Exceptions:

- 1. Barbed or razor wire may be used in fences enclosing the following premises, provided that barbed or razor wire must be placed along or above the height of 6 feet from the ground, subject to the approval of the fire department:
 - 1.1 Any "public utility" as defined in HRS Section 269-1;
 - 1.2 Premises in industrial zoned districts that are used for storage or handling of hazardous materials, and premises zoned I-2 or I-3,



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intensive or waterfront industrial districts that are used for industrial purposes and are not adjacent to premises used for other purposes;

- 1.3 Zoos for keeping animals and birds for public view or exhibition; and
- 1.4 Jails, prisons, reformatories, and other institutions involved in law enforcement or military activities, where security against unauthorized entry is an important factor.
- 2. Barbed wire may be used in fences enclosing premises used for pasturing cattle or raising swine.

(34) Adding Section 426. Section 426 is added to read:

SECTION 426 - AGRICULTURAL BUILDINGS

426.1 Appendix C. Appendix C, Group U – Agricultural Buildings is by reference incorporated herein and made a part of this code.

(35) Adding Section 427. Section 427 is added to read:

SECTION 427 – PASSENGER RAIL STATIONS AND BUILDINGS

427.1 Applicability. The provisions of this section apply to *buildings* that connect to passenger rail stations constructed in accordance to NFPA 130.

427.1.1 Passenger rail station fire separation line. For the purpose of this section, a passenger rail station fire separation line must be established. The passenger rail station fire separation line must define the extent of the passenger rail station. *Buildings* and parking structures must be outside of the passenger rail station fire separation line and are not considered as part of the passenger rail station. Where a *building* is above or below a passenger rail station, the *building* must be of Type I or II construction, and there must be a minimum 2-hour fire resistance rated horizontal assembly constructed in accordance with Section 711.

427.1.2 Fire-resistance-rated separation. A *building* must be separated from the passenger rail station by a fire wall complying with Section 706.

Exception: The exterior walls of a *building* separated from a passenger rail station which complies with Table 602.



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427.1.3 Openings between passenger stations and buildings. Except for the separation between Group R sleeping units and the passenger rail stations, openings between passenger rail stations and *buildings* of Type I or II construction need not be protected.

427.1.4 Parking garages. An attached garage for the storage of passenger vehicles having a capacity of not more than nine persons and open parking garages must be separated from the passenger rail station by a not less than 2-hour fire barrier constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.

Openings between the passenger rail station and an attached garage will not be required to be protected with fire protection rated openings provided that all of following conditions are met:

1. The openings do not exceed 25 percent of the area of the fire barrier in which they are located.
2. Means are provided to prevent spilled fuel from accumulating adjacent to the openings and entering the passenger rail station.
3. Physical means are provided to prevent vehicles from being parked or driven within 10 feet (3,050 mm) of the openings.

Parking garages, open or enclosed, which are separated from the passenger rail station, must comply with the provisions of Table 602.

Pedestrian walkways and tunnels that connect garages to passenger rail stations must be constructed in accordance with Section 3104.

427.1.5 Kiosks. Kiosks and similar structures (temporary or permanent) must not be located within 20 feet of a passenger rail station and must meet the following requirements or be composed of materials meeting the following requirements:

1. Combustible kiosks or other structures must be constructed of fire-retardant treated wood complying with Section 2303.2.
2. Kiosks or other structures constructed of foam plastics must have a maximum heat release rate not greater than 100 kW (105 Btu/h) when



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tested in accordance with the exhibit booth protocol UL 1975 or when tested in accordance with NFPA 289 using the 20 kW ignition source.

3. Kiosks or other structures constructed of aluminum composite material (ACM) must meet the requirements of Class A interior finish in accordance to Chapter 8 when tested as an assembly in the maximum thickness intended.
4. The horizontal separation between kiosks or grouping thereof and other structures must be not less than 20 feet (6096 mm).
5. Each kiosk or similar structure or grouping thereof must have an area not greater than 300 square feet (28 m²).

427.1.6 Children’s play structures. Children’s play structures must comply with Section 424. The horizontal separation between the passenger rail station and children’s play structures must be not less than 20 feet (6096 mm). The horizontal separation between children’s play structures, kiosks and similar structures must be not less than 20 feet (6096 mm). Children’s play structure groupings must have an area not greater than 300 square feet (28 m²).

427.2 Means of egress. Required means of egress for *buildings* or structures connected to passenger rail stations must be provided independent of the passenger rail station. The occupant load of the *building* opening into the passenger rail station must not be included in the determination of means of egress requirements of the passenger rail station. *Building* exits terminating at the passenger rail station will be considered as a dead end.

(36) Adding Section 428. Section 428 is added to read:

SECTION 428 – STANDBY POWER.

428.1 Installation. Installation of standby power systems must be in accordance to Section 2702 and the International Mechanical Code.

428.2 Operations and Maintenance. Operation and maintenance of standby power systems must be in accordance with the *Fire Code*



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(37) Amending Subsection 501.1. Subsection 501.1 is amended to read:

501.1 Scope. The provisions of this chapter control the height, area, and location of structures hereafter erected and additions to existing structures.

(38) Adding Subsection 501.3. Subsection 501.3 is added to read:

501.3 Location of building for fire department access. One *fire apparatus access road* must be provided for every *building*, or portion of a *building* such that any portion of an exterior wall of the first story above grade of the *building* is located not more than 150 feet (45,720 mm) measured around the exterior of the *building*. A *fire apparatus access road* must extend to within 50 feet (15 m) of a single exterior door providing access to the interior of the *building* on at least one side of a *building*.

Exceptions:

1. When exterior walls with *fire separation distance* of less than 3 feet (914 mm) are constructed in accordance to the *Building Code*, the total perimeter of that portion of the *building*, must not exceed 200 linear feet (60,960 mm) or when the *building* is protected throughout with an automatic sprinkler system, the total perimeter of that portion of the *building*, must not exceed 400 linear feet (122 m).
2. Where the *building* is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, the distance to a fire apparatus access road is permitted to be 450 feet (137 m) measured around the exterior of the *building*.
3. *Buildings* with gross area greater than 62,000 square feet (5,760 m²) must have access to no fewer than two separate *fire apparatus access roads*.
4. When there are not more than two one- and two-*family dwellings* or private garages, *carports*, sheds, and agricultural *buildings*, a *fire apparatus access road* must extend to within 50 feet (15,240 mm) of a single exterior door providing access to the interior of the *building*.



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5. *Buildings with high-pile storage area greater than 12,000 sf. in area must have access to not less than two separate fire access roads.*

6. *Where approved by the fire code official.*

Where more than one access to a public way or fire apparatus access roads are required, at least two must be located a distance not less than one half of the diagonal of the length of the maximum overall diagonal dimension of the lot or area to be served, measured in a straight line between accesses.

When fire department apparatus access roads cannot be installed due to location on property, topography, waterways, nonnegotiable grades, or other similar conditions, the authority having jurisdiction may require other additional fire protection.

(39) Adding Subsection 501.3.1. Subsection 501.3.1 is added to read:

501.3.1 Fire department apparatus access roads.

501.3.1.1 Dimensions. *Fire apparatus access roads must have an unobstructed width of no less than 20 feet (6,096 mm) (See figure 503.1); and an unobstructed vertical clearance of not less than 13 feet 6 inches (4,115 mm).*

Exception: *Private residential driveways serving not more than 2 dwelling units must have an unobstructed width of not less than 12 feet (3,658 mm).*

501.3.1.2 Surface. *Fire apparatus access roads must be designed and manufactured to support the imposed loads of fire apparatus and must be provided with a surface so as to provide all-weather driving capabilities.*

501.3.1.3 Turning Radius. *The turning radius of a fire apparatus access road must be in accordance with figure 503.1.*

501.3.1.4 Dead Ends. *Dead-end fire apparatus access roads in excess of 150 feet (45,720 mm) in length must be provided with approved provisions for turning fire apparatus around and must have a maximum gradient of 5 percent, see figure 503.1.*



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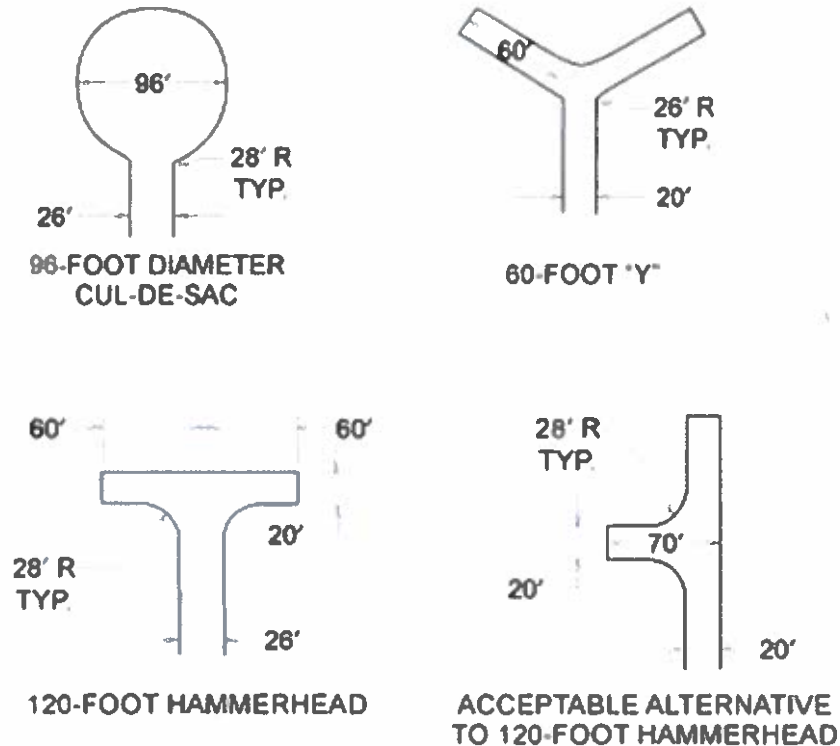


Figure 503.1

501.3.1.5 Bridges. When a bridge is required to be used as part of a *fire apparatus access road*, it must be capable of supporting the imposed load of a fire apparatus weighing at least 83,500 pounds (37,875 kg) and maintained in accordance with AASHTO- HB-17. Vehicle load limits must be posted at both entrances to bridges.

501.3.1.6 Grade. The gradient for a *fire apparatus access road* must not exceed 10 percent.

Exception: Grades steeper than 10 percent must be approved by the *fire code official*.

501.3.1.7 Gates or barricades. Gates or barricades installed across *fire apparatus access roads* must not be installed unless authorized by the *fire code official*.



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501.3.1.8 Fire Department access for ground-mounted photovoltaic system installation. A gravel base or other noncombustible base must be installed and maintained under and around the installation. A clear area of 10 feet (3,048 mm) around the ground-mounted photovoltaic installation must be provided.

501.3.2 Fire hydrants. Fire hydrants within 150 feet (45,720 mm) of the *building* or structure must be installed on *fire apparatus access roads* in accordance with the Water System Standards of the *City and County of Honolulu*.

- (40) Adding Subsection 504.4. Subsection 504.4 is added to read:

504.4 Stair enclosure pressurization increase. For Group R-1 and R-2 occupancies in *buildings* of VA, IV or IIA construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the maximum number of stories permitted in Section 504.2 may be increased by one additional story and 20 feet of height provided the interior exit stairways and ramps are pressurized in accordance with Sections 909.20 and Section 909.11 or the exit stairways are designed in accordance with the open exterior stairway requirements of Section 1026 with 2-hour fire-rated shaft construction.

504.4.1 Special Provisions. Group R-1 and R-2 occupancies meeting the requirements of Section 504.4 are permitted to be constructed as separate and distinct *buildings* as allowed in Section 510.2.

- (41) Amending Subsection 506.2.2. Subsection 506.2.2 is amended by adding the following exception:

Exception: For the purposes of this section, an adjoining private right-of-way may be considered in determining open spaces if the owner of the premises for which the *building* permit application is filed owns a portion thereof.

- (42) Amending Subsection 510.2. Subsection 510.2 is amended by adding a new condition to read:

6. The *building* below the *horizontal assembly* must be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1 and is permitted to be any occupancy allowed by this code except Group H.



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(43) Adding Subsection 510.10. Subsection 510.10 is added to read:

510.10 Carport. A *carport* constructed of Type V-B construction on a hillside may exceed one story in height provided the space below the *carport* floor is unused or used for Group U occupancy only.

(44) Amending Subsection 603.1. Subsection 603.1 is amended by adding a new item to read:

3 Wood construction is permitted for mezzanines constructed in *buildings* of Type IIB construction, subject to the following:

3.1 Mezzanines must conform to Section 505.

3.2 The aggregate area of these mezzanines must be included in the determination of the floor area and must be included in calculating the allowable floor area of the stories in which the mezzanines are located.

3.3 Mezzanine floors, including supporting beams, girders, and columns, must be of one-hour fire-resistive construction.

3.4 Fire sprinkler substitutions for one hour construction are not permitted.

(45) Amending Subsection 901.2. Subsection 901.2 is amended to read:

901.2 Fire protection systems. Fire protection systems must be installed, repaired, operated, and maintained in accordance with this code and the *Fire Code*.

Any fire protection system for which an exception or reduction to the provisions of this code has been granted is considered to be a required system.

All buried galvanized steel and other ferrous piping used in connection with fire-extinguishing systems must be wrapped or otherwise protected against corrosion in accordance with the *Plumbing Code* provisions for protection of galvanized ferrous piping for potable water.



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(46) Amending Subsection 903.1.1. Subsection 903.1.1 is amended to read:

903.1.1 Alternative protection. Alternate automatic fire-extinguishing systems complying with Section 904 are permitted in lieu of automatic sprinkler protection where recognized by the applicable standard and approved by the *building* and the *fire code officials*.

(47) Adding Subsection 903.1.2. Subsection 903.1.2 is added to read:

903.1.2 Storage height signage. In any *building* requiring an automatic sprinkler system, with a ceiling height greater than 12 feet (3,658 mm), a readily visible metal sign, with letters painted or stenciled, not less than 1 inch (25 mm) high on a contrasting background that states the maximum storage height allowable for the installed sprinkler system, must be placed next to the main shutoff valve of the automatic sprinkler riser.

(48) Amending Subsection 903.2.8. Subsection 903.2.8 is amended to read:

903.2.8 Group R-1 and R-2. An automatic sprinkler system installed in accordance with Section 903.3 must be provided throughout all *buildings* with a Group R-1 and R-2 fire area.

Exception: In accordance with HRS Section 46-19.8, Fire sprinklers; residences, until June 30, 2027, no county shall require the installation or retrofitting of automatic fire sprinklers or an automatic fire sprinkler system in:

1. Any new or existing detached one- or two-family *dwelling unit* in a structure used only for residential purposes; and
2. Nonresidential agricultural and aquacultural *buildings* and structures located outside an urban area;

provided that this section shall not apply to new homes that require a variance from access road or firefighting water supply requirements.

(49) Amending Subsection 903.2.11.1. Item 2 of Subsection 903.2.11.1 is amended to read:

2. Openings entirely above the adjoining ground level totaling at least 20 square feet (1.86 m²) in each 50 linear feet (15,240 mm), or fraction thereof, of exterior wall in the story on at least one side. The required



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opening shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15,240 mm). The height of the bottom of the clear opening shall not exceed 44 inches (1,118 mm) measured from the floor. Such required openings must be unobstructed by sunshades, louvers, grillwork, or other construction on the exterior wall that prevent or hinder access to the openings by fire department personnel.

(50) Amending Subsection 903.3.1.1.1. Subsection 903.3.1.1.1 is amended by adding the following exempt locations:

- 7. Closets having an area of less than 12 square feet (1.1. m²) in individual *dwelling units* in R-2 occupancies, are not required to be sprinklered. Closets that contain equipment such as washers, dryers, furnaces, or water heaters must be sprinklered regardless of size.

(51) Amending Subsection 903.4.1. Subsection 903.4.1 is amended to read:

903.4.1 Monitoring. Alarm, supervisory, and trouble signals must be distinctly different and must be automatically transmitted to an approved supervising station, and when approved by the *building official*, must sound an audible signal at a constantly attended location.

Exceptions:

- 1. Underground key or hub valves in roadway boxes provided by the municipality or a public utility are not required to be monitored.
- 2. Backflow prevention device test valves located in limited area sprinkler system supply piping must be locked in the open position. In occupancies required to be equipped with a fire alarm system, the backflow preventer valves must be electronically supervised by a tamper switch installed in accordance with NFPA 72 and separately annunciated.

(52) Amending Subsection 904.2. Subsection 904.2 is amended to read:

904.2 Where required. Automatic fire-extinguishing systems installed as an alternative to the required sprinkler system of Section 903 must be approved by the *building official*. Automatic fire-extinguishing systems are not be considered alternatives for the purpose of exceptions or reductions allowed by other requirements of this code.



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(53) Amending Subsection 904.2.1. Subsection 904.2.1 is amended to read:

904.2.1 Commercial hood and duct systems. Commercial hood and duct systems are required by Title 11, Chapter 39, §11-39-3(7), Hawaii Administrative Rules (Department of Health). Each Type I hood and duct system must be protected by an approved automatic fire-extinguishing system installed in accordance to this code.

(54) Amending Subsection 904.11.1. Subsection 904.11.1 is amended by adding the following exception:

EXCEPTION:

1. Automatic sprinkler systems are not required to be equipped with manual actuation means.
2. *Kitchen* areas less than 300 square feet (27.87 m²) must have a readily accessible means for manual activation located between 42 inches and 48 inches (1,067 mm and 1,219 mm) above the floor, be accessible in the event of a fire, and be located at or near a means of egress.

(55) Amending Subsection 905.1. Subsection 905.1 is amended to read:

905.1 General. Standpipe systems must be provided in new *buildings* and structures in accordance with this section. Fire hose threads used in connection with standpipe systems must be approved and must be compatible with fire department hose threads. All hose connection outlets must be installed so that a 12-inch (305 mm) long wrench may be used in connecting the hose with clearance for the wrench on all sides of the outlet. The location of the fire department hose connection must be approved by the *fire code official*. All horizontal runs of standpipe systems must be sloped to a drain valve at the low point of the system, the drain valve must be arranged to discharge at an approved location.



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(56) Amending Subsection 905.2. Subsection 905.2 is amended to read:

905.2 Installation standard. Standpipe systems must be installed in accordance with this section and NFPA 14. When water pressure at a standpipe outlet exceeds 175 psi static or residual at 250 gpm flow, a pressure-reducing valve must be provided. The required pressure-reducing valves (PRVs) must be located at the hose valve outlet only. Only field-adjustable valves are allowed. If special tools are required to make field adjustments on PRVs, a minimum of four (4) such tools must be provided at locations approved by the *fire code official*.

(57) Amending Subsection 905.3.2. Exception 2 of Subsection 905.3.2 is amended to read:

2. Class I manual wet standpipes are allowed in *buildings* that are not high-rise *buildings*.

(58) Amending Subsection 905.4. Item 6 of Subsection 905.4 is amended to read:

6. Where the most remote portion of a nonsprinklered floor or story is more than 150 feet (45,720 mm) from a hose connection, additional hose connections must be provided.

(59) Amending Section 906. Section 906 is amended by deleting Subsections 906.1 through 906.10 and replacing the subsections with the following:

906.1 Where required. Portable fire extinguishers shall be installed in the following locations:

1. In Group A, B, E, F, H, I, M, R-1, R-2, R-4, and S occupancies.

Exception: In Group R-2 occupancies, portable fire extinguishers are required only in locations specified in Items 2 through 6 where each *dwelling unit* is provided with a portable fire extinguisher having a minimum rating of 1-A:10-B:C.

2. Within 30 feet (9,144 mm) of where combustible liquids are stored, used, or dispensed.

3. In areas where flammable or combustible liquids are stored, used or dispensed.



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4. On each floor of structures under construction, except Group R-3 occupancies, in accordance to the *Fire Code*.
5. Where required by the *Fire Code* indicated in Table 906.1.
6. Special-hazard areas, including but not limited to laboratories, computer rooms, and generator rooms, where required by the *fire code official*.

906.2 General requirements. Portable fire extinguishers must be selected and installed in accordance to the *Fire Code* and NFPA 10.



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(60) Amending [F] Table 906.1. [F] Table 906.1 is amended to read:

**Table 906.1
Portable Fire Extinguishers Required**

Occupancy Use	Where Required
Ambulatory health care occupancies	Yes
Apartment occupancies ^a	Yes
Assembly occupancies ^b	Yes
Business occupancies	Yes
Daycare occupancies	Yes
Detention and correctional occupancies ^c	Yes
Educational occupancies	Yes
Health care occupancies	Yes
Hotel and dormitory occupancies	Yes
Industrial occupancies	Yes
Lodging and rooming house occupancies	Yes
Mercantile occupancies	Yes
Occupancies in special structures	Yes
One- and two-family dwelling occupancies	No
Residential board and care occupancies	Yes
Storage occupancies ^d	Yes

^aPortable fire extinguishers shall be permitted to be located at exterior locations or interior locations so that all portions of the buildings are within 75 ft (22.8 m) of travel distance to an extinguishing unit.

^bPortable fire extinguishers are not required in seating or outdoor performance areas.

^cAccess to portable fire extinguishers shall be permitted to be locked.

^dPortable fire extinguishers shall be permitted to be located at staff locations only.

^eIn storage areas where forklift, powered industrial truck, or cart operators are the primary occupants, fixed extinguishers, as specified in NFPA 10, need not be provided when:

- (1) Use of vehicle-mounted extinguishers is approved by the AHJ.
- (2) Each vehicle is equipped with a 10 lb. 40-A:80-B:C extinguisher affixed to the vehicle using a mounting bracket approved by the extinguisher manufacturer or the AHJ for vehicular use.
- (3) Not less than two spare extinguishers of equal or greater rating are available onsite to replace a discharged extinguisher.
- (4) Vehicle operators are trained in the proper operation and use of the extinguisher.
- (5) Inspections of vehicle-mounted extinguishers are performed daily.



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(61) Amending Subsection 907.7.2. Subsection 907.7.2 is amended to read:

907.7.2 Record of completion. A record of completion in accordance with NFPA 72 verifying that the system has been installed and tested in accordance with the approved plans and specifications shall be provided. The record of completion, approved fire alarm shop drawings and specifications must be provided to the *building* and fire officials prior to final inspections or prior to final occupancy.

The record of completion must be provided by:

1. An electrical engineer licensed in the State of Hawaii.
2. An individual certified by the International Code Council as a Commercial Fire Alarm Inspector or Fire Inspector II, or by the National Fire Protection Association as a Certified Fire Inspector.
3. Personnel who are factory trained and certified for fire system design and emergency communications system design of the specific type and brand of the installed system.

(62) Amending Subsection 907.8. Subsection 907.8 is amended to read:

907.8 Inspection, testing, and maintenance. The maintenance and testing schedules and procedures for fire alarm and fire detection systems must be in accordance to Section 13.7.3.2.3 of the *Fire Code*.

(63) Amending Subsection 910.2.2. Subsection 910.2.2 is amended to read:

910.2.2 High-piled combustible storage. *Buildings* and portions thereof containing high-piled combustible stock or rack storage in any occupancy group in accordance with Section 413 and this Section.

(64) Amending Section 911. Section 911 is amended to read:

SECTION 911 - FIRE COMMAND CENTER

911.1 General. See *Fire Code*.



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(65) Amending Subsection 915.1. Subsection 915.1 is amended to read:

915.1 General. Emergency responder radio coverage shall be provided in all new *buildings* in accordance with the *Fire Code*.

(66) Adding Section 916. Section 916 is added to read:

**SECTION 916
FIRE PROTECTION SYSTEMS SPECIAL INSPECTIONS**

916.1 General. Where application is made for construction as described in this section, the owner or the licensed design professional in responsible charge, acting as the owner's agent must employ one or more fire protection systems' special inspectors to provide inspections during construction on the types of work listed under Subsections 916.2 through 916.6. The fire protection system special inspector must be approved by the *building official*. These inspections are in addition to the inspections specified in Section 110.

916.1.1 Building permit requirement. The submitted plans must include a statement of fire protection system inspection prepared by the licensed engineer of record as a condition for permit issuance.

Exception: The *building official* may waive the requirement for the employment of a special inspector if the construction is of a minor nature.

916.1.2 Report requirement. Fire protection system inspectors shall keep records of inspections and shall review working drawings prior to installation. The fire protection system inspector shall furnish inspection reports to the owner, licensed engineer or architect of record, and other owner-designated persons. Reports must indicate that work inspected was done in conformance to the applicable code and must include, but not be limited to, working drawings and acceptance tests required by this section.

All discrepancies must be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the proper design professional and to the *building official*.

The special inspector shall submit a final signed report stating that the inspector has reviewed the working drawings and whether the work requiring special inspection was, to the best of the inspector's knowledge,



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in conformance to the approved plans and specifications and the applicable workmanship provisions of this code. This report must include a copy of the working drawings provided to the *building official* prior to the final inspection.

916.2 Automatic sprinkler systems. Automatic systems must be inspected and evaluated in accordance to the requirements of Section 903.

1. During installation.

Exception: A special inspector need not be present continuously during the installation of the sprinkler system, provided the special inspector has inspected for conformance with this code and approved plans prior to concealment.

2. During acceptance tests as required by NFPA 13, 13R, and 13D.

916.3 Alternative automatic fire-extinguishing systems. Alternative automatic fire-extinguishing systems must be inspected and evaluated in accordance to the requirements of Section 904.

1. During installation.

Exception: A special inspector need not be present continuously during the installation of the alternate automatic fire extinguishing system, provided the special inspector has inspected for conformance with this code and approved plans prior to concealment.

2. During tests as required by NFPA 11, 12, 12A, 16, 17, and 17A.

916.4 Standpipe systems. Standpipe systems must be inspected and evaluated in accordance to the requirements of Section 905.

1. During installation.

Exception: Special inspector need not be present continuously during the installation of the standpipe system provided the special inspector has inspected for conformance with this code and approved plans prior to concealment.

2. During acceptance tests as required by NFPA 14.



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916.5 Smoke control systems. Smoke control systems must be inspected and evaluated in accordance to the requirements of Section 909.

1. During erection of ductwork and prior to concealment for the purposes of leakage testing and recording device location.
2. Prior to occupancy and after sufficient completion for the purposes of pressure difference testing, flow measurements, and detection and control verification.

916.6 Fire pumps. Fire pump systems must be inspected and tested in accordance to the requirements of the *Fire Code*. An acceptance test must be performed and submitted to the *building official*.

(67) Amending Subsection 1001.4. Subsection 1001.4 is amended to read:

1001.4 Fire safety and evacuation plans. Fire safety and evacuation plans must be provided prior to issuance of a certificate of occupancy and maintained prior to issuance of the certificate of occupancy for the following occupancies and *buildings*:

1. Group A, other than Group A occupancies used exclusively for purposes of religious worship, that have an *occupant load* of less than 2,000.
2. Group B *buildings* having an *occupant load* of 500 or more persons or of more than 100 persons above or below the lowest *level of exit discharge*.
3. Group E.
4. Group F *buildings* having an *occupant load* of 500 or more persons or more than 100 persons above or below the lowest *level of exit discharge*.
5. Group H.
6. Group I.
7. Group R-1.
8. Group R-2 college and university *buildings*.



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9. Group R-4.
10. High-rise *buildings*.
11. Group M *buildings* having an *occupant load* of 500 or more persons or more than 100 persons above or below the lowest *level of exit discharge*.
12. Covered malls exceeding 50,000 square feet (4,645 m²) in aggregate floor area.
13. Open mall *buildings* exceeding 50,000 square feet (4,645 m²) in aggregate area within perimeter line.
14. Underground *buildings*.
15. *Buildings* with an atrium and having an occupancy in Group A, E or M.

1001.4.1 Contents. Fire safety and evacuation plan contents must be in accordance with Section 1001.4.2 and 1001.4.3.

1001.4.2 Fire evacuation plans. Fire evacuation plans must include the following:

1. Emergency egress or escape routes and whether evacuation of the *building* is to be complete or, where *approved*, by selected floors or areas only.
2. Procedures for employees who must remain to operate critical equipment before evacuating.
3. Procedures for assisted rescue for persons unable to use the general *means of egress* unassisted.
4. Procedures for accounting for employees and occupants after evacuation has been completed.
5. Identification and assignment of personnel responsible for rescue or emergency medical aid.



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6. The preferred and any alternative means of notifying occupants of a fire or emergency.
7. The preferred and any alternative means of reporting fires and other emergencies to the fire department or designated emergency response organization.
8. Identification and assignment of personnel who can be contacted for further information or explanation of duties under the plan.
9. A description of the emergency voice/alarm communication system alert tone and preprogrammed voice messages, where provided.

1001.4.3 Fire safety plans. Fire safety plans must include the following:

1. The procedure for reporting a fire or other emergency.
2. The life safety strategy and procedures for notifying, relocating or evacuating occupants, including occupants who need assistance.
3. Site plans indicating the following:
 - 3.1. The occupancy assembly point.
 - 3.2. The locations of fire hydrants.
 - 3.3. The normal routes of fire department vehicle access.
4. Floor plans identifying the locations of the following:
 - 4.1. Exits.
 - 4.2. Primary evacuation routes.
 - 4.3. Secondary evacuation routes.
 - 4.4. Accessible egress routes.
 - 4.5. Areas of refuge.
 - 4.6. Exterior areas for assisted rescue.
 - 4.7. Manual fire alarm boxes.



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- 4.8. Portable fire extinguishers.
 - 4.9. Occupant-use hose stations.
 - 4.10. Fire alarm annunciators and controls.
 - 5. A list of major fire hazards associated with the normal use and occupancy of the premises, including maintenance and housekeeping procedures
 - 6. Identification and assignment of personnel responsible for maintenance of systems and equipment installed to prevent or control fires.
 - 7. Identification and assignment of personnel responsible for maintenance, housekeeping, and controlling fuel hazard sources.
- (68) Amending Section 1001. Section 1001 is amended by adding Subsections 1001.5 through 1001.8 to read as follows:
- 1001.5 Maintenance.** Fire safety and evacuation plans must be reviewed or updated annually or as necessitated by changes in staff assignments, occupancy, or the physical arrangement of the *building*.
- 1001.6 Availability.** Fire safety and evacuation plans must be available in the workplace for reference and review by employees, and copies will be furnished for review upon request.
- 1001.7 Distribution.** The fire safety and evacuation plans must be distributed to the tenants and *building* service employees by the *owner* or *owner's* agent. Tenants must distribute to their employees applicable parts of the fire safety plan affecting the employees' actions in the event of a fire or other emergency.
- 1001.8 Exit Plan.** An exit plan complying with the requirements of Chapter 10 must be provided for all *buildings* and occupancies.



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(69) Amending Subsection 1005.7.1. Subsection 1005.7.1 is amended by adding a third exception to read:

3. Exterior screen and storm doors of individual units of Group R-2 and Group R-3.

(70) Amending Subsection 1008.1.4.4. Subsection 1008.1.4.4 is amended by adding a second paragraph to read:

For assembly occupancy groups A-2 and A-3 that are accessory to Group B, M, R-1 and R-2, horizontal sliding or vertical security grilles are permitted at the main exit and must be secured in the fully opened position during periods that the space is occupied. A readily visible durable sign is posted on the egress side adjacent to the grille stating "THIS GRILLE TO BE SECURED IN THE OPEN POSITION WHEN THIS SPACE IS OCCUPIED." The sign must be in letters not less than 1 inch (25 mm) high on a contrasting background. Not more than one means of egress may be equipped with horizontal sliding or vertical security grilles. The use of these grilles is revocable by the *building official* for due cause.

(71) Amending Subsection 1008.1.10. Subsection 1008.1.10 is amended by adding Exception 2 to read:

2. Double-acting screen doors used in conjunction with exit doors having panic hardware in school cafeterias.

(72) Amending Subsection 1009.4. Subsection 1009.4 is amended by adding Exception 5 to read:

5. Private stairways serving an occupant load of less than 5 must not be less than 30 inches (76 mm) in width.

(73) Amending Subsection 1013.4. Subsection 1013.4 is amended by adding Exception 7 to read:

7. Guards in Group R-1 and R-2 Occupancies must not contain:
 - 7.1 Horizontal rails other than top and bottom rails, or
 - 7.2 Cutouts or indentations greater than 1-3/4 inches in width or protrusions that may provide a foothold for young children.



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- (74) Amending Subsection 1021.2. Subsection 1021.2 is amended by replacing the exceptions with the following:

Exceptions: A single *exit* or access to a single *exit* is permitted from any *story* or occupied roof where one of the following conditions exists:

1. The *occupant load*, number of *dwelling units*, and common path of egress travel distance does not exceed the values in Table 1021.2(1) or 1021.2(2).
2. Rooms, areas and spaces complying with Subsection 1015.1 with *exits* that discharge directly to the exterior at the *level of exit discharge*, are permitted to have one *exit* or access to a single *exit*.
3. Parking garages where vehicles are mechanically parked must be permitted to have one *exit* or access to a single *exit*.
4. Group R-3 and R-4 occupancies will be permitted to have one *exit* or access to a single *exit*.
5. Individual single-story or multistory *dwelling units* are permitted to have a single exit or access to a single *exit* from the *dwelling unit*, provided that both of the following criteria are met:
 - 5.1 The *dwelling unit* complies with Subsection 1015.1 as a space with one *means of egress*.
 - 5.2 Either the *exit* from the *dwelling unit* discharges directly to the exterior at the *level of exit discharge*, or the *exit access* outside the *dwelling unit's* entrance door provides access to not less than two approved independent discharge exits.
6. Not more than 5 stories of Group R-2 occupancy are permitted to be served by a single exit under the following conditions:
 - 6.1 The *building* has not more than six stories above grade plane
 - 6.2 The *building* does not contain a boarding house.
 - 6.3 There are no more than four *dwelling units* on any floor.



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- 6.4 The *building* is of not less than one-hour fire-resistive construction and equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. Residential-type sprinklers must be used in all habitable spaces in each *dwelling unit*.
- 6.5 There are no more than two single exit stairway conditions on the same *building*.
- 6.6 An exterior stairway or interior exit stairway is provided. The interior exit stairway, including any related exit passageway, must be pressurized in accordance with Section 909.20. Doors in the stairway must swing into the interior exit stairway regardless of the occupant load served, provided that doors from the interior exit stairway to the *building* exterior are permitted to swing in the direction of exit travel.
- 6.7 A corridor separates each *dwelling unit* entry/exit door from the door to an interior exit stairway, including any related exit passageway, on each floor. *Dwelling unit* doors must not open directly into an interior exit stairway. *Dwelling unit* doors are permitted to open directly into an exterior stairway.
- 6.8 There are no more than 20 feet (6,096 mm) of travel to the exit stairway from the entry/exit door of any *dwelling unit*.
- 6.9 Travel distance measured in accordance with Section 1016 does not exceed 125 feet.
- 6.10 The exit does not terminate in an egress court where the court depth exceeds the court width unless it is possible to exit in either direction to the public way.
- 6.11 Elevators are pressurized in accordance with Section 909.21 or will open into elevator lobbies that comply with Section 713.14.1. Where approved by the *building official*, natural ventilation is permitted to be substituted for pressurization where the ventilation would prevent the accumulation of smoke or toxic gases.



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6.12 Other occupancies are permitted in the same *building*, provided they comply with all the requirements of this code. Other occupancies must not communicate with the Group R occupancy portion of the *building* or with the single-exit stairway.

Exception: Parking garages accessory to the Group R occupancy are permitted to communicate with the exit stairway.

6.13 The exit serving the Group R occupancy does not discharge through any other occupancy, including an accessory parking garage.

6.14 There will be no openings within 10 feet (3,048 mm) of unprotected openings into the stairway other than required exit doors having a one-hour fire-resistance rating.

6.15 The minimum width of this stairway is not less than 48 inches.

(75) Amending Subsection 1026.2. Subsection 1026.2 is amended to read:

1026.2 Use in a means of egress. For occupancies other than Group I-2, exterior exit stairways and ramps are permitted as an element of a required means of egress for *buildings*.

(76) Amending Subsection 1026.3. Subsection 1026.3 is amended by adding a second paragraph to read:

Exterior exit stairways must be arranged to avoid any impediments to their use by persons having a fear of high places. Outside stairs more than 6 stories above the grade plane must be provided with an opaque visual obstruction of not less than 48 in. (1,220 mm) in height.

(77) Amending Subsection 1026.6. Subsection 1026.6 is amended by amending Exception 4 to read:

4. Separation from the interior of the *building* is not required for *exterior stairways* or *ramps* connected to open-ended *corridors*, provided that Items 4.1 through 4.6 are met:



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- 4.1. The *building*, including *corridors*, *stairways*, or *ramps*, shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.12.
- 4.2. The open-ended *corridors* comply with Section 1018
- 4.3. The open-ended *corridors* are connected on each end to an *exterior exit stairway* or *ramp* complying with Section 1026.
- 4.4. The *exterior walls* and openings adjacent to the *exterior exit stairway* or *ramp* comply with Section 1022.7.
- 4.5. At any location in an open-ended *corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m²) or an *exterior stairway* or *ramp* must be provided. Where clear openings are provided, they must be located so as to minimize the accumulation of smoke or toxic gases.
- 4.6. Must not be a required means of egress for *buildings* exceeding six stories above *grade plane* or which are high-rise *buildings*.

(78) Adding Subsection 1026.7 Subsection 1026.7 is added to read:

1026.7 Water accumulation. Exterior exit stairways and ramps must be designed to minimize water accumulation on their surfaces.

(79) Amending Subsection 1029.3. Subsection 1029.3 is amended by adding an exception to read:

Exception: Escape or rescue windows in Group R-1 and R-2 occupancies opening into an exterior exit balcony serving more than two *dwelling units* or hotel guest rooms must be permitted to have a finished sill height not more than 68 inches above the floor.

(80) Amending Subsection 1029.4. Subsection 1029.4 is amended by adding an exception to read:

Exception: Glass jalousie bladed windows that are not safety glazed may be used for emergency escape or rescue.



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(81) Amending Subsection 1101.1. Section 1101.1 is amended to read:

1101.1 Scope. The provisions of this chapter are guidelines for the design and construction of facilities for accessibility to physically disabled persons and shall be in accordance with the following regulations:

1. For construction of *buildings* or facilities of the state and county governments, compliance with HRS Section 103-50, administered by the Disability and Communication Access Board, State of Hawaii.
2. Department of Justice's Americans with Disabilities Act Standards for Accessible Design.
3. Department of Housing and Urban Development's recognized "Safe Harbors" for compliance with the Fair Housing Act's design and construction requirements.
4. Other pertinent laws relating to persons with disabilities shall be administered and enforced by the agencies responsible for their enforcement.

Prior to the issuance of a *building* permit, the owner (or the owner's representative, professional architect, or engineer) shall submit a statement that all requirements, relating to accessibility for persons with disabilities, shall be complied with.

(82) Amending Subsection 1101.2. Subsection 1101.2 is amended to read:

1101.2 Design. *Buildings* and facilities must be designed and constructed to be accessible in accordance with this code and ICC A117.1. Conformance with the design and construction requirements of the Americans with Disabilities Act Accessibility Guidelines administered by the Department of Justice or the Fair Housing Act Accessibility Guidelines administered by the Department of Housing and Urban Development is equivalent to meeting the accessibility requirements of this code. Construction of public *buildings* or facilities in compliance with HRS Sections 103-50 is equivalent to meeting the accessibility requirements of this code. At the time of submittal of an application for a *building* permit, the applicant must state on the plans that the project is subject to the above requirements.



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(83) Amending Subsection 1203.1. Subsection 1203.1 is amended to read:

1203.1 General. *Buildings* must be provided with natural ventilation in accordance with Section 1203.1, or mechanical ventilation in accordance with the Title 11, Chapter 39, Hawaii Administrative Rules (Department of Health).

(84) Amending Subsection 1203.2. Exception 3 of Subsection 1203.2 is amended to read:

3. The attic space is permitted to be unvented when the design professional determines it would be beneficial to eliminate ventilation openings to reduce salt-laden air and to maintain relative humidity at 60 percent or lower to:

3.1 Avoid corrosion to steel components;

3.2 Avoid moisture condensation in the attic space; or

3.3 Minimize energy consumption in the attic space, or eliminate ventilation by maintaining satisfactory space conditions in both the attic and occupied space below.

(85) Amending Subsection 1203.4.1. Subsection 1203.4.1 is amended to read:

1203.4.1 Ventilation area required. The openable area of the openings to the outdoors shall be not less than 5 percent of the floor area being ventilated.

(86) Amending Subsection 1203.4.1.1. Subsection 1203.4.1.1 is amended to read:

1203.4.1.1 Adjoining spaces. Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 10 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3 square meters). The openable area of the openings to the outdoor shall be based on the total floor area being ventilated.



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Exceptions:

1. Exterior openings required for ventilation shall be permitted to open into a sunroom with thermal isolation or a patio cover provided that the openable area between the sunroom addition or patio cover and the interior room shall have an area of not less than 10 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m²). The openable area of the opening to the outdoors shall be based on the total floor area being ventilated.
2. For Residential Group R-2, when the openings are obstructed, a licensed mechanical engineer shall provide a mechanical ventilation system in accordance with Section 403 of the International Mechanical Code.

(87) Amending Subsection 1205.2. Subsection 1205.2 is amended to read:

1205.2 Natural light. The minimum net glazed area shall be not less than 10 percent of the floor area of the room served.

(88) Amending Subsection 1205.2.2. Subsection 1205.2.2 is amended by adding Exceptions 3 and 4 to read:

3. Residential Groups R-3 and R-4, lighting must be in accordance with Section R303 of the International Residential Code.
4. For Residential Groups R-1 and R-2, artificial light is only permitted for adjoining spaces complying with Section 1205.2.1, when the openings are obstructed.

(89) Deleting Section 1207. Section 1207 is deleted in its entirety.

(90) Amending Subsection 1301.1. Subsection 1301.1 is amended to read:

1301.1 Scope. *Buildings* must be designed and constructed in accordance with ROH Chapter 32.

(91) Amending Subsection 1503.4. Subsection 1503.4 is amended to read:

1503.4 Roof drainage. Design and installation of roof drainage systems must comply with Section 1503 of this code and Sections 1105 through



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1109 of the *Plumbing Code*. Roof drains discharge at the public way must be in accordance with ROH Chapter 14.

(92) Amending Subsection 1503.4.1. Subsection 1503.4.1 is amended to read:

1503.4.1 Secondary (emergency overflow) drains or scuppers. Where roof drains are required, secondary (emergency overflow) roof drains or scuppers shall be provided where the roof perimeter construction extends above the roof in such a manner that water will be entrapped if the primary drains allow buildup for any reason. The installation and sizing of secondary emergency overflow drains, leaders, and conductors must comply with Sections 1106 through 1108 of the *Plumbing Code*.

(93) Amending Subsection 1507.1. Subsection 1507.1 is amended to read:

1507.1 Scope. Roof coverings must be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions. For the purposes of Section 1507, high wind requirements for roof coverings, wherever the term V_{asd} is used, it will be $V_{eff-asd}$, which is the effective ultimate design wind speed, $V_{eff-ult}$ multiplied by $\sqrt{0.625}$. The effective ultimate design wind speeds are given in Figure 1609.3.2 for Risk Category II and Figure 1609.3.3 for Risk Categories III and IV.

(94) Adding Subsection 1509.9. Subsection 1509.9 is added to read:

1509.9 Miscellaneous roof top structures. Cabanas, trellises, and other similar structures on roof tops must conform to all of the following:

1. Have a headroom clearance of not less than 7 feet 6 inches (2,286 mm).
2. Be not more than 225 square feet (93 m²) in area.
3. Aggregate area of such structures must not exceed 1,000 square feet in area (413 m²).
4. Where the *fire separation distance* is greater than 10 feet (3,048 mm), the structure must be constructed of the type of materials specified by the type of construction for exterior walls but is not required to comply with fire resistive rating requirements.



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- 5. The height of such structure must not exceed 75 feet above the fire department access road and must be fire sprinklered when required by other sections of this code.
- 6. Where the *fire separation distance* is greater than 20 feet (610m), the structure is permitted to be constructed of fire-retardant-treated-wood.

(95) Amending Subsection 1603.1. Subsection 1603.1 is amended to read:

1603.1 General. Construction documents must show the size, section, and relative locations of structural members with floor levels, column centers and offsets adequately dimensioned. The design loads and other information pertinent to the structural design required by Subsections 1603.1.1 through 1603.1.9 must be clearly indicated on the construction documents.

Exception: Construction documents for *buildings* constructed in accordance with the conventional light-frame construction provisions of Section 2308 must indicate the following structural design information:

- 1. Floor and roof live loads.
- 2. Risk Category.
- 3. Wind exposure.
- 4. Ultimate design wind speed (3-second gust) V_{ult} , and effective nominal design wind speed $V_{eff-bsd}$ (3-second gust), stated in miles per hour (mph) (km/hr).
- 5. Design spectral response acceleration parameters, S_{DS} and S_{D1} .
- 6. Seismic design category and site class.
- 7. The design load-bearing values of soils.
- 8. Flood design data, if located in flood hazard areas established in Section 1612.3.



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(96) Amending Subsection 1603.1.1. Subsection 1603.1.1 is amended to read:

1603.1.1 Floor live load. The uniformly distributed, concentrated and impact floor live load used in the design must be indicated for floor areas. Live load reduction of the uniformly distributed floor live loads, if used in the design, must be indicated.

(97) Amending Subsection 1603.1.4. Subsection 1603.1.4 is amended to read:

1603.1.4 Wind design data. The following information related to wind loads must be shown, regardless of whether wind loads govern the design of the lateral-force-resisting system of the *building*:

1. Ultimate design wind speed (3-second gust), V_{ult} , and effective nominal design wind speed $V_{off-bsd}$, stated in miles per hour (km/hr).
2. *Building Risk Category*.
3. Wind exposure, if more than one wind exposure is utilized, the wind exposure for each applicable wind direction must be indicated.
4. The applicable internal pressure coefficient.
5. Components and cladding. The design wind pressures in terms of psf (kN/m²) used for the design of exterior components, and cladding not specifically designed by the registered design professional.

(98) Amending Subsection 1609.1.1 and Subsection 1609.1.1.1. Subsection 1609.1.1 and Subsection 1609.1.1.1 are amended to read:

1609.1.1 Determination of wind loads. Wind loads on every *building* or structure will be determined in accordance with Chapters 26 to 30 of ASCE 7. Minimum values for Directionality Factor, K_d , Velocity Pressure Exposure Coefficient, K_z , and Topographic Factor, K_{zt} , must be determined in accordance with Section 1609. The type of opening protection required, the ultimate design wind speed, V_{ult} , and the exposure category for a site is permitted to be determined in accordance with Section 1609 or ASCE 7. Wind is assumed to come from any horizontal direction and wind pressures are assumed to act normal to the surface considered.



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Exceptions:

1. Subject to the limitations of Section 1609.1.1.1, the provisions of ICC 600 are permitted for applicable Group R-2 and R-3 *buildings*.
2. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of the AF&PA WFCM.
3. Designs using NAAMM FP 1001.
4. Designs using TIA 222 for antenna-supporting structures and antennas, provided the effect of topography is included in accordance with Section 1609.3.3 Topographic effects.
5. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of AISI S230.
6. Wind tunnel tests in accordance with Chapter 31 of ASCE 7, subject to the limitations in Section 1609.1.1.2.

The wind speeds in Figures 1609A, 1609B, and 1609C are ultimate design wind speeds, V_{ult} . Values of effective nominal design wind speeds, $V_{eff-asd}$, determined in accordance with Sections 1609.3.1 and 1609.3.2, must be used when the standards referenced in Exceptions 1, 2, 3, and 5 are used.

1609.1.1.1 Applicability. The provisions of ICC 600 are applicable only to *buildings* located within Exposure B or C as defined in Section 1609.4. The prescriptive provisions of ICC 600, AWC WFCM, or AISI S230, shall not be permitted for either of the following cases:

1. Structures that are more than two stories above grade plane in height.
2. Structures designed using exception 4 in Section 1609.1.2 Protection of openings.

(99) Amending Subsections 1609.1.2., 1609.1.2.1, and 1609.1.2.2. Subsections 1609.1.2., 1609.1.2.1, and 1609.1.2.2 are amended to read:

1609.1.2 Protection of openings. In *wind-borne debris regions*, glazing in *buildings* must be impact-resistant or protected with an impact-resistant covering meeting the requirements of an approved impact resistant



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standard or ASTM E 1996 and ASTM E 1886 referenced herein as follows:

1. Glazed openings located within 30 feet (9,144 mm) of grade must meet the requirements of the Large Missile Test of ASTM E 1996-14.
2. Glazed openings located more than 30 feet (9144 mm) above grade must meet the provisions of the Small Missile Test of ASTM E 1996-14.
3. Glazing in the following Risk Category III *buildings* defined by Table 1604.5 must be provided with windborne debris protection:
 - 3.1 Covered structures whose primary occupancy is public assembly with an occupant load greater than 300.
 - 3.2 Health care facilities with an occupant load of 50 or more resident patients, but not surgery or emergency treatment facilities.
 - 3.3 Any other public *building* with an occupant load greater than 5,000.

Exceptions:

1. Wood structural panels with a minimum thickness of 7/16-inch (11 mm) and a maximum panel span of 8 feet (2,438 mm) must be permitted for opening protection in one- and two-story *buildings* classified as Group R-3 or R-4 occupancy. Panels must be precut so that they will be attached to the framing surrounding the opening containing the product with the glazed opening. Panels must be predrilled as required for the anchorage method and must be secured with the attachment hardware provided. Attachments must be designed to resist the components and cladding loads determined in accordance with the provisions of ASCE 7, with corrosion-resistant attachment hardware provided and anchors permanently installed on the *building*. Attachment in accordance with Table 1609.1.2 with corrosion-resistant attachment hardware provided and anchors permanently installed on the *building* is permitted for *buildings* with a mean roof height of 33 feet (10,058 mm) or less where effective ultimate design wind speeds, $V_{eff-ult}$ do not exceed 175 mph (78 m/s).



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2. Glazing in Risk Category I *buildings* as defined in Section 1604.5, including greenhouses that are occupied for growing plants on a production or research basis, without public access will be permitted to be unprotected.

3. Glazing in Risk Category II, III or IV *buildings* located over 60 feet (18 288 mm) above the ground and over 30 feet (9,144 mm) above aggregate surface roofs located within 1,500 feet (458 m) of the *building* will be permitted to be unprotected.

4. Risk Category II *buildings* shall be permitted to be designed with unprotected openings subject to the following requirements:
 - a) For each direction of wind, determination of enclosure classification shall be based on the assumption that all unprotected glazing on windward walls are openings while glazing on the remaining walls and roof are intact and are not assumed to be openings.

 - b) Partially enclosed and open occupancy R-3 *buildings* without wind-borne debris protection shall also include a residential safe room in accordance with ROH Chapter 16, Article 13, or alternatively provide an equivalently sized room structurally protected by construction complying with Section 16-13.7.

1609.1.2.1 Louvers. Louvers protecting intake and exhaust ventilation ducts not assumed to be open that are located within 30 feet (9,144 mm) of grade must meet the requirements of an approved impact-resisting standard or the Large Missile Test of ASTM E 1996-14.

1609.1.2.2 Garage doors. Garage door glazed opening protection for wind-borne debris must meet the requirements of an approved impact-resisting standard or ANSI/DASMA 115.



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Table 1609.1.2
Wind-Borne Debris Protection Fastening Schedule
For Wood Structural Panels ^{a,b,c,d}

Fastener Type	Fastener Spacing		
	Panel span ≤ 4 feet	Panel span > 4 feet and ≤ 6 feet	Panel span > 6 feet and ≤ 8 feet
No. 8 Wood screw based anchor with 2-inch embedment length	16"	10"	8"
No. 10 Wood screw based anchor with 2-inch embedment length	16"	12"	9"
¼-inch lag screw based anchor with 2-inch embedment length	16"	16"	16"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 0.454 kg, 1 mile per hour = 1.609 km/h.

- a. This table is based on a 175 mph effective ultimate design wind speed and a mean roof height of 45 feet.
- b. Fasteners must be installed at opposing ends of the wood structural panel. Fasteners must be located a minimum of 1 inch from the edge of the panel.
- c. Anchors must penetrate through the exterior wall covering with an embedment length of 2 inches minimum into the *building* frame. Fasteners must be located a minimum of 2-1/2 inches from the edge of concrete block or concrete.
- d. Where panels are attached to masonry or masonry/stucco, they must be attached utilizing vibration-resistant anchors having a minimum withdrawal capacity of 1,500 pounds.



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(100) Amending Subsection 1609.3. Subsection 1609.3 is amended to read:

1609.3 Basic wind speed (topographic and directionality factors).

The ultimate design wind speed, V_{ult} in mph, for the determination of the wind loads is determined by Figure 1609A, 1609B, and 1609C. The ultimate design wind speed V_{ult} , for use in the design of Risk Category II *buildings* and structures is obtained from Figure 1609A. The ultimate design wind speed, V_{ult} , for use in the design of Risk Category III and IV *buildings* and structures is obtained from Figure 1609B. The ultimate design wind speed, V_{ult} , for use in the design of Risk Category I *buildings* and structures is obtained from Figure 1609C.

The effective ultimate design wind speed, $V_{eff-ult}$, for the special wind regions indicated near mountainous terrain and near gorges must be in accordance with Subsection 1609.3.2.

Special wind regions near mountainous terrain and valleys are accounted for within the Topographic Factor defined in Subsection 1609.3.3. Wind speeds derived from simulation techniques may only be used in lieu of the wind speeds given in Figure 1609 when: (1) approved simulation or extreme-value statistical analysis procedures are used (the use of regional wind speed data obtained from anemometers is not permitted to define the hurricane wind speed risk in Hawaii); and (2) the ultimate design wind speeds resulting from the study must not be less than the resulting 700-year return period wind speed for Risk Category II and 1,700-year return period wind speed for Risk Categories III and IV, and 300-year return period design wind speed for Risk Category I.

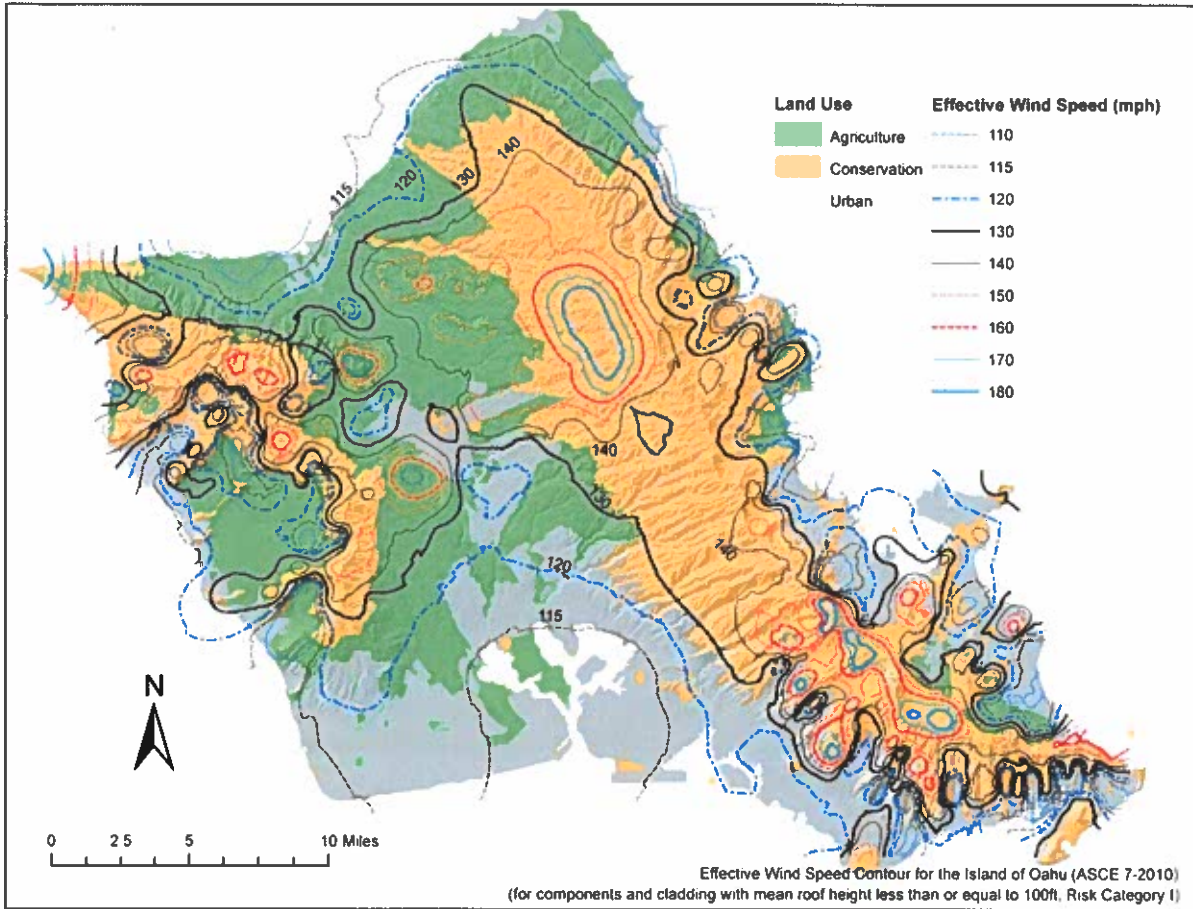
1609.3.1 Effective wind speed conversion. For Section 2308.10.1 and the exceptions permitted under Section 1609.1.1, and when otherwise required, the nominal design wind speed value used for determination of the wind loads, will be the effective nominal design wind speed, $V_{eff-asd}$, determined by multiplying the effective ultimate design wind speed values, $V_{eff-ult}$ given in Section 1609.3.2 by $\sqrt{0.625}$, in accordance with Equation 16-33.

$$V_{eff-asd} = V_{eff-ult} \sqrt{0.625} \text{ (Equation 16-33)}$$



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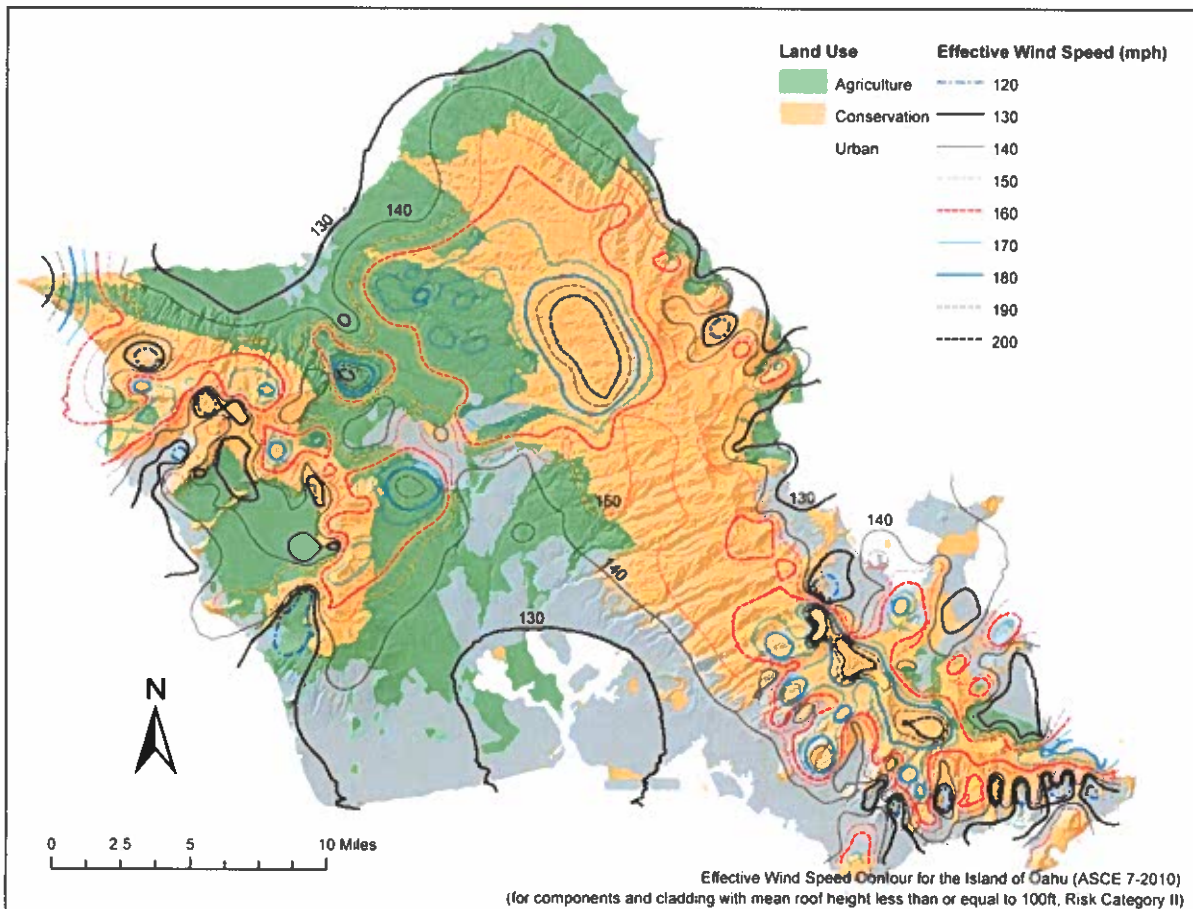
1609.3.2 Effective ultimate design wind speed, $V_{eff-ult}$, contour maps.
Figures 1609.3.2.1, 1609.3.2.2, and 1609.3.2.3 are added as follows:





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Figure 1609.3.2.1
City and County of Honolulu Effective Ultimate Design Wind Speed, $V_{eff-ult}$, for Components and Cladding for Risk Category I Buildings less than 100 feet Tall





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Figure 1609.3.2.2
City and County of Honolulu Effective Ultimate Design Wind Speed, $V_{eff-ult}$, for Components and Cladding for Risk Category II Buildings less than 100 feet Tall

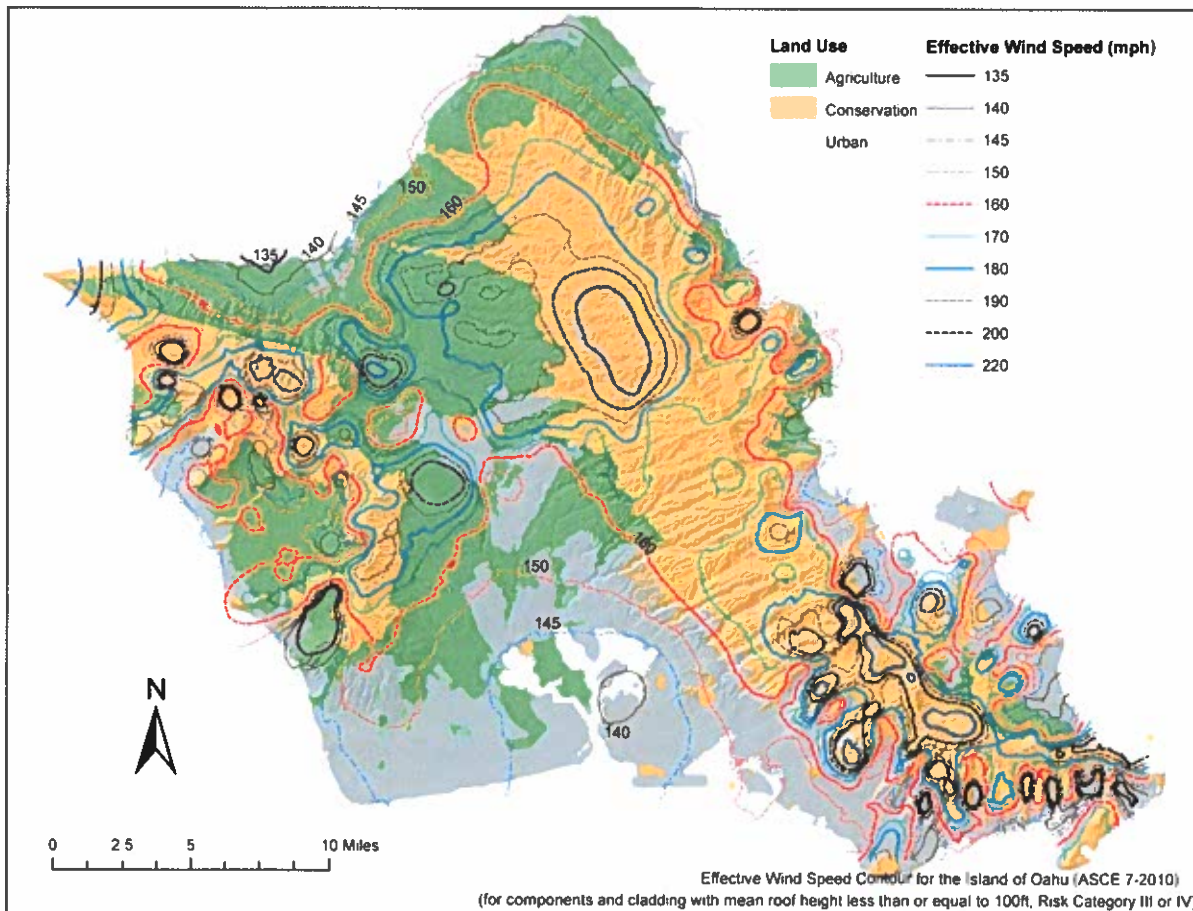


Figure 1609.3.2.3
City and County of Honolulu Effective Ultimate Design Wind Speed, $V_{eff-ult}$, for Components and Cladding for Risk Category III and IV Buildings less than 100 feet Tall

1609.3.3 Topographic effects. Wind speed-up effects caused by topography must be included in the calculation of wind loads by using the factor K_{zt} , where K_{zt} is given in Figure 1609.3.3.



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Exception: Site-specific probabilistic analysis of directional K_{zt} based on wind-tunnel testing of topographic speed-up is permitted to be submitted for approval by the *building official*.

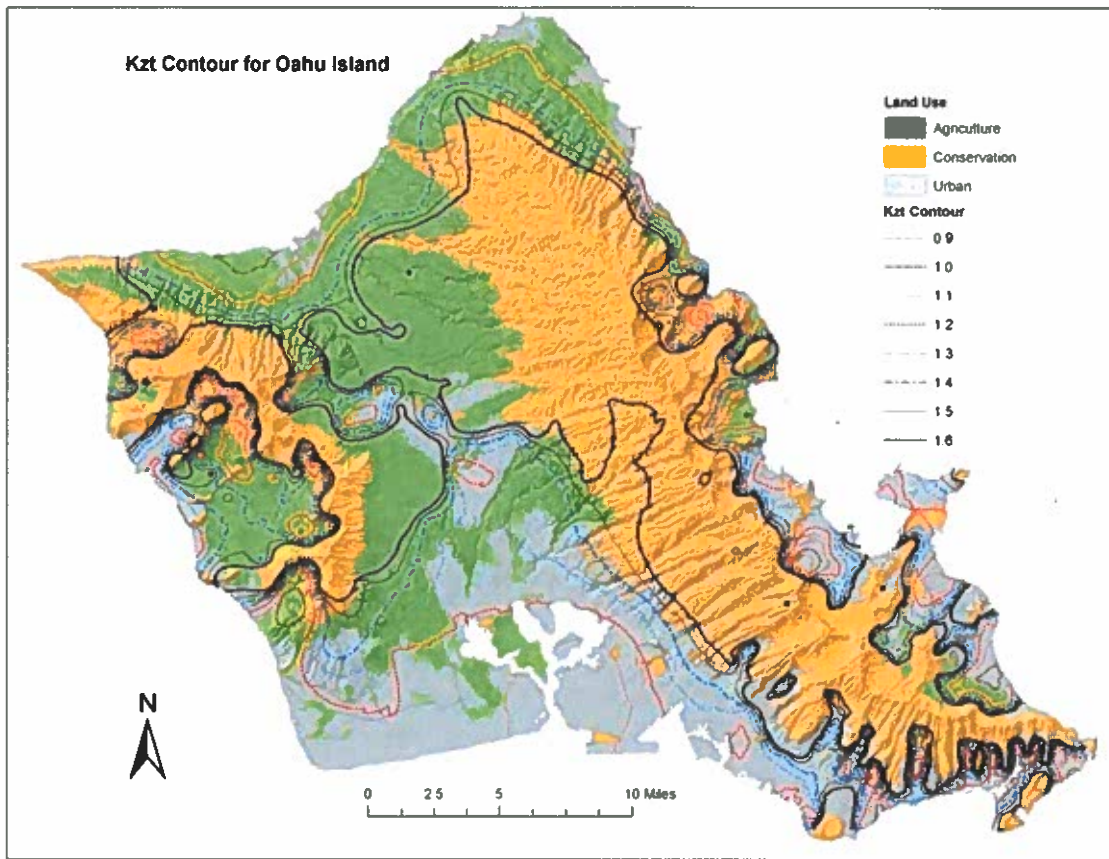


Figure 1609.3.3
City and County of Honolulu Peak Topographic Factor K_{zt} for Building Heights up to 100 feet^{a,b}

- Site-specific probabilistic analysis of directional K_{zt} based on wind-tunnel testing of topographic speed-up is permitted to be submitted for approval by the *building official*. For *buildings* taller than 160 feet, this submittal must include peak gust velocity profiles for all wind direction sectors.
- At Exposure b sites with ground elevations less than 500 feet, k_{zt} values ≥ 1.2 will be permitted to be reduced for *building heights* greater than 100 feet by multiplying k_{zt} mapped in Figure 1609.3.3 by the height adjustments given in the Table 1609.3.3.2. Interpolation is permitted.



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Table 1609.3.3.2
Height Adjustment of Mapped K_{zt} Values at Sites with Ground Elevation Less than 500 feet

<i>building roof height above ground (ft)</i>	≤100	120	140	160	180	200	220	≥240
Adjustment factor to $K_{zt} \geq 1.2$	100%	98%	96%	94%	92%	90%	92%	94%

1609.3.4 Directionality factor. The wind directionality factor, K_d , is determined from Tables 1609.3.4(a) and 1609.3.4(b), and Figures 1609.3.4(a) and 1609.3.4(b).

Table 1609.3.4(a)
 K_d Values for Main Wind Force Resisting Systems Sited on Oahu, Hawaii^{a,b}

Topographic Location on Oahu, Hawaii	Main Wind Force Resisting Systems		Main Wind Force Resisting Systems with totally independent systems in each orthogonal direction		Biaxially Symmetric and Axisymmetric Structures of any Height and Arched roof Structures
	Mean Roof Height less than or equal to 100 ft.	Mean Roof Height greater than 100 ft.	Mean Roof Height less than or equal to 100 ft.	Mean Roof Height greater than 100 ft.	
Sites within valleys at an elevation of at least 50 ft. but not greater than 500 ft.	0.65	0.70	0.70	0.75	0.85
Central Oahu above an elevation of 500 ft., the Ewa and Kapolei plains, and coastal areas with K_{zt} (10m) not greater than 1.2	0.75	0.80	0.75	0.80	0.95
All other areas, including	0.7	0.75	0.75	0.80	0.90



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hills, hillsides, ridges, bluffs, and escarpments at any elevation or height; coastal and inland areas with K_{zt} (10m) greater than 1.2					
---	--	--	--	--	--

- a. The values of K_d for other non-building structures indicated in ASCE-7 Table 26-4 are permitted.
- b. Site-specific probabilistic analysis of K_d based on wind-tunnel testing of topography and peak gust velocity profile is permitted to be submitted for approval by the *building official*, but K_d must have a value not less than 0.65.

Table 1609.3.4(b)
 K_d Values for Components and Cladding of Buildings Sited on Oahu, Hawaii ^{a,b}

Topographic Location on Oahu	Components and Cladding		
	Mean Roof Height less than or equal to 100 ft.	Mean Roof Height greater than 100 ft.	Risk Category IV buildings and structures
Sites within valleys at an elevation of at least 50 ft. but not greater than 500 ft.	0.65	0.70	0.75
Central Oahu above an elevation of 500 ft., the Ewa and Kapolei plains, and coastal areas with K_{zt} (10m) not greater than 1.2	0.75	0.80	0.85
All other areas, including hills, hillsides, ridges, bluffs, and Escarpments at any elevation or height; coastal and inland areas with k_{zt} (10m) greater than 1.2	0.70	0.75	0.80

- a. The values of K_d for other non-building structures indicated in ASCE-7 Table 26-4 are permitted.



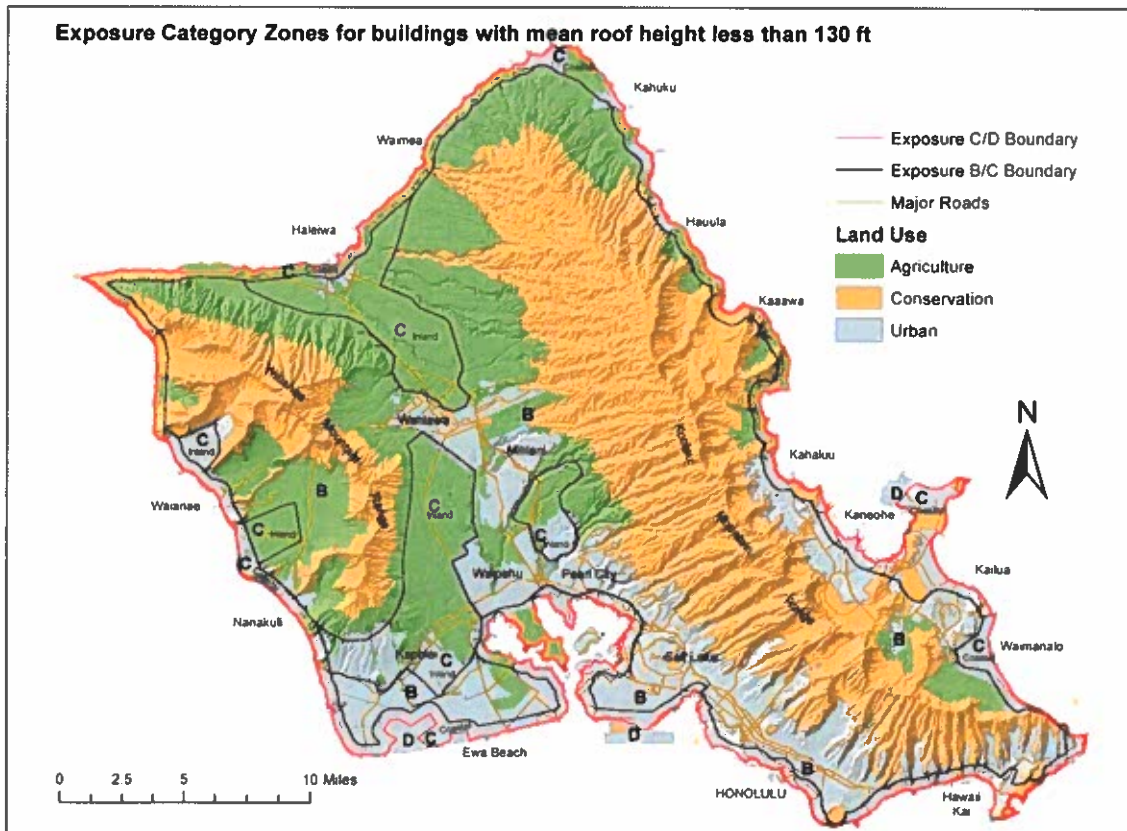
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- b. Site-specific probabilistic analysis of K_d based on wind-tunnel testing of topography and peak gust velocity profile is permitted to be submitted for approval by the *building official*, but in any case subject to a minimum value of 0.65.

(101) Amending Subsection 1609.4.1. Subsection 1609.4.1 is amended to read:

1609.4.1 Wind directions and sectors. For each selected wind direction at which the wind loads are to be evaluated, the exposure of the *building* or structure is determined for the two upwind sectors extending 45 degrees (0.79 rad) either side of the selected wind direction. The exposures in these two sectors is determined in accordance with Sections 1609.4.2 and 1609.4.3 and the exposure resulting in the highest wind loads is used to represent winds from that direction.

Exception: Exposure categories are permitted to be determined using Figures 1609.4.



Notes

- 1 Intermediate exposures, between categories B and C and between C and D, are permitted when substantiated per ASCE 7 recognized methodology
- 2 Sites located within the C (coastal) zone shall be permitted to be evaluated for exposure category B for the wind directions where an adjacent B zone exists in the applicable upwind sector
- 3 Sites located within 800 feet from the coastline shall be exposure category D for onshore wind directions
- 4 For buildings whose height is equal to or greater than 130 ft, exposure category shall be determined per Section 1609.4.1
- 5 For buildings whose mean roof height is less than or equal to 30 ft, exposure category shall be permitted to be evaluated per Section 1609.4



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Figure 1609.4
Exposure Category Zones for the City and County of Honolulu

(102) Amending Subsection 1609.5.4. Subsection 1609.5.4 is amended to read:

1609.5.4 Roof-mounted solar collectors for buildings. The design wind force for roof-mounted solar collector panels located on *buildings* is determined based on the location and height of the panel system and the configuration of the roof, in accordance with Sections 1609.5.4.1 through 1609.5.4.6.

In addition to all the other applicable provisions of this Code, the roof itself must be designed for both of the following:

1. The case where solar collectors are present. Wind loads acting on solar collectors in accordance with this section must be applied simultaneously with roof wind loads specified in other sections acting on areas of the roof not covered by the plan projection of solar collectors. For this case, unless otherwise noted, roof wind loads specified in other sections need not be applied on areas of the roof covered by the plan projection of solar collectors.
2. Cases where the solar arrays have been removed or are absent.

The following variables are defined for use in determining the design wind force applied to rooftop solar collectors/panels:

A = the area of the solar panel element.

d_1 = horizontal distance measured from the edge of one panel to the *building* edge or to an adjacent array. The distance is perpendicular to the panel edge ignoring any rooftop equipment. See Figures 1609.5-1 or 1609.5-3, in ft.

d_2 = horizontal distance measured from the edge of one panel to the nearest edge in the next row of panels. See Figure 1609.5-1 or 1609.5-3, in ft.

F = the design wind force normal to each panel determined in accordance with Section 1609.5.4



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h_1 = height of solar panel above the roof at the lower edge of the panel measured perpendicular to the surface of the roof. See Figure 1609.5-1 or 1609.5-3, in ft.

h_2 = height of a solar panel above the roof at the upper edge of the panel measured perpendicular to the surface of the roof. See Figure 1609.5.1 or 1609.5-3, in ft.

L_p = panel chord dimension, in ft., for use with rooftop solar collectors as shown in Figure 1609.5-1 or 1609.5-3

θ = Angle of the roof surface, in degrees. See Figure 1609.5-1 or 1609.5-3.

ω = Angle that the solar panel makes with the roof surface, in degrees. See Figure 1609.5-1 or 1609.5.3.

1609.5.4.1 Roof-mounted panels. Rooftop-mounted panels are mounted flush with, or within 10 inches (254 mm) of, the roof surface and not located on a roof overhang. The design wind force determined in accordance with this section shall apply to rooftop solar collectors meeting the following conditions:

1. Rooftop solar collectors are located on enclosed or *partially enclosed buildings* of any height.
2. Panels are parallel to the roof surface, within a tolerance of 2° .
3. The maximum height above the roof surface, h_2 , shall not exceed 10 inches (254 mm).
4. A minimum gap of 0.25 inches (6.4 mm) shall be provided between all panels.
5. The spacing of gaps between panels shall not exceed 6.7 ft. (2.04 m).
6. The array shall be located at least $2h_2$ from the nearest roof edge, gable ridge, or hip ridge.



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The design wind force for rooftop solar collectors shall be determined by Equation 1609-1:

$$F = q_h GC_p \gamma_E \gamma_a A \quad (1b) \quad (N) \quad \text{(Equation 1609-1)}$$

Where:

q_h = velocity pressure at the mean roof height.

GC_p = external pressure coefficient for components and cladding of roofs with respective roof zoning for the corresponding location on the roof, with the effective wind area, A, equal to that of the solar panel.

γ_E = solar array edge factor for use with rooftop solar collectors.

γ_E = 1.5 for panels that are exposed and those within a distance 1.5 (L_p) from the end of a row at an exposed edge of the array; γ_E = 1.0 elsewhere, as illustrated by the example array configuration shown in Figure 1609.5-3.

A panel is defined as exposed if d_1 to the roof edge > 0.5h and one of the following applies:

1. d_1 to the adjacent array > 4 feet (1.22 m), or
2. d_2 to the next adjacent panel > 4 feet (1.22 m).

γ_a = solar collector pressure equalization factor, from Figure 1609.5-2.

Alternatively, it is permitted to determine the normal design wind force in accordance with Equation 1609-2:

$$F = 40 A (V_{\text{eff-ult}}/105)^2 \quad (\text{lbs}) \quad \text{(Equation 1609-2)}$$

Where:

$V_{\text{eff-ult}}$ = the Effective Ultimate Design Wind Speed as determined from Figures 1609.3.2.1 through 1609.3.2.3, which adjusts the



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basic Hawaii wind speed for the special topographic wind region.

The force F is permitted to be applied to the centroid of the calculated pressure.

1609.5.4.2 Rooftop solar collectors for buildings of all heights with flat roofs or gable or hip roofs with slopes less than 7 degrees. The design wind force determined in accordance with this section must apply to rooftop solar collectors meeting the following conditions:

1. Rooftop solar collectors are located on enclosed or *partially enclosed buildings* of any height.

2. Flat, gable, or hip roofs with slopes, $\theta \leq 7^\circ$.

3. Panels installation will conform to the following limitations:

- $L_p \leq 6.7 \text{ ft (2.04 m)},$
- $\omega \leq 35^\circ,$
- $h_1 \leq 2 \text{ ft (0.61 m)},$
- $h_2 \leq 4 \text{ ft (1.22 m)}$

4. A minimum gap of 0.25 inches (6.4 mm) must be provided between all panels.

5. The spacing of gaps between panels must not exceed 6.7 ft (2.04 m).

6. The minimum horizontal clear distance between the panels and the edge of the roof will be the larger of $2(h_2 - h_{pt})$ and 4 feet (1.22 m).

The design wind force for rooftop solar collectors is determined by Equation 1609-3:

$$F = q_h GC_{rn}A \text{ (lb/ft}^2\text{) (N/m}^2\text{) (Equation 1609-3)}$$

Where:

$$GC_{rn} = \gamma_p \gamma_c \gamma_E (GC_{rn})_{nom} \text{ (Equation 1609-4)}$$



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Where:

$(GC_{rn})_{nom}$ = nominal net pressure coefficient from Figure 1609.5.3.

$$\gamma_p = \min \left(1.2, 0.9 + \frac{h_{pt}}{h} \right)$$

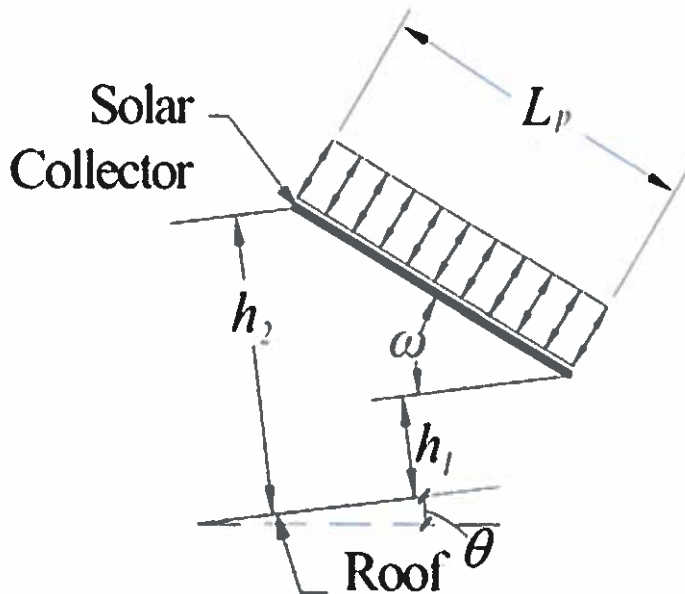
$$\gamma_c = \max (0.6 + 0.06L_p, 0.8)$$

$\gamma_E = 1.5$ for panels that are exposed and those within a distance $1.5(L_p)$ from the end of a row at an exposed edge of the array;
 $\gamma_E = 1.0$ elsewhere, as illustrated by the example array configuration shown in Figure 1609.5-3.

A panel is defined as exposed if d_1 to the roof edge $> 0.5h$ and one of the following applies:

1. d_1 to the adjacent array $> \max (4h_2, 4 \text{ feet } (1.22\text{m}))$
2. d_2 to the next adjacent panel $> \max (4h_2, 4 \text{ feet } (1.22\text{m}))$

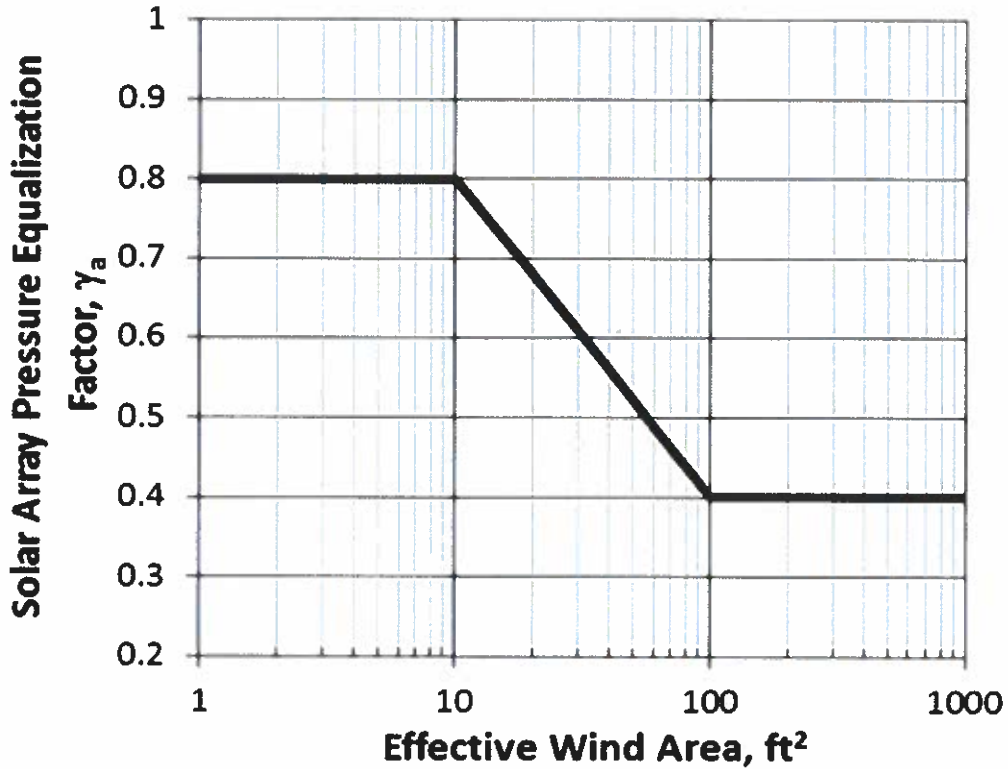
The force F is permitted to be applied to the centroid of the calculated pressure.





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Figure 1609.5-1 Solar Collector Pressure Equalization Factor, γ_a , for enclosed and *partially enclosed buildings* of all heights.



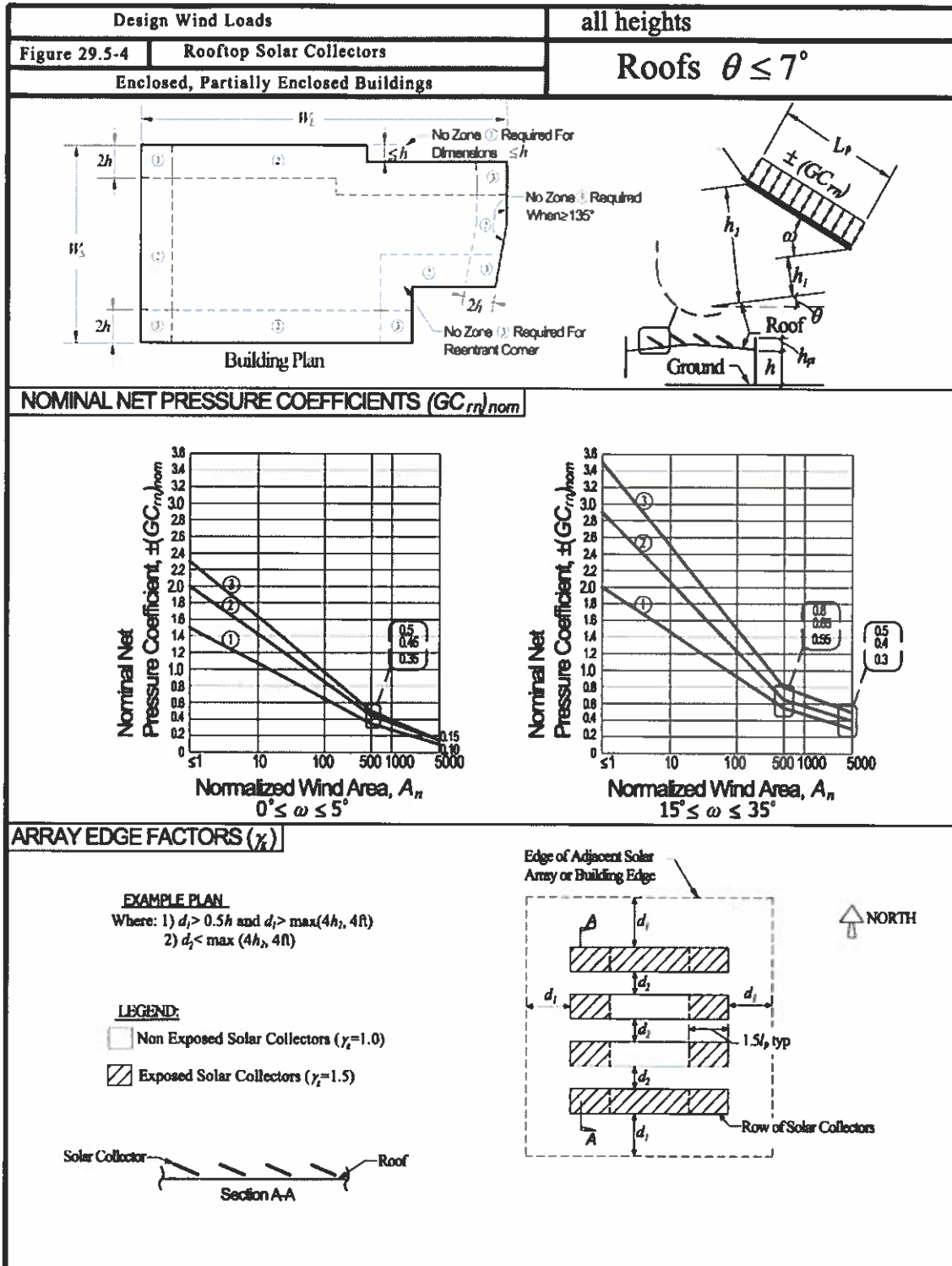


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Figure 1609.5-2 Solar Collector Pressure Equalization Factor, γ_a , for enclosed and *partially enclosed buildings* of all heights.



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Figure 1609.5-3 Rooftop Solar Collectors for *buildings* of all heights with flat 190 roofs or gables or hip roofs with slopes less than 7°

Notes for Figure 1609.5-3:

1. (GC_m) acts towards (+) and away (-) from the top surface of the panels.
2. Linear interpolation will be permitted for ω between 5° and 15°.
3. Notation:

$$A_n = \left(\frac{1000}{[\max(L_b, 15)]^2} \right) A.$$

A_n = normalized wind area for rooftop solar collectors

L_b = $\min(0.4 (hW_L)^{0.5}, h, W_s)$, in ft.

W_L = width of a *building* on its longest side in Figure 1609.5-3, in ft.

W_s = width of a *building* on its shortest side in Figure 1609.5-3, in ft.

1609.5.4.3 Roof-mounted panels in all other locations. The normal force on roof-mounted panels not regulated by Section 1609.5.4.1 or 1609.5.4.2 will be determined by Equation 1609-5:

$$F = q_h(GC_p)C_N A \text{ (lb) (N) (Equation 1609-5)}$$

Where:

C_N = pressure coefficients for monoslope free roofs from ASCE 7 considering each elevated panel as a free roof surface in clear wind flow. The angle θ used for the determination of C_N is measured as the angle of the panel with respect to the plane of the roof. Values of C_N for forces on the panel may be taken as the Zone 1 coefficients, except Zone 2 coefficients for C_N are used where panels of angle $\theta > 7.5$ degrees are located a distance equal to or less than twice the roof height measured from a roof corner with a parapet greater than 24 inches (610 mm) in height above the roof.



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GC_p = the component and cladding external pressure coefficient for roofs for the roof zone corresponding to the location of the solar panel, and the effective wind area is that of the solar panel. The minimum magnitude of negative pressure values of GC_p in Zone 1 is taken as -1.0.

A = the total area of the solar panel element.

Alternatively, it is permitted to determine the normal force in accordance with Equation 1609-6:

$$F = 100 A (V_{\text{eff-ult}}/105)^2 \text{ (lbs) (Equation 1609-6)}$$

Where:

$V_{\text{eff-ult}}$ = the Effective Ultimate Design Wind Speed as determined from Figures 1609.3.2.1 through 1609.3.2.3, which adjusts the basic Hawaii wind speed for the special topographic wind region.

When located in roof zone 2 or 3 as defined in ASCE 7, the force F is applied with an eccentricity equal to a third of the solar panel width.

1609.5.4.3.1 Additive panel wind loads. The load on the panel is applied as point load anchorage reactions additive to the resultant of the pressure determined acting on the portion of the roof underlying the panel.

1609.5.4.4 Ballasted panels. Panels that are ballasted for uplift resistance and tilted at an angle α of 10 degrees or more from a horizontal plane are designed to resist the force determined by Equation 1609-7:

$$F_{\text{ballast}} \geq F \left(\frac{\mu \cos \beta + \sin \beta}{\mu \cos \alpha - \sin \alpha} \right) \text{ (lb) (N) (Equation 1609-7)}$$

Where:

F = the normal force on each panel determined in accordance with Section 1609.5.4

α = the angle of the roof plane with respect to horizontal.

β = the angle of tilt of the panel with respect to the roof plane.

μ = the static friction coefficient between the panel base and its bearing surface.



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Alternatively, to resist uplift and sliding, ballasted panels that are tilted at an angle of less than 10 degrees from a horizontal plane must each be ballasted to resist a force equal to 2 times the normal force on each panel determined in Sections 1609.5.4.1 or 1609.5.4.2. Ballasted panels that are tilted at an angle between 10 degrees to 25 degrees from a horizontal plane must each be ballasted to resist a force equal to 8 times the normal force on each panel determined in Sections 1609.5.4.1 or 1609.5.4.2.

1609.5.4.5 Permeability. A reduction of load on the panels for permeability of the panel system is not permitted unless demonstrated by approved wind-tunnel testing or recognized documentation for the type of panel system being considered. Testing or documentation must replicate the panel separation spacing and height above the roof.

1609.5.4.6 Shielding. A reduction of load on the panels for shielding provided by the roof or other obstruction is not permitted unless demonstrated by approved wind-tunnel testing or recognized documentation for the type of panel system being considered. Testing or documentation must replicate the panel separation spacing and height above the roof.

(103) Amending Subsection 1609.6.3. Subsection 1609.6.3 is amended to read:

1609.6.3 Design equations. When using the alternative all-heights method, the MWFRS, and components and cladding of every structure must be designed to resist the effects of wind pressures on the *building* envelope in accordance with Equation 16-35.

$$P_{net} = 0.00256V_{ult}^2K_zC_{net}K_{zt} (K_d/0.85) \quad \text{(Equation 16-35)}$$

Design wind forces for the MWFRS must not be less than 16 psf (0.77 kN/m²) multiplied by the area of the structure projected on a plane normal to the assumed wind direction (see ASCE 7 Section 27.4.7 for criteria). Design net wind pressure for components and cladding must not be less than 16 psf (0.77 kN/m²) acting in either direction normal to the surface.



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(104) Amending Subsection 1609.6.4.2. Subsection 1609.6.4.2 is amended to read:

1609.6.4.2 Determination of K_z , K_{zt} and K_d . Velocity pressure exposure coefficient, K_z , must be determined in accordance with ASCE 7 Section 27.3.1. The topographic factor, K_{zt} , shall be determined in accordance with Section 1609.3.3. The wind directionality factor, K_d , shall be determined in accordance with Section 1609.3.4.

1. For the windward side of a structure, K_z and K_{zt} must be based on height z .
2. For leeward and sidewalls, and for windward and leeward roofs, K_z is based on mean roof height h , and K_{zt} is based on height z .

(105) Renumbering Section 1615 to 1616 and adding a new Section 1615. Section 1615 ("Structural Integrity") is renumbered to Section 1616. A new Section 1615 is added to read:

SECTION 1615 - TSUNAMI LOADS

1615.1 General. The design and construction of Risk Category III and IV *buildings* and structures and Risk Category II *buildings* meeting the criteria of Section 1615.2, where located in the Tsunami Design Zones defined in the ASCE 7 Tsunami Design Geodatabase (version 2016-1.0), shall be in accordance with Chapter 6 of ASCE 7-16.

1615.2 Criteria for Risk Category II *buildings* to be subject to tsunami-resilient design and construction. Risk Category II *buildings* and structures must comply with Chapter 6 of ASCE 7 when meeting all of the following conditions:

1. The occupancy classifications are A, B, E, I, M, R-1, R-2, or higher education laboratories, and
2. Located where the tsunami inundation depth is greater than 3 feet (0.914m) at any location within the intended footprint of the structure, and
3. The highest occupiable floor exceeds 45 feet above grade plane and also exceeds the tsunami inundation depth determined at the site.



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1615.3 Definitions.

Tsunami Design Geodatabase. The ASCE 7 database (version 2016-1.0) of Tsunami Design Zone maps and associated design data for the states of Alaska, California, Hawaii, Oregon, and Washington.

Tsunami Design Zone. An area identified on the Tsunami Design Zone map between the shoreline and the inundation limit, within which certain structures designated in Chapter 6 are designed for or protected from inundation.

(106) Adding Subsection 1704.1.1. Subsection 1704.1.1 is added to read:

1704.1.1 Building permit requirement. The construction drawings must have all special inspections listed as a condition for permit issuance.

(107) Amending Subsection 1704.2. Subsection 1704.2 is amended to read:

1704.2 Special inspections. Where application is made for construction as described in this section, the owner or the registered design professional in responsible charge acting as the owner's agent must employ one or more special inspectors independent of the contractors performing the work, to provide inspections during construction on the types of work listed under Section 1705. These inspections are in addition to the inspections specified in Section 110.

Exceptions:

1. Special inspections are not required for construction of a minor nature or as warranted by conditions as approved by the *building official*.
2. The employment of a special inspector is not required for construction work for any government agency that provides for its own inspections.
3. Special inspections are not required for *building* components unless the design involves the practice of professional engineering or architecture as defined by Chapter HRS 464.



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4. Unless otherwise required by the *building official*, special inspections are not required for Group U occupancies that are accessory to a residential occupancy, including but not limited to those listed in Section 312.1.
5. Special inspections are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2308. For these structures, Section 1705.10 will nevertheless apply.

1704.2.1 Special inspector qualifications. Each special inspector shall provide written documentation to the *building official* demonstrating his or her competence and relevant experience or training in each type of inspection he or she will perform. Inspector personnel may not perform inspections without these qualifications unless directly supervised by a qualified, responsible special inspector. Experience or training is considered relevant when the documented experience or training is related in complexity to the same type of special inspection activities for projects of similar complexity and material qualities. These qualifications are in addition to qualifications specified in other sections of this code.

The registered design professional in responsible charge and engineers of record involved in the design of the project are permitted to act as the approved agency and their personnel are permitted to act as the special inspectors for the work designed by them, with the exception of welding and high strength bolting.

1704.2.3 Statement of special inspections. The applicant shall submit a statement of special inspections in accordance with Section 107.1 as a condition for permit issuance. This statement is deemed to be satisfied by Section 1704.3.

1704.2.4 Report requirement. Special inspectors shall keep records of inspections. The special inspector shall furnish inspection reports to the owner, licensed engineer or architect of record, and other owner-designated persons. Reports must indicate that work inspected was done in conformance to approved construction documents. Discrepancies must be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the licensed engineer or architect of record and to the *building official*. The special inspector shall submit a final



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signed report to the owner and licensed engineer or architect of record, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance to the approved plans and specifications and the applicable workmanship provisions of this code. Prior to the final inspection required under Section 109.3.10, the licensed engineer or architect of record shall submit a written statement verifying receipt of the final inspection reports and documenting that there are no known unresolved code requirements that create significant public safety deficiencies.

(108) Amending Subsection 1704.3. Subsection 1704.3 is amended to read:

1704.3 Special inspection construction document. Where special inspection or testing is required by Section 1705, the registered design professional in responsible charge shall prepare a statement of special inspection in accordance with Section 1704.3.1 for submittal by the applicant in accordance with Section 1704.2.3. The construction drawings must include a complete list of special inspections required by this section.

(109) Amending Subsection 1704.4. Subsection 1704.4 is amended to read:

1704.4. Contractor responsibility. When special inspection is required, a contractor's statement must be submitted containing an acknowledgement of awareness of the special inspection requirements contained on the drawings and that the construction requiring special inspections must be made accessible for inspections.

(110) Amending Table 1705.3. Table 1705.3 is amended to read:

**TABLE 1705.3
REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION**

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD ^a	IBC REFERENCE
1. Inspection of reinforcing steel, including prestressing tendons, and placement.	—	X	ACI 318: 3.5, 7.1-7.7	1910.4
2. Inspection of reinforcing steel welding in accordance with Table 1705.2.2, Item 2b.	—	—	AWS D1.4 ACI 318: 3.5.2	—



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3. Inspection of anchors cast in concrete where allowable loads have been increased or where strength design is used.	—	X	ACI 318: D9.2	1908.5, 1909.1
4. Inspection of anchors post-installed in hardened concrete members ^b .				
a. Adhesive anchors installed in horizontally or upwardly inclined orientation to resist sustained tension loads	X	—	ACI 318: D.9.2.4	—
b. Mechanical anchors and adhesive anchors not defined in 4.a.	—	X	ACI 318: D.9.2	—
5. Verifying use of required design mix.	—	X	ACI 318: Ch. 4, 5.2-5.4	1904.2, 1910.2, 1910.3
6. At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	—	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1910.10
7. Inspection of concrete and shotcrete placement for proper application techniques.	X	—	ACI 318: 5.9, 5.10	1910.6, 1910.7, 1910.8
8. Inspection for maintenance of specified curing temperature and techniques.	—	X	ACI 318: 5.11-5.13	1910.9
9. Inspection of prestressed concrete:				
a. Application of prestressing forces.	X	—	ACI 318: 18.20	—
b. Grouting of bonded prestressing tendons in the seismic force-resisting system.	X	—	ACI 318: 18.18.4	—
10. Erection of precast concrete members.	—	X	ACI 318: Ch. 16	—



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11. Verification of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	—	X	ACI 318: 6.2	—
12. Inspect formwork for shape, location and dimensions of the concrete member being formed.	—	X	ACI 318: 6.1.1	—

For SI: 1 inch = 25.4 mm.

a. Where applicable, see also Section 1705.11, Special inspections for seismic resistance.

b. Specific requirements for special inspection will be included in the research report for the anchor issued by an approved source in accordance with D.9.2 in ACI 318 or other qualification procedures. Where specific requirements are not provided, special inspection requirements will be specified by the registered design professional and must be approved by the *building official* prior to the commencement of the work.

(111) Adding Subsection 1705.18. Subsection 1705.18 is added to read:

1705.18 Fire-protection systems. Special inspection for fire-protection systems must be as required by Section 916.

(112) Adding Subsection 1705.19. Section 1705.19 is added to read:

1705.19 Termite protection. Where termite protection must consist of soil treatment, installation of termite barrier, structural lumber and pipe penetrations for new wood frame residential *buildings*.

(113) Amending Subsection 1801.1. Subsection 1801.1 is amended by adding a second paragraph to read:

Reference is made to ROH Chapter 14, for requirements governing excavation, grading, and earthwork construction, including fills and embankments.

(114) Adding Subsection 1801.3. Subsection 1801.3 is added to read:

1801.3 Inspection requirements. The *building official* is permitted to require special inspection for requirements of Chapter 16.

(115) Amending Subsection 1802.1. Subsection 1802.1 is amended by adding the following definitions:



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a. Adding a new definitions before "DEEP FOUNDATION" to read:

BEST MANAGEMENT PRACTICES or BMP's. Means schedules of activities, prohibitions of practices, maintenance procedures, management practices, treatments and temporary or permanent structures or devices that are intended and designed to eliminate and minimize the discharge of pollutants, directly or indirectly, to Receiving Waters, to the maximum extent practicable.

CATEGORY ONE BMP's. Minimum construction site BMP checklist for small projects of the Best Management Practices for Construction Sites in Honolulu.

b. Adding a new definition after "HELICAL PILE" to read:

LOW IMPACT DEVELOPMENT of LID. Means systems or practices that use or mimic natural processes that result in infiltration evapo-transpiration or use storm water in order to protect water quality and aquatic habitat. At both site and regional scales, LID aims to preserve, restore, and create green space using soils, vegetation, and rain harvest techniques.

c. Adding new definitions before "SHALLOW FOUNDATION" to read:

RECEIVING WATERS. Also referred to as MS4, means all water, fresh, brackish or salt, around and within the State of Hawaii, including but not limited to coastal water, streams, rivers, ponds, estuaries, reservoirs, canals, ground waters, and lakes. Waters in drainage ditches, drainage ponds, and drainage reservoirs required as part of a water pollution control system are excluded.

REDEVELOPMENT. Means the creation, addition, or replacement of an impervious surface on improved real property. Redevelopment also includes changes in land use that may result in increased pollutant discharges to the Receiving Waters.

RETENTION (STORMWATER). The permanent holding of stormwater on a site, preventing the water from leaving the site as surface drainage, and allowing for use of the water on site, or loss of the water through percolation, evaporation, or absorption by vegetation.



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(116) Adding Subsection 1804.7. Subsection 1804.7 is added to read:

1804.7 Stormwater management. Storm water management practices include the implementation of temporary BMP during construction and permanent post-construction BMP in accordance to the ROH Chapter 14 and the Rules Relating to Water Quality, Chapter 3 of the Administrative Rules, Title 20, Department of Planning and Permitting.

1804.7.1 Increased runoff. During construction. An Erosion and Sediment Control Plan (ESCP) shall be prepared in compliance with the Rules Relating to Water Quality to implement BMP and good housekeeping practices intended to minimize the discharge of runoff containing sediment and pollutants, resulting from the construction activities, into the Receiving Waters. Stormwater management systems must address the increase in runoff that would occur resulting from development on the *building* site and will either:

1. Manage rainfall onsite and size the management system to retain not less than the volume of a single storm that is equal to the 95th percentile rainfall event as recorded by the National Climate Data Center or other approved precipitation records and all smaller storms and maintain the predevelopment natural runoff; or
2. Maintain or restore the predevelopment stable, natural runoff hydrology of the site throughout the development or *redevelopment* process. Post-construction runoff rate, volume, and duration must not exceed predevelopment rates. For a *redevelopment* site, the existing impervious surfaces must be reduced by a minimum of 10 percent, or the stormwater management design must capture and treat 10 percent of the stormwater from the existing impervious surfaces, or a combination of the two equal to not less than a 10 percent reduction/treatment of the stormwater runoff from the impervious surfaces runoff. The stormwater management system design must be based, in part, on a hydrologic analysis of the *building* site.

1804.7.2 Permanent post-construction. A post construction BMP plan, including the required storm water quality report, operation and maintenance plan, and checklist, shall be prepared in compliance with the Rules Relating to Water Quality to implement Low Impact Development site design strategies, source control BMPs, and storm water treatment control BMPs to reduce the pollution associated with certain types of new development and Redevelopment projects.



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1804.7.2.1 Hierarchy of treatment control BMPs.

1. Retain on-site by infiltration, evapo-transpiration, or harvest and reuse, as much of the calculated storm water quality volume (WQV) as feasible.
2. Biofilter the remaining portion of the WQV, as feasible.
3. Use alternate treatment methods, including, but not limited to, detention, filtration, and proprietary manufactured treatment device (MTD), to treat the remainder of the WQV that is not retained on-site or biofiltered.

1804.7.2.2 Special inspection. The owner or an authorized agent shall designate a Certified Water Pollution Plan Preparer (CWPPP) to provide inspections during the construction of requirements under section 1804.7.2. These inspections are in addition to those specified in Section 110.

(117) Amending Subsection 1805.4.3. Subsection 1805.4.3 is amended to read:

1805.4.3 Drainage discharge. The floor base and foundation perimeter drain must discharge by gravity or mechanical means into an approved drainage system that complies with the *Plumbing Code*.

(118) Adding Subsection 1904.3. Subsection 1904.3 is added to read:

1904.3 Concrete Strap-Type Anchors. Concrete strap-type anchors made out of cold-formed steel shall not be used along the perimeter edges of a slab on grade where the steel does not have at least 1-1/2 inches side cover or other adequate protection.

(119) Adding Subsection 2203.2.1. Subsection 2203.2.1 is added to read:

2203.2.1 Protection of Sill Track. Residential load bearing framing members that are in direct contact with moisture from the slab on grade or from the outdoor climate shall be adequately shielded with additional corrosion protection or manufactured from a material not susceptible to corrosion. The exterior face of the sill track shall also be protected.



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(120) Amending Subsection 2211.7. Subsection 2211.7 is amended to read:

2211.7 Prescriptive Framing. Detached one- and two-*family* dwellings and townhouses, less than or equal to two stories above grade plane, will be permitted to be constructed in accordance with AISI S230 subject to the limitations therein. Prescriptive framing shall not be applicable for structures designed using Exception 4 in Section 1609.1.2 Protection of Openings.

(121) Amending Subsection 2301.2. Subsection 2301.2 is amended to read:

2301.2 General design requirements. The design of structural elements or systems, constructed partially or wholly of wood or wood-based products, must be in accordance with one of the following methods:

1. Allowable stress design in accordance with Sections 2304, 2305, and 2306.
2. Load and resistance factor design in accordance with Sections 2304, 2305, and 2307.
3. Conventional light-frame construction in accordance with Sections 2304, and 2308.

Exception: *Buildings* designed in accordance with the provisions of the AWC WFCM shall be deemed to meet the requirements of Section 2308. Prescriptive framing of detached one- and two-*family* dwellings and townhouses, using Section 2308 or the AWC WFCM shall be limited to heights of less than or equal to two stories above grade plane. Prescriptive framing shall not be applicable for structures designed using Exception 4 in Section 1609.1.2 Protection of Openings.

(122) Amending Subsection 2303.1.8. Subsection 2303.1.8 is amended to read:

2303.1.8 Preservative-treated wood. Structural lumber, including plywood, posts, beams, rafters, joists, trusses, studs, plates, sills, sleepers, roof and floor sheathing, flooring and headers of new wood-frame *buildings* and additions must be:



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1. Treated in accordance with AWPA Standard U1 (UC1 through UC4B) for AWPA Standardized Preservatives, all marked or branded by an approving agency. Incising is not required, provided that the retention and penetration requirements of these standards are met; or
2. For SBX disodium octaborate tetrahydrate (DOT) retention will be not less than 0.28 pcf B203 (0.42 = pcf DOT) for exposure to Formosan termites. All such lumber must be protected from direct weather exposure as directed in AWPA UC1 and UC2.
3. For structural glued laminated members made up of dimensional lumber, engineered wood products, or structural composite lumber, pressure treated in accordance with AWPA U 1 (UC1 through UC4B) or by Light Oil Solvent Preservative (LOSP) treatment standard as approved by the *building official*. Water based treatment processes as listed in paragraphs 1 and 2 are not allowed to be used on these products unless specified by a structural engineer for use with reduced load values.
4. For structural composite wood products by non-pressure process treated in accordance with AWPA Standard U1 (UC1, UC2 and UC3A) or approved by the *building official*.

2303.1.8.1 Treatment. Wood treatment will include the following:

1. A quality control and inspection program which meets or exceeds the current requirements of AWPA Standards M2-01 and M3-03;
2. Inspection and testing for the treatment standards as adopted by this code must be by an independent agency approved by the *building official* accredited by the American Lumber Standards Committee (ALSC), and contracted by the treating company; and
3. Field protection of all cut surfaces with a preservative, which must be applied in accordance with AWPA Standard M-4-02 or in accordance with the approved preservative manufacturer's ICC-Evaluation Services report requirements.

2303.1.8.2 Labeling. Labeling must be applied to all structural lumber 2 inches (51 mm) or greater nominal thickness, with the following information provided on each piece as a permanent ink stamp on one face



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on a durable tab permanently fastened to ends with the following information:

1. Name of treating facility;
2. Type of preservative;
3. AWPA use category;
4. Quality mark of third party inspection agency;
5. Retention minimum requirements; and
6. Year of treatment.

All lumber less than 2 inches (51 mm) in nominal thickness, will be identified per bundle by means of a label consisting of the above requirements. Labels measuring no less than 6 inches (152 mm) by 8 inches (203 mm) must be placed on the lower left corner of the strapped bundle.

2303.1.8.3 Moisture content of treated wood. When wood pressure treated with a water-borne preservative is used in enclosed locations where drying in service cannot readily occur, such wood must be at a moisture content of 19 percent or less before being covered with insulation, interior wall finish, floor covering or other material.

(123) Amending Subsection 2304.6.1. Subsection 2304.6.1 is amended to read:

2304.6.1 Wood structural panel sheathing. Where wood structural panel sheathing is used as the exposed finish on the exterior of outside walls, it must have an exterior exposure durability classification. Where wood structural panel sheathing is used elsewhere, but not as the exposed finish, it must be of a type manufactured with exterior glue (Exposure 1 or Exterior). Wood structural panel wall sheathing or siding used as structural sheathing must be capable of resisting wind pressures in accordance with Section 1609. Maximum effective wind speeds for wood structural panel sheathing used to resist wind pressures will be in accordance with Table 2304.6.1 for *enclosed buildings* with a mean roof height not greater than 30 feet (9144 mm).



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(124) Amending Table 2304.6.1. Table 2304.6.1 is amended as follows:

TABLE 2304.6.1
MAXIMUM EFFECTIVE WIND SPEED (mph) (3-SECOND GUST) PERMITTED FOR
WOOD STRUCTURAL PANEL WALL SHEATHING USED TO RESIST
WIND PRESSURES ^{a,b,c}

MINIMUM NAIL		MINIMUM WOOD STRUCTURAL PANEL SPAN RATING	MINIMUM NOMINAL PANEL THICKNESS (inches)	MAXIMUM WALL STUD SPACING (inches)	PANEL NAIL SPACING		V _{off-wind} MAXIMUM EFFECTIVE WIND SPEED (MPH)		
Size	Penetration (inches)				Edges (inches o.c.)	Field (inches o.c.)	Wind exposure category		
							B	C	D
6d common (2.0" x 0.133")	1.5	24/0	3/8	16	6	12	110	90	85
		24/16	7/16	16	6	12	110	100	90
						6	150	125	110
8d common (2.5" x 0.131")	1.75	24/16	7/16	16	6	12	130	110	105
				6		150	125	110	
				24	6	12	110	90	85
						6	110	90	85

For SI: 1 inch = 25.4 mm, 1 mile per hour = 0.447 m/s.

- Panel strength axis must be parallel with or perpendicular to supports. Three-ply plywood sheathing with studs spaced more than 16 inches on center will be applied with panel strength axis perpendicular to supports.
- The table is based on wind pressures acting toward and away from *building* surfaces in accordance with Chapter 27 of ASCE 7. Lateral requirements must be in accordance with Section 2305 or 2308.
- Wood structural panels with span ratings of wall-16 or wall-24 must be permitted as an alternative to panels with a 24/0 span rating. Plywood siding rated 16 o.c. or 24 o.c. is permitted as an alternative to panels with a 24/16 span rating. Wall-16 and plywood siding 16 o.c. must be used with studs spaced a maximum of 16 inches o.c.



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(125) Amending Subsection 2304.11. Subsection 2304.11 is amended to read:

2304.11 Protection against decay and termites.

2304.11.1 General. Where required by this section, protection from decay and termites must be provided by the use of naturally durable or preservative-treated wood.

2304.11.2 Wood used above ground. Structural lumber installed above ground must be preservative-treated wood in accordance with Section 2303.1.8.

2304.11.2.1 Soil treatment and termite barriers. Where structural lumber of wood frame *buildings* or structures is supported directly on the ground by a concrete slab, or concrete and/or masonry foundation, Formosan subterranean termite protection must be provided by either chemically treating the soil beneath and adjacent to the *Building* or structure by a Hawaii licensed pest control operator, or stainless steel termite barrier, or other termite protection measures approved by the *building official*. All soil treatment, stainless steel termite barrier, and termite protection measures must be installed according to manufacturer's recommendations for control of Formosan subterranean termites, with chemical barriers applied at the maximum label rates.

2304.11.3 Wood in ground contact. Wood supporting permanent *buildings* and structures, which is in direct soil contact or is embedded in concrete or masonry in direct contact with soil must be treated to the appropriate commodity specification of AWPA Standard U1. Wood in direct soil contact but not supporting any permanent *buildings* or structures must be treated to the appropriate commodity specification of AWPA Standard U1 for ground contact.

2304.11.4 Retaining walls. Wood in retaining or crib walls must be treated to AWPA Standard U1.

2304.11.5 Wood and earth separation. Where wood is used with less than 6-inch (152 mm) vertical separation from earth (finish grade), the wood must be treated for ground contact use.

Where planter boxes are installed adjacent to wood frame walls, a 2-inch-wide (51 mm) air space must be provided between the planter and the wall. Flashings must be installed when the air space is less than 6 inches



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(152 mm) in width. Where flashing is used, provisions must be made to permit circulation of air in the air space. The wood-frame wall must be provided with an exterior wall covering conforming to the provisions of Section 2304.6.

2304.11.6 Under-floor clearance for access and inspection. Minimum clearance between the bottom of floor joists or bottom of floors without joists and the ground beneath must be 24 inches (610 mm); the minimum clearance between the bottom of girders and the ground beneath must be 18 inches (457 mm).

Exception: Open slat wood decks must have ground clearance of at least 6 inches (152 mm) for any wood member. Accessible under-floor areas must be provided with a minimum 18-inch by 24-inch (152 mm X 610 mm) access opening, effectively screened or covered. Pipes, ducts and other construction must not interfere with the accessibility to or within under-floor areas.

2304.11.7 Wood used in retaining walls and cribs. Wood installed in retaining or crib walls will be preservative treated in accordance with AWWA U1 (Commodity Specifications A or F) for soil and fresh water use.

2304.11.8 Weather exposure. All portions of timbers (over 5-inch nominal width) and glued-laminated timbers that form structural supports of a *building* or other structure must be protected by a roof, eave, overhangs, flashings, or similar coverings. All wood or wood composite panels, in weather-exposed applications, must be of exterior type.

2304.11.9 Pipe and other penetrations. Insulations around plumbing pipes must not pass through ground floor slabs. Openings around pipes or similar penetrations in concrete or masonry slab, which is in direct contact with earth, must be filled with non-shrink grout, BTB, or other approved physical barrier.

(126) Amending Subsection 2308.1. Subsection 2308.1 is amended to read:

2308.1 General. The requirements of this section are intended for conventional light-frame construction. Other methods are permitted to be used, provided a satisfactory design is submitted showing compliance with other provisions of this code. Interior non-loadbearing partitions, ceilings and curtain walls of conventional light-frame construction are not subject to the limitations of this section. Alternatively, compliance with AF&PA



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WFCM is permitted subject to the limitations therein and the limitations of this code.

(127) Adding Subsection 2308.9.4.3. Subsection 2308.9.4.3 is added to read:

2308.9.4.3 Pre-engineered bracing of post and pier foundations. For conventional light-framed single-family residences two stories or less above grade, bracing of elevated wood post and pier foundation systems is permitted to be pre-engineered designs for braces or shear walls constructed in accordance with FEMA Hazard Mitigation Grant Program DR-1664-HI drawings, *Structural Seismic Retrofits for Hawaii Single Family Residences with Post and Pier Foundations, May 2009.*

(128) Amending Table 2308.10.1. Table 2308.10.1 is amended to read:

Table 2308.10.1
Required Rating of Approved Uplift Connectors (pounds) ^{a,b,c,d,e,f,g,h,i}

Effective Nominal Design Wind Speed $V_{\text{eff-asd, 3-sec gust}}$	Roof Span (feet)							Overhangs (pounds/ft) ^d
	12	20	24	28	32	36	40	
85	-72	-120	-144	-168	-192	-216	-240	-38.55
90	-91	-152	-182	-213	-243	-274	-304	-43.22
100	-131	-218	-262	-305	-349	-392	-436	-53.36
110	-175	-292	-350	-409	-467	-526	-584	-64.66
120	-240	-400	-480	-560	-640	-720	-800	-76.83
130	-304	-506	-607	-708	-810	-911	-1012	-90.17

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 1.61 km/hr, 1 pound = 0.454 kg, 1 pound/foot = 14.5939 N/m.

a. The uplift connection requirements are based on a 30-foot mean roof height located in Exposure B. For Exposure C or D and for other mean roof heights, multiply the above loads by the adjustment coefficients below.

Exposure	Mean Roof Height (feet)									
	15	20	25	30	35	40	45	50	55	60
B	1.00	1.00	1.00	1.00	1.05	1.09	1.12	1.16	1.19	1.22
C	1.21	1.29	1.35	1.4	1.45	1.49	1.53	1.56	1.59	1.62
D	1.47	1.55	1.61	1.66	1.70	1.74	1.78	1.81	1.84	1.87

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 1.61 km/hr, 1 pound = 0.454 kg, 1 pound/foot = 14.5939 N/m.



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- b. The uplift connection requirements are based on the framing being spaced 24 inches on center. Multiply by 0.67 for framing spacing 16 inches on center and multiply by 0.5 for framing spaced 12 inches on center.
- c. The uplift connection requirements include an allowance for 10 pounds of dead load.
- d. The uplift connection requirements do not account for the effects of overhangs. The magnitude of the above loads is increased by adding the overhang loads found in the table. The overhang loads are also based on framing spaced 24 inches on center. The overhang loads given are multiplied by the overhang projection and added to the roof uplift value in the table.
- e. The uplift connection requirements are based upon wind loading on end zones as defined in chapter 30, Figure 30.5-1, of ASCE 7. Connection loads for connections located a distance of 20 percent of the least horizontal dimensions of the *building* from the corner of the *building* are permitted to be reduced by multiplying the table connection value by 0.7 and multiplying the overhang load by 0.8.
- f. For wall-to-wall and wall-to-foundation connections, the capacity of the uplift connector is permitted to be reduced 100 pounds for each full wall above. (For example, if a 500-pound rated connector is used on the roof framing, a 400-pound rated connector is permitted at the next floor level down.)
- g. Interpolation is permitted for intermediate values of basic wind speeds and roof spans.
- h. The rated capacity of approved tie-down devices is permitted to include up to a 60-percent increase for wind effects where allowed by material specifications.
- i. $V_{eff-asd}$ is determined from Figure 1609.3.2.1 and Sections 1609.3.1 and 1609.3.2.

(129) Amending Subsection 2403.5. Subsection 2403.5 is amended to read:

2403.5 Louvered windows or jalousies. Regular plate, sheet, or patterned glass louvered windows and jalousies must be no thinner than nominal 7/32 inch (11 mm) and no longer than 36 inches (914 mm). When other glass types are used, design must be submitted to the *building official* for approval. Exposed glass edges must be smooth. Wired glass with wire exposed on longitudinal edges must not be used in jalousies or louvered windows.

(130) Repealing and replacing Chapter 28. Chapter 28 (Mechanical Systems) is repealed and replaced with a new Chapter 28 to read:



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CHAPTER 28

WATER RESOURCE CONSERVATION QUALITY AND EFFICIENCY

2801 - WATER RESOURCE CONSERVATION QUALITY AND EFFICIENCY

2801.1 General. Where development or redevelopment disturbs a site, the following water resource conservation and efficiency requirements may apply to the occupancy, use and construction of that development or redevelopment.

2802 – DEFINITIONS

Unless otherwise expressly stated, the following term is for the purposes of this chapter.

GRAY WATER. Untreated waste water that has not come into contact with waste water from water closets, urinals, *kitchen* sinks, or dishwashers. *Gray water* includes, but is not limited to, waste water from bathtubs, showers, lavatories, clothes washers, and laundry trays.

2803 – COMPLIANCE STATEMENT

2803.1 General. When Chapter 28 is used, the plan shall include the following conformance statement completed by the responsible engineer or architect that the design conforms to the provisions of this chapter.



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CITY AND COUNTY OF HONOLULU
REVISED ORDINANCE CHAPTER 16,
HONOLULU COUNTY CODE 1990, AS AMENDED

To the best of my knowledge, this project's design substantially conforms to Chapter 28 of the City and County of Honolulu Building Code as amended.

Signature: _____ Date: _____
Name: _____
Title: _____
License No.: _____

This block shall be on the first sheet of the pertinent plan, e.g. architectural, electrical, and mechanical. The above may be submitted separately to the *building official* in a letter including the identification of the *building*.

2804 – LANDSCAPE IRRIGATION AND OUTDOOR FOUNTAINS

2804.1 Landscape irrigation systems. Irrigation of exterior landscaping must comply with the *Plumbing Code*.

2805 – HVAC SYSTEMS AND EQUIPMENT

2805.1 Heating, Ventilation and Air-Conditioning Systems and Equipment (HVAC). The HVAC system must comply with ROH Chapter 32 (Energy Code) for energy efficiency requirements.

2806 - WATER TREATMENT DEVICES AND EQUIPMENT

2806.1 Water softeners. Water softeners must comply with the *Plumbing Code*.

2807 - METERING

2807.1 Metering. Water consumed from any source associated with the *building* or *building* site must be metered. Each potable and reclaimed source of water, and each onsite non-potable water source, must be metered separately. Meters must be installed in accordance with the requirements of the *Plumbing Code*. For the purposes of Section



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2807.1.1, each meter identified in Table 2807.1.1 must be capable of communicating water consumption data remotely and at a minimum, be capable of providing daily data with electronic data storage and reporting capability that can produce reports that show daily, monthly, and annual water consumption.

2807.1.1 Metering. All potable and non-potable water supplied to the applications listed in Table 2807.1.1 must be individually metered in accordance with the requirements indicated in Table 2807.1. Similar appliances and equipment are permitted to be grouped and supplied from piping connected to a single meter.

**TABLE 2807.1.1
METERING REQUIREMENTS**

APPLICATION	REQUIREMENTS
Cooling Towers	The makeup water supply to cooling towers, evaporative condensers, and fluid coolers. Cooling towers sharing a common basin can be grouped together using one meter.
Evaporative Coolers	The makeup water supply to an evaporative cooler having an air flow exceeding 30,000 cubic feet per minute (ft ³ /min) (50,970.3 m ³ /hr).
Fluid Coolers and Chillers – Open Systems	The makeup water supply on water-cooled fluid coolers and chillers not utilizing closed-loop recirculation.
Hydronic Cooling Systems – Closed Loop	Systems with 50 ton (175,843W) or greater of cooling capacity and where a make-up water supply is connected.
Hydronic Heating Systems	The makeup water supply to one or more boilers collectively exceeding 1,000,000 British thermal units per hour (Btu/h) (293,071 W).
Industrial Processes	The water supply to an industrial water-using process where the average consumption exceeds 1,000 gallons per day (gal/d) (3,785 L/d). Like equipment sharing one common water supply can be grouped together using one meter. Exception: Processes using untreated water where the water is directly returned to the original source after use.
Landscape Irrigation	Landscape irrigation water where either of the following conditions exist:



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	<ol style="list-style-type: none"> 1. Total accumulated landscape area with in-ground irrigation system exceeds 2,500 sq. ft. (232 m²), or 2. Total accumulated landscape area using an automatic irrigation controller exceeds 1,500 sq. ft. (139 m²) <p>Exception: Where the water purveyor provides a separate water supply meter that serves only the irrigation system, an additional dedicated meter is not required.</p>
Onsite Water Collection Systems	Potable or reclaimed water supplies for supplementing onsite alternative water collection systems.
Ornamental Water Features	Potable or reclaimed water supplies for ornamental water features where the water feature uses an automatic refill valve.
Pools and Spas	A makeup water supply to a swimming pool or spa. Exception: Where the pool or spa has less than 100 square feet (9 m ²) of water surface and is refilled from a hose bibb without an automatic refill valve.
Roof Spray Systems	Roof spray systems for irrigating vegetated roofs or thermal conditioning covering an area greater than 300 square feet (28 m ²). Exception: Temporary above-surface spray systems connected to a hose bibb and without an automatic controller are not required to have a dedicated meter
Tenant Buildings - Common Areas	Water supplies used in common areas of a site. The dedicated meter for common area water use shall not include water supplied inside tenant space. Water supplies for sanitary fixtures and other water use in common areas can be grouped together for metering requirements, except where dedicated water meter installations are otherwise required.
Tenant Spaces - Residential	All water supplies to each residential tenant space for indoor water use. Exception: Where a water purveyor has individual meters for each tenant space, and the other meter requirements included in this table do not apply, no additional dedicated meter is required.
Tenant Spaces - Non-residential, car washes	All water supplies to individual non-residential tenant spaces for indoor water use where any of the following conditions exist: <ol style="list-style-type: none"> 1. The nominal size of a water supply pipe(s) to the individual tenant space is greater than ½ inch, or 2. Water consumption within the tenant space is estimated or expected to average greater than 1,000 gallons/day (3,785L/d).



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	<p>Where water is supplied to tenant space that is not required to have a dedicated meter, the water supply pipe(s) shall be accessible to install a meter.</p> <p>Exception: Where a water purveyor has individual meters for each tenant space and the other meter requirements included in this table do not apply; no additional dedicated meter is required.</p>
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2808 - NONPOTABLE WATER REQUIREMENTS

2808.1 Scope. The use and application of non-potable water must comply with the State of Hawaii, Department of Health, Administrative Rules. The construction, alteration, and repair of alternate water source systems for nonpotable applications must comply with the *Plumbing Code*.

2809 - RAINWATER COLLECTION AND DISTRIBUTION SYSTEMS

2809.1 Scope. Must conform to the City and County of Honolulu, *Rules Relating to Water Quality*.

2809.2 Potable water connections. Where a potable system is connected to a rainwater collection and conveyance system, the potable water supply must be protected against backflow in accordance with the *Plumbing Code*. The installation, construction, alteration, and repair of potable rainwater catchment systems must comply with the *Plumbing Code*.

2809.3 Nonpotable water connections. Where nonpotable water from different sources is combined in a system, the system must comply with the most stringent of the requirements of this code that are applicable to such sources. The installation, construction, alteration, and repair of nonpotable rainwater catchment systems must comply with the *Plumbing Code*.

2810 - GRAY WATER SYSTEMS

2810.1 Scope. The construction, installation, alteration, and repair of gray water reuse systems must comply with the *Plumbing Code*.



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2811 – RECLAIMED (RECYCLED) WATER SYSTEMS

2811.1 Scope. The construction, installation, alteration, and repair of systems supplying nonpotable reclaimed (recycled) water must comply with the *Plumbing Code*.

2812 - ALTERNATE ONSITE NONPOTABLE WATER SOURCES

2812.1 Alternate nonpotable sources of water. Other onsite sources of nonpotable water including, but not limited to, stormwater, reverse osmosis reject water, foundation drain water and swimming pool backwash water, are permitted to be used for nonpotable, uses provided that they have been treated to the quality level necessary for their intended use and in accordance with requirements of the State of Hawaii, Department of Health, Administrative Rules. The construction, alteration, and repair of on-site treated nonpotable water systems must comply with the *Plumbing Code*.

(131) Amending Subsection 2901.1. Subsection 2901.1 is amended to read:

2901.1 Scope. Plumbing systems must comply with the *Plumbing Code*.

(132) Adding Subsection 2901.2 Subsection 2901.2 is added to read:

2901.2 The provisions of this chapter apply to new construction.

(133) Amending [P] Table 2902.1. [P] Table 2902.1 is amended to read:

[P] TABLE 2902.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES*

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE PLUMBING CODE)		LAVATORIES		BATHUBS/ SHOWER S	DRINKING FOUNTAINS*, (SEE PLUMBING CODE)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1	Assembly	A-1 ^{d, h}	Theaters and other buildings for the performing arts and motion pictures	1 per 125	1 per 65	1 per 200	—	1 per 500	1 service sink	



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A-2 ^{d, h}	Nightclubs, bars, taverns, dance halls and buildings for similar purposes	1 per 40	1 per 40	1 per 75		—	1 per 500	1 service sink
	Restaurants, banquet halls and food courts	1 per 75	1 per 75	1 per 200		—	1 per 500	1 service sink
A-3 ^{d, h}	Auditoriums without permanent seating, art galleries, exhibition halls, museums, lecture halls, libraries, arcades and gymnasiums	1 per 125	1 per 65	1 per 200		—	1 per 500	1 service sink
	Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
	Places of worship and other religious services	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink
A-4 ^h	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
A-5 ^h	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink



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No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE PLUMBING CODE)		LAVATORIES		BATHTUBS / SHOWERS	DRINKING FOUNTAINS ^a (SEE PLUMBING CODE)	OTHER
				MALE	FEMALE	MALE	FEMALE			
2	Business	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	1 per 100	1 service sink ^d
3	Educational	E	Educational facilities	1 per 50		1 per 50		—	1 per 100	1 service sink
4	Factory and industrial	F-1 and F-2	Structures in which occupants are engaged in work fabricating, assembly or processing of products or materials	1 per 100		1 per 100		See Plumbing Code	1 per 400	1 service sink
5	Institutional	I-1	Residential care	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		I-2	Hospitals, ambulatory nursing home care recipient ^b	1 per per room ^c		1 per per room ^c		1 per 15	1 per 100	1 service sink
			Employees, other than residential care ^b	1 per 25		1 per 35		—	1 per 100	—
			Visitors, other than residential care	1 per 75		1 per 100		—	1 per 500	—
		I-3	Prisons ^b	1 per cell		1 per cell		1 per 15	1 per 100	1 service sink
		I-3	Reformatories, detention centers and correctional centers ^b	1 per 15		1 per 15		1 per 15	1 per 100	1 service sink
			Employees ^b	1 per 25		1 per 35		—	1 per 100	—
I-4	Adult day care and child day care	1 per 15		1 per 15		1	1 per 100	1 service sink		
6	Mercantile	M	Retail stores, service stations, shops, salesrooms, markets and shopping centers	1 per 500		1 per 750		—	1 per 1,000	1 service sink



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[P] TABLE 2902.1—continued
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES*
(See Sections 2902.2 and 2902.3)

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS PLUMBING CODE)		LAVATORIES	BATHTUBS OR SHOWERS	DRINKING FOUNTAINS*(SEE PLUMBING CODE)	OTHER
				MALE FEMALE	MALE FEMALE				
7	Residential	R-1	Hotels, motels, boarding houses (transient)	1 per sleeping unit	1 per sleeping unit	1 per sleeping unit	—	1 service sink	
		R-2	Dormitories, fraternities, sororities and boarding houses (not transient)	1 per 10	1 per 10	1 per 8	1 per 100	1 service sink	
		R-2	Apartment house	1 per dwelling unit	1 per dwelling unit	1 per dwelling unit	—	1 Kitchen sink per Dwelling Unit; 1 automatic clothes washer connection per 20 Dwelling Units	
		R-3	One- and two-family dwellings	1 per dwelling unit	1 per 10	1 per dwelling unit	—	1 Kitchen sink per Dwelling Unit; 1 automatic clothes washer connection per Dwelling Unit	
		R-3	Congregate living facilities with 16 or fewer persons	1 per 10	1 per 10	1 per 8	1 per 100	1 service sink	
		R-4	Congregate living facilities with 16 or fewer persons	1 per 10	1 per 10	1 per 8	1 per 100	1 service sink	
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, storehouses and freight depots, low and moderate hazard	1 per 100	1 per 100	See Plumbing Code	1 per 1,000	1 service sink	



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- a. The figures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by this code.
- b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.
- c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted where such room is provided with direct access from each patient sleeping unit and with provisions for privacy.
- d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
- e. The minimum number of required drinking fountains shall comply with Table 2902.1 and Chapter 11.
- f. Drinking fountains are not required for an occupant load of 15 or fewer.
- g. For business and mercantile occupancies with an occupant load of 15 or fewer, service sinks shall not be required.
- h. See Subsection 303.2.1

(134) Amending Subsection 3001.1. Subsection 3001.1 is amended to read:

3001.1 Scope. This chapter governs the design and construction of the *building* elements for elevator and conveying systems. The design, construction, installation, alteration, repair and maintenance of elevators and conveying systems and their components are regulated by the State of Hawaii, Department of Labor and Industrial Relations, Hawaii Occupational Safety and Health Division, Boiler and Elevator Inspection Branch.

(135) Amending Subsection 3007.1. Subsection 3007.1 is amended to read:

3007.1 General. Where required by Section 403.6.1, every floor above and including the lowest level of fire department vehicle access of the *building* shall be served by fire service access elevators complying with Sections 3007.1 through 3007.9. Except as modified in this section, fire service access elevators shall be installed in accordance with this chapter and ASME A17.1/CSA B44.

Exception: Elevators that only service an open or enclosed parking garage and the lobby of the *building* are not required to serve as fire service access elevators.

(136) Amending Subsection 3007.7.1. Subsection 3007.7.1 is amended to read:

3007.7.1 Access to interior exit stairway or ramp. The enclosed fire service access elevator lobby shall have direct access from the enclosed elevator lobby to an enclosure for an interior exit stairway or ramp.

Exceptions:

1. Access to an interior exit stairway or ramp shall be permitted to be through a protected path of travel that has a level of fire protection



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not less than that for the elevator lobby enclosure. The protected path shall be separated from the enclosed elevator lobby through an opening protected by a smoke and draft control assembly in accordance Section 716.5.3.1.

2. Access is permitted from an exterior exit stairway as ramp or provided.

(137) Amending Subsection 3103.1. Subsection 3103.1 is amended to read:

3103.1 General. See ROH Section 18-3.4.

(138) Amending Subsection 3105.3. Subsection 3105.3 is amended to read:

3105.3 Design and construction. Awnings and canopies must be designed and constructed to withstand wind or other lateral loads and live loads as required by Chapter 16 with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members must be protected to prevent deterioration. Awnings must have frames of noncombustible material, fire-retardant-treated wood, wood of Type IV sizes, or 1-hour construction with combustible or noncombustible covers and must be either retractable, folding, or collapsible. When collapsed, retracted, or folded, the design must be such that the awning does not block any required exit.

Exceptions:

1. A fixed awning not more than 10 feet (3,048 mm) in length may be erected over a doorway to the *building*.
2. Fixed awnings at the first floor projecting not more than 6 feet (1,829 mm) from the face of the *building* may be erected over windows along the street.

(139) Amending Subsections 3106.1 to 3106.5. Subsections 3106.1 to 3106.5 are amended to read:

3106.1 General. For the purpose of this section, a marquee will include any object or decoration attached to or a part of said marquee, except a sign as defined in ROH Section 21-7.20.



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3106.2 Thickness. The maximum height or thickness of a marquee measured vertically from its lowest to its highest point must not exceed 3 feet (914 mm).

3106.3 Roof construction. Where the roof or any part thereof is a skylight, the skylight must comply with the requirements of Chapter 24 of this code. Plastic skylights must comply with Section 2610.

Every roof and skylight of a marquee over a public right-of-way must be sloped to downspouts which must conduct any drainage from the marquee under the sidewalk to the curb.

3106.4 Location prohibited. Every marquee must be so located as not to interfere with the operation of any exterior standpipe or to obstruct the clear passage of stairways or exits from the *building* or the installation or maintenance of street lighting.

3106.5 Construction. A marquee must be supported entirely from the *building* and must be constructed entirely of noncombustible materials.

Exception: Drop-off curtains may be suspended below the exterior periphery provided a minimum clearance of 7 feet (2134 mm) from the sidewalk below is maintained.

(140) Amending Subsection 3107.1. Subsection 3107.1 is amended to read:

3107.1 General. Signs shall be designed, constructed, and maintained in accordance with this code. Signs must conform to ROH Chapter 21.

(141) Amending Subsection 3109.1. Subsection 3109.1 is amended to read:

3109.1 General. Swimming pools shall comply with the requirements of Section 3109.2 through 3109.5 and other applicable sections of this code. These provisions are applicable to the design and construction of public swimming and wading pools. Those pools covered by these regulations include municipal, institutional, hotel, apartment, and similar type occupancies; and hydrotherapy spas, therapeutic pools, and special pools of similar type usage. Also covered are swimming pools, spas and hot tubs for one-*family* and two-*family* dwellings, and similar type pools; and ornamental pools.



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(142) Amending Subsection 3109.4. Subsection 3109.4 is amended to read:

Section 3109.4 Residential swimming pools. Residential swimming pools are accessory to R-3 residential occupancies. Residential swimming pools must conform to Sections 3109.4.1 through 3109.4.3 and to ROH Chapter 16, Article 6.

(143) Amending Subsection 3202.2. Subsection 3202.2 is amended to read:

3202.2 Balconies, sun-control devices and appendages. Projections such as roof eaves, cornices, sun-control devices, belt courses, and appendages such as water tables, sills, capitals, bases, and architectural projections which cannot be occupied or used, may project over the public street of the *building* site a distance as determined by the clearance of the lowest point of the projection above the grade immediately below, as follows:

Clearance above grade less than 8 feet (2438 mm) – no projection is permitted greater than 4 inches (102 mm).

Clearance above the grade 8 feet (2438 mm) and over – one inch of projection is permitted for each additional inch of clearance provided, that no such projection will exceed a distance of 4 feet (1219 mm).

Roof eaves must be sloped to downspouts and/or gutters leading back to the *building* which must conduct any drainage under the sidewalk area through the curb to the street gutter. A drain connection permit may be required.

(144) Amending Subsection 3202.2.3. Subsection 3202.2.3 is amended to read:

3202.2.3 Awnings. Awnings may extend over public property not more than 7 feet (2,134 mm) from the face of a supporting *building*, but no portion may extend nearer than 30 inches (762 mm) to the face of the nearest curb line measured horizontally. In no case may the awning extend over the public property greater than two-thirds of the distance from the property line to the nearest curb in front of the *building*. All portions of any awning must be at least 8 feet (2,438 mm) above any public walkway.



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Exception: Any valance attached to an awning must not project above the roof of the awning at the point of attachment and must not extend more than 12 inches (305 mm) below the roof of the awning at the point of attachment, but in no case may any portion of a valance be less than 7 feet (2,134 mm) in height above a public way.

(145) Amending Subsection 3202.3.1. Subsection 3202.3.1 is amended to read:

3202.3.1 Marquees. Marquees may not project more than three-fourths of the distance from the property line to the face of the curb, but in no case reach within 30 inches (762 mm) of the face of the curb. There must be a minimum of 8 feet (2,438 mm) of vertical clearance between the lowest point of any marquee to the sidewalk below.

(146) Adding Subsection 3202.3.5. Subsection 3202.3.5 is added to read:

3202.3.5 Doors. No door, either fully opened or when opening, may project beyond the property line.

(147) Adding Subsection 3202.5. Subsection 3202.5 is added to read:

3202.5 Encroachments within the public right-of-way. Encroachments below and at grade within the public right-of-way must conform to the requirements of ROH Chapter 14.

(148) Deleting Section 3305. Section 3305 is deleted.

(149) Adding an exception to Subsection 3306.1. Subsection 3306.1 is amended by adding the following Exception:

Exception: Not applicable to construction in preservation, agricultural and residential districts except when required by the *building official*.

(150) Amending Subsection 3306.5. Subsection 3306.5 is amended to read:

3306.5 Barriers. Barriers may not be less than 6 feet (1829 mm) in height and must be placed on the side of the walkway nearest the construction. Barriers must extend the entire length of the construction site. Openings in such barriers must be protected by doors which are normally kept closed. Viewing panels must be provided in barriers at a rate of one for every 25 linear feet (7.6m) per frontage, with a minimum of one per frontage. Viewing panels must be 12 x 12 inches (305 x 305 mm) in size



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and must be blocked with plexiglass or an equivalent nonfrangible material. The top of the viewing panel must be located no more than 6 feet (1829 mm) above the level of the ground, and the bottom of the viewing panel must be located no less than 3 feet (914 mm) above the level of the ground.

(151) Adding Subsection 3306.10. Subsection 3306.10 is added to read:

3306.10 Watchman. A watchman must be employed to warn the general public when intermittent hazardous operations are conducted on or above the sidewalk.

(152) Amending Subsection 3307.1. Subsection 3307.1 is amended by adding a second and third paragraph to read:

The owner and contractor doing the excavation or fill is responsible to implement safety measures to include, but not be limited to, safety nets, retaining walls, or fences, and berms or trenches, to prevent falling rocks, boulders, soil, debris, and other dangerous objects from falling, sliding or flowing onto adjoining properties, streets or natural watercourses, or otherwise causing injury or damage to persons or property.

If proposed excavation and backfill work does not require a grading permit under ROH Chapter 14, the *building official*, if deemed necessary to protect or promote public safety, may require the submittal of an engineering slope hazard report.

(153) Adding Subsection 3308.1.2. Subsection 3308.1.2 is added to read:

3308.1.2 Lighting. Any material or structure temporarily occupying public property, including fences and walkways, which creates a hazard to the public, must be adequately lighted between sunset and sunrise.

(154) Amending Subsection 3308.2. Subsection 3308.2 is amended to read:

3308.2 Utility fixtures. *Building* materials, fences, sheds or any obstruction of any kind must not be placed so as to obstruct free approach to any fire hydrant, fire department connection, utility pole, manhole, fire alarm box, or catch basin, or so as to interfere with the passage of water in the gutter, without permission from the agency having jurisdiction. Protection against damage must be provided to such utility fixtures during the progress of the work, but sight of them will not be obstructed. This



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protection must be maintained while such work is being done and must not obstruct the normal functioning of the device.

(155) Amending Subsection 3309.2. Subsection 3309.2 is amended to read:

3309.2 Fire Hazards. The provisions of this code and the *Fire Code* must be strictly observed to safeguard against all the fire hazards attendant upon construction operations.

(156) Amending Subsection 3401.1. Subsection 3401.1 is amended by amending the exceptions to read:

Exceptions:

1. Existing *bleachers*, grandstands, and folding and telescopic seating must comply with ICC 300.
2. Conformance with the requirements of ROH Chapter 16, Article 9, International Existing Building Code, as amended, are accepted in lieu of this chapter.

(157) Amending Subsection 3401.3. Subsection 3401.3 is amended to read:

3401.3 Compliance. Alterations, repairs, additions, and changes of occupancy to, or relocation of *fire apparatus access roads* and structures will comply with the provisions for alteration, repair, additions and changes of occupancy or relocations, respectively, in ROH Chapters 32 (Building Energy Conservation Code), 20 (*Fire Code*), 19 (*Plumbing Code*), 16 (Sec. 16-1.2, Residential Code), and 17 (*Electrical Code*). Where provisions of the other codes conflict with provisions of this chapter, the provisions of this chapter take precedence.

(158) Amending Subsection 3403.2. Subsection 3403.2 is amended to read:

3403.2 Flood hazard areas. For *existing buildings* and structures in flood hazard areas, see ROH Chapter 21A.

(159) Amending Subsection 3404.2. Subsection 3404.2 is amended to read:

3404.2 Flood hazard areas. For *existing buildings* and structures in flood hazard areas, see ROH Chapter 21A.



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(160) Amending Subsection 3407.1. Subsection 3407.1 is amended to read:

3407.1 Conformance. The installation or replacement of glass for new installations must be as required by Chapter 24 of this code.

(161) Amending Subsection 3409.2. Subsection 3409.2 is amended to read:

3409.2 Flood hazard areas. For *existing buildings* and structures in flood hazard areas, see ROH Chapter 21A.

(162) Amending Subsection 3411.1. Subsection 3411.1 is amended to read:

3411.1 Scope. The provisions of Sections 3411.1 through 3411.9 apply to maintenance, change of occupancy, additions and alterations to *existing buildings*, including those identified as *historic buildings*.

Conformance with the design and construction requirements of the Americans with Disabilities Act Accessibility Guidelines administered by the Department of Justice or the Fair Housing Act Accessibility Guidelines administered by the Department of Housing and Urban Development must be equivalent to meeting the accessibility of this code. At the time of submittal of an application for a *building* permit, the applicant must state on the plans that the project is subject to the above requirements.

(163) Chapter 35 (Referenced Standard) – AISI – is amended to read:

Standard reference number	Title	Referenced In code section number
AISI S230-15	Standard for Cold-formed Steel Framing-Prescriptive Method for One- and Two-Family Dwellings.....	1609.1.1, 1609.1.1.1, 2211.7



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(164) Chapter 35 (Referenced Standard) – BWS – is added immediately following the Referenced Standard BHMA to read:

Standard reference number	Title	Referenced in code section number
BWS-VWS-2002	Board of Water Supply, Water System Standards 2002	503.3.2
SDPWC-1984	Standard Details for Public Works Construction, September 1984	2807.1, 2807.9, 2807.10, 2807.12
SDS	Rules Relating to Storm Drainage Standards, December 2012 . .	2808.9

(165) Chapter 35 (Referenced Standard) – ICC – Standard Reference numbers AISI S230 and ICC 600 are amended to read:

Standard reference number	Title	Referenced in code section number
ICC 600-14	Standard for Residential Construction in High-wind Regions.....	1609.1.1, 1609.1.1.1, 2308.2.1

(166) Chapter 35 (Standard Reference) – NFPA – 30A-12 is added to the Reference Standard (NFPA) immediately after Standard Reference Number 30-12 to read:

Standard reference number	Title	Referenced in code section number
30A-12	Code for Motor Fuel Dispensing Facilities and Repair Garages	406.8.8.1

Sec. 16-1.2 Adoption of the Hawaii State Residential Code

The Hawaii State Residential Code, as adopted by the State of Hawaii on November 13, 2018, which adopts, with modifications, the International Residential Code for One- and Two-Family Dwellings, 2012 Edition (Eighth Printing) (IRC), published by the International Code Council, Inc., 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001, is adopted by reference and made a part hereof, subject to the following amendments:



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- (1) Amending Subsection R101.1. Subsection R101.1 is amended to read:

R101.1 Title. These provisions are part of the Building Code of the City and County of Honolulu and are referred to herein as "this code."

- (2) Amending Subsection R101.2. Subsection R101.2 is amended to read:

R101.2 Scope. The provisions of the International Residential Code for One- and Two-Family Dwellings will be permitted as an alternative to the International Building Code to apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal, and demolition of detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than two stories in height with a separate means of egress and their accessory structures. A townhouse is a single-family dwelling unit constructed in a group of three or more attached units in which each unit extends from the foundation to roof and with open space on at least two sides. For patio covers, the provisions of Appendix H are made a part of the Residential Code. For R-3 one- and two-family dwellings used as care homes, the provisions of Appendix M are made a part of the Residential Code.

- (3) Amending Subsection R102.7. Subsection R102.7 is amended to read:

R102.7 Existing structures. The legal occupancy of any structure existing on the date of adoption of this code is permitted to continue without change, except as is specifically covered in this code or the *Fire Code*, or as is deemed necessary by the *building official* for the general safety and welfare of the occupants and the public.

- (4) Adding Subsection R103.1. Subsection R103.1 is added to read:

R103.1 General. Code enforcement agency will be in accordance with International Building Code Section 103.

- (5) Amending Subsection R104.11. Subsection R104.11 is amended to read:

R104.11 Alternative materials, design, and methods of construction and equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or



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method of construction shall be approved where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code. Compliance with the specific performance-based provisions of the International Codes in lieu of specific requirements of this code shall also be permitted as an alternative.

The *building official* may use the most current code edition or standard of the International Code Council or other approved national standard as an alternative to meeting the requirements of this code.

- (6) Amending Subsection R105.1. Subsection R105.1 is amended to read:

R105.1 Required. A *building* permit is required to perform work covered by this code as provided in ROH Chapter 18.

- (7) Amending Subsection R105.8. Subsection R105.8 is amended to read:

R105.8 Responsibility. It is the duty of every person who performs work for the installation, alteration, or repair of a *building*, structure, electrical, gas, mechanical or plumbing system, for which this code is applicable, to comply with this code.

- (8) Amending Subsection R106.1. Subsection R106.1 is amended to read:

R106.1 Submittal documents. See ROH Chapter 18. In addition to the requirements of the plot plan required in ROH Chapter 18, the construction documents submitted with the application for a permit must be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site plan showing to scale the size of and location of the new construction and distances from *lot lines*. In the case of demolition, the site plans must show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot.

- (9) Amending Subsection R106.1.3. Subsection R106.1.3 is amended to read:

R106.1.3 Information for construction in flood hazard areas. For *buildings* and structures in flood hazard areas as established by ROH Chapter 21A, construction documents will include:



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1. Delineation of flood hazard areas, floodway boundaries, flood zones, and the design flood elevation, as appropriate;
2. The elevation of the proposed lowest floor, including basement; in areas of shallow flooding (AO zones), the height of the proposed lowest floor, including basement, above the highest adjacent grade;
3. The elevation of the bottom of the lowest horizontal structural member in coastal high hazard areas (V Zone); and
4. If design flood elevations are not included on the community's Flood Insurance Rate Map (FIRM), the applicant must submit a flood study, flood data, and other pertinent information as required by ROH Chapter 21 or 21A, prepared by a licensed design professional to the *Building Official*.

(10) Adding Subsection R107.5. Subsection R107.5 is added to read:

R107.5 Stormwater management. Storm water management practices for residential uses include, but not limited to, reducing the total runoff generated on the site by reducing the total impervious surface area of the lot.

R107.5.1 Maximum impervious surface. The impervious surface area shall not exceed 75 percent of the total zoning lot area for construction of a one-family or two-family detached dwelling or duplex, pursuant to ROH Chapter 21.

(11) Amending Subsections R109.1 to R109.4. Subsections R109.1 to R109.4 are amended to read:

R109.1 Types of Inspections. Inspections must be in accordance with the International Building Code Section 110.1.

R109.2 Required inspections. The *building official*, upon notification from the permit holder or the permit holder's agent, shall make the following inspections and shall either approve that portion of the construction as completed or notify the permit holder or the permit holder's agent if the same fails to comply with this code.

R109.2.1 Floodplain inspections. For construction in areas prone to flooding as established by ROH Chapter 21A, upon placement of the



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lowest floor, including basement, and prior to further vertical construction, the *building official* shall require submission of documentation, prepared and sealed by a land surveyor, licensed in the State of Hawaii, of the elevation of the lowest floor, including basement, required in Section R106.

R109.2.2 Fire-resistance-rated construction inspection. When fire-resistance-rated construction is required between *dwelling units* or due to locate on property, an inspection of such construction, after all lathing and/or wallboard is in place, but before any plaster is applied, or before wallboard joints and fasteners are taped and finished.

R109.2.3 Final inspections. Final inspections must be made after the permitted work is complete and prior to final occupancy.

R109.2.4 Other inspections. In addition to the inspections specified in Sections R109.2.1 through R109.2.3, the *building official* is authorized to make or require other inspections of any construction work to ascertain compliance with the provisions of this code and other laws that are enforced by this code.

R109.3 Special inspections. Where application is made for construction as described in this section, the owner shall employ one or more special inspectors, independent of the contractors performing the work, to provide inspections during construction on the types of work listed under Sections R109.3.1 and R109.3.5. These inspections are in addition to the inspections specified in Section R109. The special inspector must be a qualified person who must demonstrate competence to the satisfaction of the *building official*, to conduct inspections of the particular type of construction or operation requiring special inspection. The *building official* may impose reasonable fees to cover the cost to conduct examinations in licensing of special inspectors and issuance of registration cards.

Exceptions:

1. The *building official* may waive the requirements for the employment of a special inspector if the construction is of a minor nature.
2. The employment of a special inspector is not required for construction work for any government agency that provides for its own inspections.



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3. Special inspections are not required for *building* components unless the design involves the practice of professional engineering or architecture as defined by HRS 464.

R109.3.1 Special Inspections for wind requirements. Special inspections are required for *buildings* and structures constructed where the 3-second-gust effective ultimate design wind speed is 120 mph (53 m/sec) or greater.

R109.3.1.1 Structural wood. Continuous special inspection is required during field gluing operations of elements of the main windforce-resisting system. Periodic special inspection is required for nailing, bolting, anchoring and other fastening of components within the main windforce-resisting system, including wood shear walls, wood diaphragms, drag struts, braces, and hold-downs.

Exception: Special inspection is not required for wood shear walls, shear panels and diaphragms, including nailing, bolting, anchoring, and other fastening to other components, of the main windforce-resisting system, where the fastener spacing of the sheathing is more than 4 inches (102 mm) on center.

R109.3.1.2 Cold-formed steel light-frame construction. Periodic special inspection is required during welding operations of elements of the main windforce-resisting system. Periodic special inspection is required for screw attachment, bolting, anchoring, and other fastening of components within the main windforce-resisting system, including shear walls, braces, diaphragms, collectors (drag struts), and hold-downs.

Exceptions: A special inspection is not required for cold-formed steel light-frame shear walls, braces, diaphragms, collectors (drag struts) and hold-downs where either of the following applies:

1. The sheathing is gypsum board or fiberboard.
2. The sheathing is wood structural panel or steel sheets on only one side of the shear wall, shear panel, or diaphragm assembly and the fastener spacing of the sheathing is more than 4 inches (102 mm) on center (o.c.).



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R109.3.1.3 Wind-resisting components. Periodic special inspection is required for the following systems and components:

1. Roof cladding.
2. Wall cladding.

R109.3.2 Termite protection. Termite barrier, treated structural lumber and pipe penetrations for new wood frame residential *buildings*.

R109.3.3 Automatic fire protection systems. Where an application is made for automatic fire sprinkler systems, the systems must be inspected and evaluated in accordance with the requirements of NFPA 13D.

R109.3.4 Concrete construction. The special inspections and verifications for concrete construction must be in accordance with this code.

Exceptions: Special inspections are not required for:

1. Foundation concrete for structures permitted to be designed under the International Residential Code.
2. Concrete footings supporting *buildings* three stories or less in height that are fully supported on earth or rock where the structural design is based on a specified compressive strength f_c no greater than 2,500 pounds per square inch (psi) (17.2 MPa), regardless of the compressive strength specified in the construction documents or used in the footing construction. Periodic inspection of the reinforcing for all concrete footings will be required.
3. Nonstructural concrete slabs supported directly on the ground, including pre-stressed slabs on grade, where the effective pre-stress in the concrete is less than 150 psi (1.03 MPa).
4. Concrete foundation walls constructed in accordance with Table B1805.5 (1), B1805.5 (2), B1805.5 (3), or B1805.5 (4).
5. Concrete patios, driveways and sidewalks, on grade.



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R109.3.5 Floodplain construction. See ROH Chapter 21A.

R109.4 Building permit requirement. Where special inspection or testing is required by Section R109.3, the construction drawings must include a complete list of special inspections required by this section.

- (12) Adding Subsections R109.5 to 109.7. Subsections R109.5 to R109.7 are added to read:

R109.5 Statement of special inspections. The applicant shall submit a statement of special inspections in accordance with Section R109.7 as a condition for permit issuance.

R109.6 Contractor responsibility. When special inspection is required, a contractor's statement must be submitted containing an acknowledgement of awareness of the special inspection requirements contained on the drawings and that the construction requiring special inspections must be made accessible for inspections.

R109.7 Report requirement. The licensed engineer or architect of record shall submit a final signed report stating that they have received all the special inspection reports and documenting that there are no known unresolved code requirements that create significant public safety deficiencies.

- (13) Amending Subsection R110.1. Subsection R110.1 is amended to read:

R110.1 Use and occupancy. No *building* or structure may be used or occupied, and no change in the existing occupancy classification of a *building* or structure or portion thereof may be made until the *building official* has issued a certificate of occupancy therefor as provided herein. Issuance of a certificate of occupancy will not be construed as approval of a violation of the provisions of this code or other ordinances of the jurisdiction.

Exceptions:

1. Certificates of occupancy are not required for work exempt from permits under Section R105.2.
2. Accessory buildings or structures.



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(14) Amending Subsection R110.3. Subsection R110.3 is amended to read:

R110.3 Certificate issued. After the *building official* inspects the *building* or structure and finds no violations of the provisions of this code or other laws that are enforced by the department, the *building official* shall issue a certificate of occupancy, which must contain the following:

1. The *building* permit number.
2. The address of the structure.
3. The name and address of the owner.
4. A description of the structure or portion thereof for which the certificate is issued.
5. A statement that the described structure or portion thereof has been inspected for compliance with the requirements of this code.
6. The name of the *building official*.
7. The edition of the building code under which the permit was issued.
8. Whether an automatic sprinkler system is provided.
9. Any special conditions for the permit.

(15) Amending Subsection R110.4. Subsection R110.4 is amended to read:

R110.4 Temporary occupancy. The *building official* may issue a temporary certificate of occupancy before the completion of the entire work covered by the permit, provided that such portion or portions can be occupied safely and are in compliance with the requirements of this code. The *building official* will set a time period during which the temporary certificate of occupancy is valid.

(16) Amending Subsection R110.5. Subsection R110.5 is amended to read:

R110.5 Revocation. The *building official* may suspend or revoke a certificate of occupancy issued under the provisions of this code whenever the certificate is issued in error, or on the basis of incorrect information



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provided, or where it is determined that the structure or a portion thereof violates any ordinance or regulation or any of the provisions of this code.

- (17) Amending Subsection R112.1. Subsection R112.1 is amended to read:

R112.1 General. Board of Appeals must be in accordance with International Building Code Section 113.

- (18) Amending Section R113. Section R113 is amended to read:

SECTION R113 – VIOLATIONS AND PENALTIES

For violation and penalty provisions, see ROH Chapter 16, Article 10.

- (19) Amending Section R202. Section R202 is amended as follows:

- a. By adding immediately after "ACCESSIBLE, READILY" the following definition to read:

ACCESSORY DWELLING UNIT (ADU) means a second *dwelling unit*, including separate *kitchen*, bedroom, and bathroom facilities, attached or detached from the primary *dwelling unit* on the zoning lot.

- b. By amending the definition of "BUILDING, EXISTING" to read:

BUILDING, EXISTING is a *building* for which a legal *building* permit has been issued, or one which complied with the building code in effect at the time the *building* was erected.

- c. By adding the following definitions:

BUILDING, ENCLOSED: A *building* that does not comply with the requirements for open or *partially enclosed building*.

BUILDING, OPEN: A *building* having each wall at least 80 percent open. $A_o \geq 0.8 A_g$ where:

A_o = total area of openings in a wall that receives positive external pressure, in ft² (m²)

A_g = the gross area of that wall in which A_o is identified, in ft² (m²)



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BUILDING, PARTIALLY ENCLOSED: *A building that complies with both of the following conditions:*

1. The total area of openings in a wall that receives positive external pressure exceeds that sum of the areas of openings in the balance of the *building* envelope (walls and roof) by more than 10 percent.
2. The total area of openings in a wall that receives positive external pressure exceeds 4 ft² (0.37 m²) or 1 percent of the area of that wall, whichever is smaller, and the percentage of openings in the balance of the *building* envelope does not exceed 20 percent.

These conditions are expressed by the following equations:

1. $A_o > 1.1A_{oi}$
2. $A_o > 4 \text{ ft}^2 (0.37 \text{ m}^2)$ or $> 0.01 A_g$, whichever is smaller, and $A_{oi}/A_{gi} \leq 0.20$

Where:

A_o, A_g are defined for *open building*.

A_{oi} = the sum of the areas of openings in the *building* envelope (walls and roof) not including A_o , in ft² (m²).

A_{gi} = the sum of the gross surface areas of the *building* envelope (walls and roof) not including A_g , in ft² (m²).

- d. By amending the definition of "BUILDING OFFICIAL" to read:

BUILDING OFFICIAL means the director of planning and permitting of the *city* or the director's authorized representative.

- e. By adding definitions of "CARPORT" after "CAP PLATE" to read:

CARPORT is a private garage which is at least 100 percent open on one side and with 50 percent net openings on another side or which is provided with an equivalent of such openings on two or more sides.



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A private garage that is 100 percent open on one side and 25 percent open on another side with the latter opening so located to provide adequate cross ventilation may be considered a *carport* when approved by the *building official*.

- f. By amending the definition of "KITCHEN" to read:

KITCHEN is as defined in the ROH Chapter 21.

- g. By amending the definition of "THIRD-PARTY CERTIFICATION AGENCY" to read:

THIRD-PARTY CERTIFICATION AGENCY. An approved agency operating a product or material certification system that incorporates initial product testing, assessment and surveillance of a manufacturer's quality control system. An approved agency may be an individual who has been qualified by the department to perform *single-family* residential plans review for code compliance, by having the necessary qualifications and passing an examination administered by the *building official* with a qualifying score to review for *single-family* residential *building* permit requirements.

- h. By amending the definition of "THIRD PARTY CERTIFIED" to read:

THIRD PARTY CERTIFIED. Either a certification obtained by a manufacturer indicating that the function and performance characteristics of a product or material have been determined by testing and ongoing surveillance by an approved *third-party certification agency*; or a certification of code compliance from an approved third party residential plans reviewer, upon a form provided by the *building official* for compliance with the requirements necessary to obtain a *building* permit. Manufacturer assertion of certification is in the form of identification in accordance with the requirements of the *third-party certification agency*.

- (20) Amending Subsection R301.1.1. Subsection R301.1.1 is amended to read:

R301.1.1 Alternative provisions. As an alternative to the requirements in Section R301.1 the following standards are permitted subject to this code and the limitations therein. Where engineered design is used in conjunction with these standards, the design shall comply with the International *building* code. Where these standards use the basic wind



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speed as a design criterion, the Effective Ultimate Design Wind Speed $V_{eff-ult}$, determined from Figures R301.2(8) shall be used.

1. AF&PA Wood Frame Construction Manual (WFCM) 2012.
2. AISI Standard for Cold-Formed Steel Framing – Prescriptive Method for One-and Two-Family Dwellings (AISI S230-2015).
3. ICC Standard for Residential Construction in High-Wind Regions (ICC 600-14).
4. ASCE Minimum Design Loads for Buildings and Other Structures (ASCE 7-10).
5. State Building Code, as amended.

(21) Adding Subsection R301.1.4. Subsection R301.1.4 is added to read:

R301.1.4 Complete load path and uplift ties. Blocking, bridging, straps, approved framing anchors, or mechanical fasteners must be designed and installed to provide continuous ties from the roof to the foundation system. Sheet metal clamps, ties, or clips, must be formed of galvanized steel or other approved corrosion-resistant material not less than 0.040 inch (1.01 mm) nominal thickness. Uplift resistance must be in accordance with Table R802.11.

(22) Amending Table R301.2 (1). Table R301.2 (1) is amended to read:

**TABLE R301.2 (1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA**

WIND SPEED (mph)	SEISMIC DESIGN CATEGORY	SUBJECT TO DAMAGE FROM			FLOOD HAZARDS
		Weathering	Termite	Decay	
Per Figure R301.2(8)	C or D ₀	Negligible	Very heavy	Moderate to severe	FEMA



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(23) Amending Subsection R301.2.1. Subsection R301.2.1 is amended to read:

R301.2.1 Wind design criteria. *Buildings* and portions thereof must be constructed in accordance with the wind provisions as specified in Table R301.2.1 using the effective ultimate design wind speed, $V_{eff-ult}$, determined from Figure R301.2(8). *Buildings* and portions thereof constructed in accordance with the wind provisions of the State Building Code, as amended, are deemed to comply with this section.

(24) Adding Table R301.2.1. Table R301.2.1 is added to read:

TABLE R301.2.1

WIND SPEED BASED ON APPLICABLE WIND DESIGN CRITERIA

Effective Ultimate Design Wind Speed ^a	Effective Nominal Design Wind Speed ^b	Wind Provisions ^c	Windborne Debris Protection
$V_{eff-ult} < 130$	$V_{eff-asd} < 102$	Residential Code ^c	Not required
$130 \leq V_{eff-ult} < 139$	$102 \leq V_{eff-asd} < 110$	Residential Code ^c	Required
$139 \leq V_{eff-ult}$	$110 \leq V_{eff-asd}$	Alternative Provisions ^d	Required

^a The Effective Ultimate Design Wind Speed, $V_{eff-ult}$, is obtained from Figure R301.2(8). The wind speed shown in these figures include topographic effects and is based on the basic wind speed definition used for structural design of *buildings* in the 2012 IBC, ASCE7-10 and Section 16-1.1.

^b Wind speed conversion to the Effective Nominal Design Wind Speed, $V_{eff-asd}$ is in accordance with section R301.2.1.3.

^c Where the Residential Code requires the Basic Wind Speed, the Effective Nominal Design Wind Speed, $V_{eff-asd}$, is used.

^d The applicability of the wind design provisions of the Residential Code are exceeded and will not be used. R301.1.1 Alternative provisions provides a list of other codes and standards that will be used in conjunction with applicable requirements of the Residential Code to complete the design.

The structural provisions of this code for wind loads are not permitted where wind design is required as specified in Section R301.2.1.1. Where different construction methods and structural materials are used for various portions of a *building*, the applicable requirements of this section for each portion apply. Where not otherwise specified, the wind loads listed in Table R301.2(2) adjusted for height and exposure



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using Table R301.2(3) must be used to determine design load performance requirements for wall coverings, curtain walls, roof coverings, exterior windows, skylights, garage doors, and exterior doors. Asphalt shingles must be designed for wind speeds in accordance with Section R905.2.4. A continuous load path shall be provided to transmit the applicable uplift forces in Section R802.11.1 from the roof assembly to the foundation.

(25) Amending Subsection R301.2.1.1. Subsection R301.2.1.1 is amended to read:

R301.2.1.1 Wind limitations and wind design required. The wind provisions of this code do not apply to the design of *buildings* where wind design is required in accordance with Figure R301.2(4)B.

Exceptions:

1. For concrete construction, the wind provisions of this code apply in accordance with the limitation of Sections R404 and R611.
2. For structural insulated panels, the wind provisions of this code apply in accordance with the limitations of Section R613.

In regions where wind design is required in accordance with Figure R301.2(4)B, the design of *buildings* for wind loads must be in accordance with one or more of the following methods:

1. AF&PA Wood Frame Construction Manual (WFCM);
2. ICC Standard for Residential Construction in High-Wind Regions (ICC 600);
3. ASCE Minimum Design Loads for *Buildings* and Other Structures (ASCE 7);
4. AISI Standard for Cold-Formed Steel Framing-Prescriptive Method For One- and Two-*Family* Dwellings (AISI S230); or
5. International Building Code as amended.

The elements of design not addressed by the methods in Items 1 through 5 will be in accordance with the provisions of this code. When ASCE 7 or the International Building Code is used, the wind speed map and exposure



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category requirements as specified in ASCE 7 and the International Building Code are used.

(26) Amending Subsection R301.2.1.2. Subsection R301.2.1.2 is amended to read:

R301.2.1.2 Protection of openings. Windows in *buildings* located in windborne debris regions must have glazed openings protected from windborne debris. Glazed opening protection for windborne debris must meet the requirements of the Large Missile Test of ASTM E 1996 and of ASTM E 1886 referenced therein.

Exceptions:

1. Wood structural panels with a minimum thickness of 7/16 inch (11 mm) and a maximum panel span of 8 feet (2,438 mm) are permitted for opening protection in one- and two-story *buildings* classified as Group R-3 or R-4 occupancy. Panels must be precut so that they are attached to the framing surrounding the opening containing the product with the glazed opening. Panels must be predrilled as required for the anchorage method and will be secured with the attachment hardware provided and anchors permanently installed on the *building*. Attachment in accordance with Table R301.2.1.2 with corrosion-resistant attachment hardware provided and anchors permanently installed on the *building* is permitted for *buildings* with a mean roof height of 33 feet (10,058 mm) or less, where effective ultimate design wind speeds, $V_{eff-ult}$ do not exceed 175 mph (78 m/s).
2. Glazing in accessory structures to the single *family* dwellings including but not limited to greenhouses and minor storage sheds.
3. Partially enclosed Occupancy R-3 *buildings* are permitted to be designed without wind-borne debris protection. Partially enclosed and open Occupancy R-3 *buildings* must also include a residential safe room in accordance with ROH Chapter 16, Article 13.



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**TABLE R301.2.1.2
WINDBORNE DEBRIS PROTECTION FASTENING SCHEDULE
FOR WOOD STRUCTURAL PANELS ^{a, b, c, d}**

FASTENER TYPE	FASTENER SPACING		
	Panel span ≤ 4 foot	Panel span > 4 foot and ≤ 6 foot	Panel span > 6 foot and ≤ 8 foot
No. 8 Wood screw based anchor with 2-inch embedment length	16"	10"	8"
No. 10 Wood screw based anchor with 2-inch embedment length	16"	12"	9"
¼-inch lag screw based anchor with 2-inch embedment length	16"	16"	16"

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm,
1 pound = 0.454 kg, 1 mile per hour = 0.447 m/s.

- a. This table is based on 175 mph effective ultimate design wind speed and a mean roof height of 45 feet.
- b. Fasteners must be installed at opposing ends of the wood structural panel. Fasteners must be located a minimum of 1 inch from the edge of the panel.
- c. Anchors must penetrate through the exterior wall covering with an embedment length of 2 inches minimum into the building frame. Fasteners must be located a minimum of 2-½ inches from the edge of concrete block or concrete.
- d. Where screws are attached to masonry or masonry/stucco, they must be attached utilizing vibration-resistant anchors having a minimum ultimate withdrawal capacity of 1,500 pounds.

(27) Amending Subsection R301.2.1.3. Subsection R301.2.1.3 is amended to read:

R301.2.1.3 Wind speed conversion. When referenced documents are based on fastest mile wind speeds, V_{fm} , or three second gust effective nominal wind speeds, $V_{eff-nsd}$, the effective ultimate design wind speed, $V_{eff-ult}$, obtained from Figures R301.2(8) must be converted using Table R301.2.1.3.



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TABLE R301.2.1.3
CONVERSION OF EQUIVALENT BASIC SPEEDS ^{a,b,c}

$V_{eff-ult}$	107	114	120	126	133	139	152	158	164	177	183	190	202	215
$V_{eff-asd}$	85	90	95	100	105	110	120	125	130	140	145	150	160	170
V_{fm}	71	76	80	85	90	95	104	109	114	123	128	133	142	152

For SI: 1 mile per hour = 0.447 m/s.

- a. Linear interpolation is permitted.
- b. $V_{eff-asd}$ = Effective nominal design wind speed applicable to methods specified in Exceptions 1 through 5 of Section 1609.1.1 of the International Building Code. $V_{eff-asd} = 0.791 V_{eff-ult}$
- c. $V_{eff-ult}$ = Effective ultimate design wind speed from Table R301.2(8)

(211) Amending Figure R301.2 (8). Figure R301.2 (8) is amended to read:

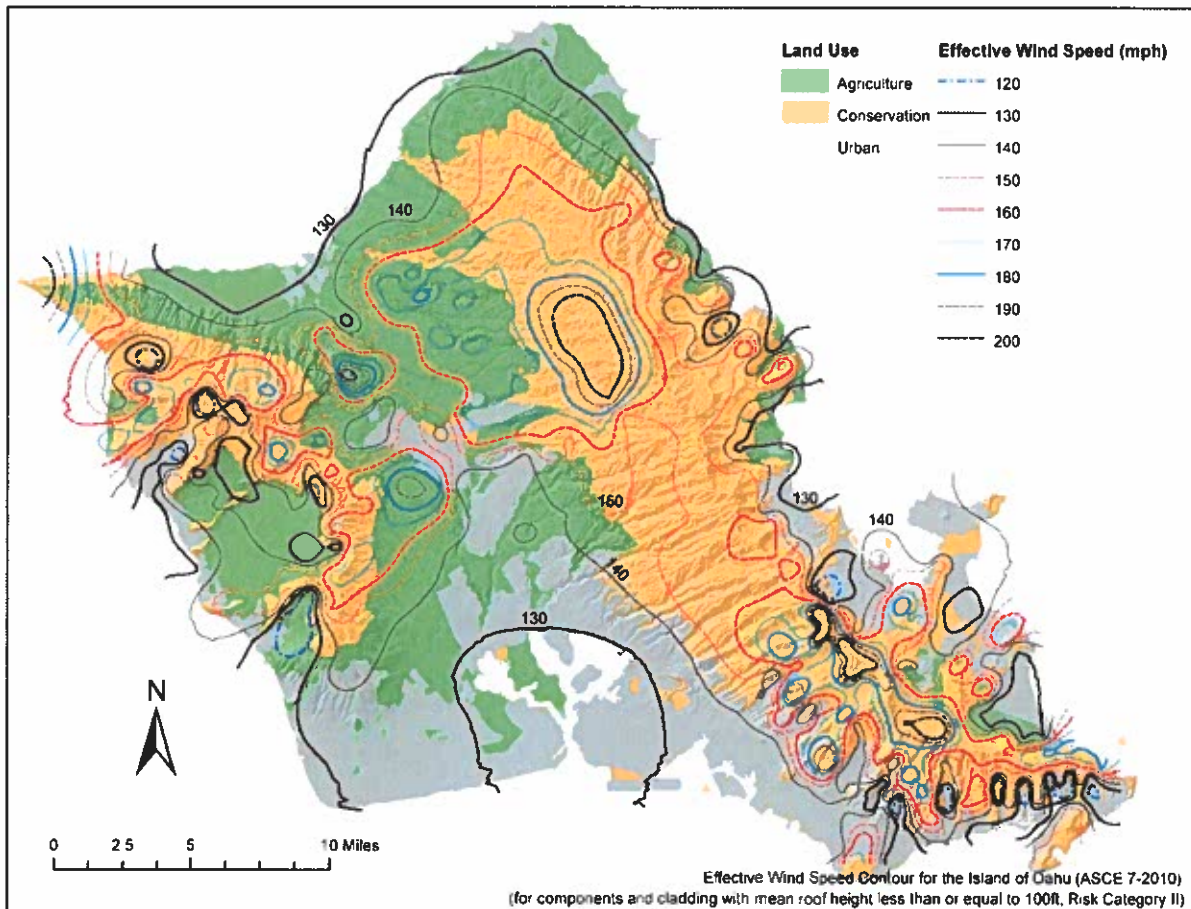


Figure R301.2 (8) Effective Ultimate Design Wind Speed (mph) V_{eff} , for Components and Cladding for buildings less than 60-foot tall



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(28) Amending Subsection R301.2.1.4. Subsection R301.2.1.4 is amended to read:

R301.2.1.4 Exposure category. The exposure category is determined from Figure R301.2 (9) or using the provisions of ASCE 7-10.

(29) Amending Figure R301.2 (9). Figure R301.2 (9) is amended to read:

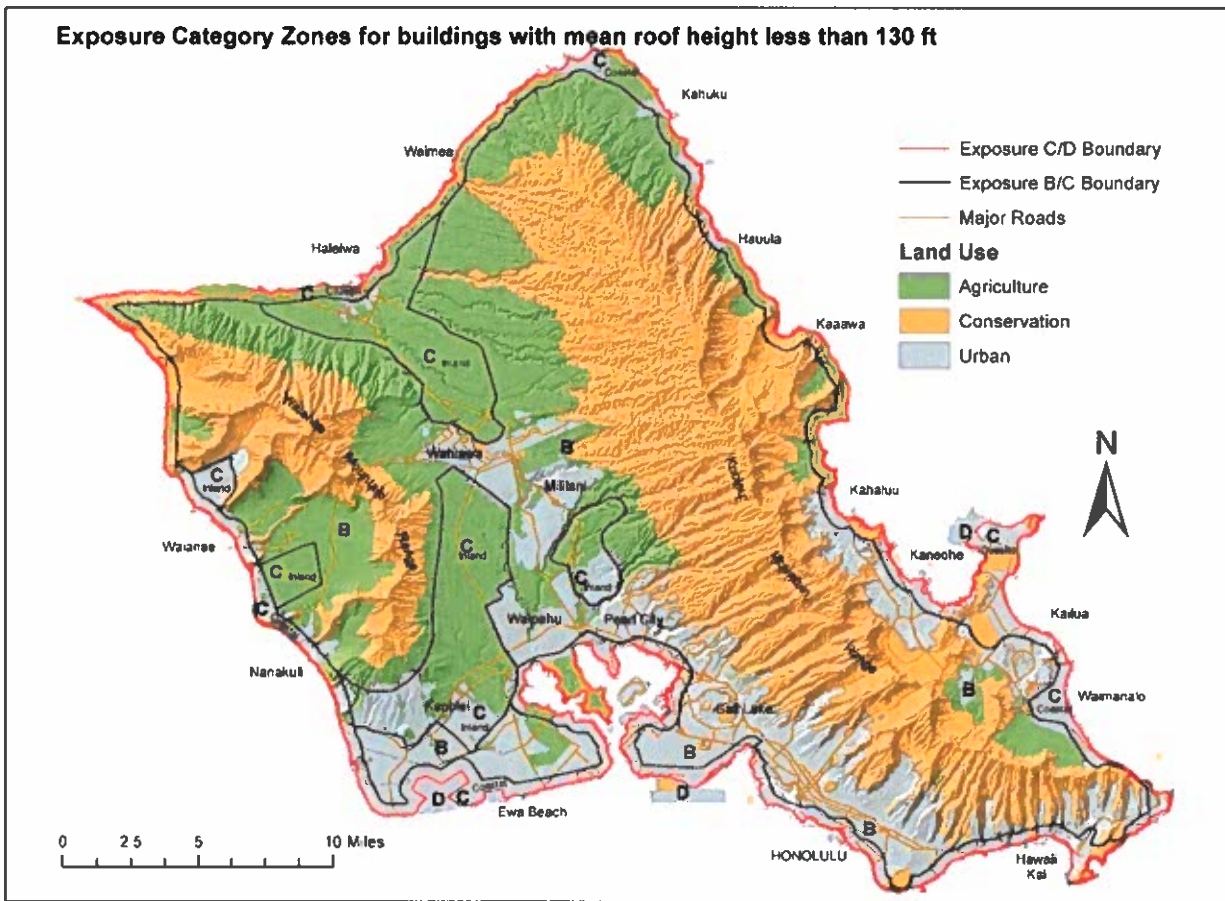


Figure R301.2 (9) Exposure Category Zones for the City and County of Honolulu



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(30) Amending Subsection R301.2.1.5. Subsection R301.2.1.5 is amended to read:

R301.2.1.5 Topographic wind effects. Topographic wind speed effects must be considered in the design of the *building*. *Buildings* designed using the effective ultimate wind speed as determined from Figure R301.2 (8) and wind exposure categories determined in accordance with Section R301.2.1.4 will be deemed to comply with this section.

(31) Amending Subsection R302.1. Subsection R302.1 is amended to read:

R302.1 Exterior walls. Construction, projections, openings, and penetrations of exterior walls of dwellings and accessory *buildings* must comply with Table R302.1(1); or dwellings equipped throughout with an automatic sprinkler system installed in accordance with Section P2904 must comply with Table R302.1(2). Dwellings equipped throughout with an automatic sprinkler system installed in accordance with Section P2904 or NFPA 13D must comply with Table R302.1(2).

(32) Amending Table R302.1(2). Table R302.1(2) is amended to read:

**TABLE R302.1(2)
EXTERIOR WALLS – DWELLINGS WITH FIRE SPRINKLERS**

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	(Fire-resistance rated)	1 hour-tested in accordance with ASTM E 119 or UL 263 with exposure from both sides	< 3 feet
	(Not fire-resistance rated)	0 hours	≥ 3 feet
Projections	(Fire-resistance rated)	1 hour on the underside	< 2 feet
	(Not fire-resistance rated)	0 hours	3 feet
Openings in walls	Not allowed	N/A	< 3 feet
	Unlimited	0 hours	3 feet
Penetrations	All	Comply with Section R317.3	< 3 feet
		None required	3 feet

For SI: 1 foot = 304.8 mm.
N/A = Not Applicable.

(33) Amending Subsection R302.3. Subsection R302.3 is amended by adding a third exception to read:

3. An *accessory dwelling unit* (ADU) is permitted to be separated from the primary *dwelling unit* with a single layer of 5/8-inch Type X gypsum



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board or the equivalent fire resistive construction on the walls and ceilings of the ADU portion.

- (34) Amending Subsection R303.1. Subsection R303.1 is amended to read:

R303.1 Natural light and ventilation. Natural light and ventilation must be as specified in the *Housing Code*.

- (35) Amending Subsection R303.3. Subsection R303.3 is amended to read:

R303.3 Bathrooms. Light and ventilation for bathrooms must be as specified in the *Housing Code*.

- (36) Amending Subsection R303.4. Subsection R303.4 is amended to read:

R303.4 Mechanical ventilation. Mechanical ventilation must be as specified in the *Housing Code*.

- (37) Amending Section R306. Section R306 is amended to read:

SECTION R306 – SANITATION

Sanitation must be as specified in the *Housing Code*.

- (38) Amending Subsection R309.2. Subsection R309.2 is amended to read:

R309.2 Carports. *Carport* floor surfaces must be of approved noncombustible materials.

Exceptions:

1. Asphalt surfaces are permitted at ground level in *carports*.
2. A *carport* on a hillside lot serving a detached single-family dwelling may have wood floor planking at least 2 inches (51 mm) in nominal thickness laid with at least ¼-inch (6.4 mm) spacing between the planks.

The area of floor used for parking of automobiles or other vehicles must be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.



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- (39) Amending Subsection R309.3. Subsection R309.3 is amended to read:

R309.3 Flood hazard areas. See ROH Chapter 16, Article 11.

- (40) Amending Subsection R310.1.1. Subsection R310.1.1 is amended by adding a second exception to read:

2. Non-safety glazed glass jalousie bladed windows may be used for emergency escape or rescue.

- (41) Amending Subsection R311.7.1. Subsection R311.7.1 is amended by adding a second exception to read:

2. Private stairways serving an occupant load of less than 5 must not be less than 30 inches (762 mm) in width.

- (42) Adding Subsection R313.2.2. Subsection R313.2.2 is added to read:

R313.2.2 R-3 Care homes. An automatic residential fire sprinkler system must be installed in one- and two-family dwellings in new care homes.

- (43) Adding Subsection R313.2.3. Subsection R313.2.3 is added to read:

R313.2.3 One- and two-family dwellings with private water systems. Where the source of water for a one- or two-family dwelling is solely from a private system, an automatic fire sprinkler system must be installed. Water supply from a tank will conform to NFPA 22 and have a capacity of a minimum of 10,000 gal. (37,854 liters).

Exception: Where approved by the *fire code official*.

- (44) Adding Subsection R313.2.4. Subsection R313.2.4 is added to read:

R313.2.4 One- and two-family dwellings location. Where a one- or two-family dwelling is located a distance between 100 feet (3048 mm) and 300 feet (91.44 m) from an approved fire apparatus road, an automatic fire sprinkler system must be installed.

Exception: Where approved by the *fire code official*.



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(45) Amending Subsection R317.3.1. Subsection R317.3.1 is amended to read:

R317.3.1 Fasteners for preservative-treated wood. Fasteners for non-borate pressure preservative and fire-retardant-treated wood must be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper. The coating weights for zinc-coated fasteners must be in accordance with ASTM A 153.

Exceptions:

1. One-half-inch (12.7 mm) diameter or greater steel bolts.
2. Fasteners other than nails and timber rivets are permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B695, Class 55 minimum.

(46) Adding Subsection R317.5. Subsection R317.5 is added to read:

R317.5 Glued laminated, engineered or composite structural members. The portions of these structural members that form the structural supports of a *building* or other structure, which are structural glued laminated members made up of dimensional lumber, engineered wood products, or structural composite lumber, must be pressure treated in accordance with AWP A U 1 (UC1 through UC4B) or by light oil solvent preservative (LOSP) treatment standard as approved by the *building official*. Water based treatment processes are not allowed to be used on these products unless specified by a structural engineer for use with reduced load values.

(47) Adding Subsection R317.6. Subsection R317.6 is added to read:

R317.6 Under-floor clearance. Minimum clearance between the bottom of floor joists or bottom of floors without joists and the ground beneath is 24 inches (610 mm); the minimum clearance between the bottom of girders and the ground is 18 inches (457 mm).

Exception: Open slat wood decks must have ground clearance of at least 6 inches (152 mm) for any wood member. For accessibility, under-floor areas must be provided with a minimum 14-inch x 24-inch (356 mm x 610 mm) access opening.



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For accessibility, under-floor areas must be provided with a minimum 18-inch (457 mm) by 24-inch (610 mm) access opening, effectively screened or covered. Pipes, ducts and other construction will not interfere with the accessibility to or within under-floor areas. See section M1305.1.4 for access requirements where mechanical equipment is located under floors.

- (48) Amending Subsection R318.1.1. Subsection R318.1.1 is amended by adding a second paragraph to read:

All lumber less than 2 inches (51 mm) in nominal thickness must be identified per bundle by means of a label consisting of the above requirements. Labels measuring no less than 6 inches by 8 inches (152 mm by 203 mm) must be placed on the lower left corner of the strapped bundle.

- (49) Adding Subsection R318.1.3. Subsection R318.1.3 is added to read:

R318.1.3 Structure protection. Where the plates, sills, and structural lumber of new wood frame *buildings* are supported directly on the ground by:

1. A concrete slab or foundation, the soil beneath the *building* must be either:
 - 1.1 Chemically treated at the maximum label rate for control of Formosan subterranean termites by a licensed pest control operator, or
 - 1.2 Basaltic Termite Barrier (BTB), stainless steel termite barrier mesh, or other termite barrier approved by the *building official*, installed according to the manufacturer's installation instructions.
2. The perimeter of the structure must be protected by either:
 - 2.1 A continuous chemical barrier applied at the maximum label rates by an operator licensed to control ground termites to the backfill in 12-inch (305 mm) lifts in a band extending at least 12 inches (305 mm) beyond the concrete; or



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- 2.2 A continuous barrier of BTB at least 4 inches (102 mm) in thickness extending at least 6 inches (152 mm) beyond the concrete slab.
- 3. A poured-in-place concrete foundation wall, the foundation wall must be protected from the adjacent soil by either:
 - 3.1 A continuous chemical barrier applied at the maximum label rates by an operator licensed to control ground termites to the backfill in 12-inch (305 mm) lifts in a band extending at least 12 inches (305 mm) beyond the concrete;
 - 3.2 A continuous barrier of BTB at least 6 inches (152 mm) in thickness extending the full height of the retained soil; or
 - 3.3 An approved stainless steel termite barrier mesh must protect all cracks and joints.
- 4. A CMU foundation wall, the foundation wall must be protected from the adjacent soil by either:
 - 4.1 A continuous barrier of BTB at least 6 inches (152 mm) in thickness extending the full height of the retained soil;
 - 4.2. An approved stainless steel termite barrier mesh between the top of the CMU and all wood framing; or
 - 4.3 A continuous cap or reinforced concrete at least 4 inches (102 mm) in thickness between the top of the CMU and all wood framing.

Exception:

When a CMU foundation wall forms a retaining wall which is part of a wood frame structure, the CMU must be protected from the soil by a full barrier of BTB or a stainless steel termite barrier.

(50) Amending Subsection R318.2. Subsection R318.2 is amended to read:

R318.2 Chemical termiticide treatment. Chemical termiticide treatment shall include soil treatment, field applied wood treatment, or both. The concentration, rate of application and method of treatment of the chemical



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termiticide must be in strict accordance with the termiticide label. Chemical treatment will be applied at the maximum label rate for control of Formosan subterranean termites by a licensed pest control operator. There must be a continuous chemical barrier applied at the maximum label rates, by an operator licensed to control ground termites, to the finished grade in a band extending at least 12 inches (305 mm) beyond the concrete.

(51) Amending Subsection R318.3. Subsection R318.3 is amended to read:

R318.3 Barriers. Approved physical barriers, such as metal or plastic sheeting or collars specifically designed for termite prevention, Basaltic Termite Barrier (BTB), stainless steel termite barrier mesh, or other termite barrier approved by the *building official*, installed according to the manufacturer's installation instructions, must be installed in manner to prevent termites from entering the structure. Shields placed on top of an exterior foundation wall are permitted to be used only if in combination with another method of protection.

(52) Amending Subsection R320.1. Subsection R320.1 is amended to read:

R320.1 Scope. Where there are four or more *dwelling units* or sleeping units in a single structure, the following provisions for Group R-3 apply:

1. For construction of *buildings* or facilities of the state and city governments, compliance with HRS 103-50, administered by the Disability and Communication Access Board, State of Hawaii.
2. Americans with Disabilities Act, administered and enforced by the U.S. Department of Justice.
3. Fair Housing Act, administered and enforced by the U.S. Department of Housing and Urban Development.
4. Other pertinent laws relating to person with disabilities will be administered and enforced by the agencies responsible for their enforcement.

Prior to the issuance of a *building* permit, the owner (or the owner's representative, professional architect, or engineer), shall submit a statement that all requirements relating to accessibility for persons with disabilities will be complied with.



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(53) Amending Subsection R322.2. Subsection R322.2 is amended to read:

R322.2 Flood hazard areas. All areas that have been determined to be located within areas of special flood hazard must be in accordance with ROH Chapter 21A.

(54) Amending Subsection R323.1. Subsection R323.1 is amended to read:

R323.1 General. This section applies to the construction of storm shelters when constructed as separate detached *buildings* or when constructed as safe rooms within *buildings* for the purpose of providing safe refuge from storms that produce high winds, such as tornados and hurricanes. In addition to other applicable requirements in this code, storm shelters must be constructed in accordance with ICC/NSSA-500 or the *Hawaii residential safe room* ordinance, ROH Chapter 16, Article 13.

(55) Adding Section R324. Section R324 is added to read:

R324 Light-transmission plastic roof structures. Awnings, patio covers, *carports* and similar structures. Roofed structures constructed of light-transmitting plastics must comply with this section.

R324.1 Specifications. Light-transmitting plastics, including thermoplastic, thermosetting or reinforced thermosetting plastic material must have a self-ignition temperature of 650°F (343°C) or greater where tested in accordance with ASTM D 1929, a smoke-development index not greater than 450 where tested in the manner intended for use in accordance with ASTM E 84 or UL 723, or a maximum average smoke density rating not greater than 75 where tested in the thickness intended to be used in accordance with ASTM D 2843 and must conform to one of the following combustibility classifications.

Class CC1: Plastic materials that have a burning extent of 1 inch (25 mm) or less where tested at a nominal thickness of 0.060 inches (1.5 mm), or in the thickness intended for use, in accordance with ASTM D 635.

Class CC2: Plastic materials that have a burning rate of 2½ inches per minute (1.06 m/s) or less where tested at a nominal thickness of 0.060 (1.5 mm), or in the thickness intended for use, in accordance with ASTM D 635.



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R324.2 Structural requirements. Light-transmitting plastic materials in their assembly must be of adequate strength and durability to withstand the loads indicated in R301.6. Technical data must be submitted to establish stresses, maximum unsupported spans and such other information for the various thicknesses and forms used as deemed necessary by the *building official*.

R324.3 Fastening. Fastening must be adequate to withstand the loads in R301. Proper allowance must be made for expansion and contraction of light-transmitting plastic materials in accordance with accepted data on the coefficient of expansion of the material and other material in conjunction with which it is employed.

R324.4 Size limitation.

1. Swimming pool structures must not exceed 5,000 square feet (465 m²) in area and must have a minimum *fire separation distance* of 10 feet (3048 mm).
2. Roof coverings over *carports*, terraces and patios must have a minimum *fire separation distance* of 6 feet (1829 mm).

(56) Adding Subsection R401.5. Subsection R401.5 is added to read:

R401.5 Post or Pier Foundations. Raised floor systems supported by post or pier foundations shall be designed in accordance with accepted engineering practice and the International *Building Code*, as amended.

(57) Adding Subsection R401.6. Subsection R401.6 is added to read:

R401.6 Concrete Strap-Type Anchors. Concrete strap-type anchors made out of cold-formed steel may not be used along the perimeter edges of a slab on grade if the steel does not have at least 1-1/2 inches of side cover or other adequate protection.

(58) Adding Subsection R401.7. Subsection R401.7 is added to read:

R401.7 Anchor Bolts at the Perimeter Edge of a Slab on Grade. Anchor bolts must be hot dipped galvanized in accordance with ASTM F2329 and have a minimum concrete side cover of 1-1/2 inches unless provisions have been made to protect the anchor bolts from corrosion.



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(59) Adding Subsection R401.8. Subsection R401.8 is added to read:

R401.8 Protection of Steel Sill Track. Residential load bearing framing members that are in direct contact with moisture from the slab on grade or from the outdoor climate must be adequately shielded with additional corrosion protection or manufactured from a material not susceptible to corrosion. The exterior face of the sill track must also be protected.

(60) Adding Subsection R401.9. Subsection R401.9 is added to read:

R401.9 ACI 318, Table 4.3.1. Amend ACI 318 Table 4.3.1 as follows:
Change the Maximum w/cm ratio for Exposure Class C1 to 0.50.

(61) Adding Subsection R408.8. Subsection R408.8 is added to read:

R408.8 Under-Floor Clearance. Minimum clearance between the bottom of floor joists or bottom of floors without joists and the ground beneath is 24 inches (610 mm); the minimum clearance between the bottom of girders and the ground is 18 inches (457 mm).

Exception: Open slat wood decks must have ground clearance of at least 6 inches (152 mm) for any wood member.

(62) Amending Subsection R602.3. Subsection R602.3 is amended to read:

R602.3 Design and construction. Exterior walls of wood-frame construction must be designed in accordance with R301.2.1. Construction must be in accordance to the provisions of this chapter or in accordance with AF&PA's NDS. Wall sheathing must be fastened directly to framing members and, when placed on the exterior side of an exterior wall, must be capable of resisting wind pressures. Wood structural panel sheathing used for exterior walls must conform to DOC PS 1, DOC PS 2, or, when manufactured in Canada, CSA 0437 or CSA 0325. All panels must be identified for grade, bond classification, and performance category by a grade mark or certificate of inspection issued by an approved agency and must conform to the requirements of Table R602.3(3). The requirements for a greater level of wind resistance must be provided whenever there are conflicts between the requirements of this chapter and the requirements of:

1. The AF&PA Wood Frame Construction Manual (WFCM);



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2. The ICC Standard for Residential Construction in High-Wind Regions (ICC 600);
3. ASCE Minimum Design Loads for *Buildings* and Other Structures (ASCE 7);
4. AISI Standard for Cold-Formed Steel Framing-Prescriptive Method For One- and Two-*Family* Dwellings (AISI S230); or
5. International Building Code, as amended.

(63) Amending Table R602.3(3). Table R602.3(3) is amended as follows:

TABLE R602.3(3)
MAXIMUM EFFECTIVE WIND SPEED (mph) (3-SECOND GUST) PERMITTED FOR
WOOD STRUCTURAL PANEL WALL SHEATHING USED TO
RESIST WIND PRESSURES ^{a,b,c}

MINIMUM NAIL		MINIMUM WOOD STRUCTURAL PANEL SPAN RATING	MINIMUM NOMINAL PANEL THICKNESS (inches)	MAXIMUM WALL STUD SPACING (inches)	PANEL NAIL SPACING		$V_{eff-asd}$ MAXIMUM EFFECTIVE NOMINAL DESIGN WIND SPEED (MPH)		
Size	Penetration (inches)				Edges (inches o.c.)	Field (inches o.c.)	Wind exposure category		
							B	C	D
6d common (2.0" x 0.133")	1.5	24/0	3/8	16	6	12	110	90	85
		24/16	7/16	16	6	12	110	100	90
8d common (2.5" x 0.131")	1.75	24/16	7/16	16	6	12	130	110	105
						6	150	125	110
				24	6	12	110	90	85
						6	110	90	85

For SI: 1 inch = 25.4 mm, 1 mile per hour = 0.447 m/s.

- a. Panel strength axis must be parallel or perpendicular to supports. Three-ply plywood sheathing with studs spaced more than 16 inches on center must be applied with panel strength axis perpendicular to supports.
- b. The table is based on wind pressures acting toward and away from *building* surfaces in accordance with Chapter 27 of ASCE 7. Lateral requirements must be in accordance with Section 2305 or 2308.
- c. Wood structural panels with span ratings of wall-16 or wall-24 are permitted as an alternative to panels with a 24/0 span rating. Plywood siding rated 16 o.c. must be used with studs spaced a maximum of 16 inches o.c.



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(64) Amending Subsection R602.10.9. Subsection R602.10.9 is amended to read:

R602.10.9 Braced wall panel support. Braced wall panel support shall be provided as follows:

1. Cantilevered floor joists complying with Section R502.3.3 are permitted to support braced wall panels.
2. Raised floor system post or pier foundations supporting braced wall panels must be designed in accordance with accepted engineering practice and the International Building Code as amended.
3. Masonry stem walls with a length of 48 inches (1,219 mm) or less supporting braced wall panels must be reinforced in accordance with Figure R602.10.9. Masonry stem walls with a length greater than 48 inches (1,219 mm) supporting braced wall panels must be constructed in accordance with Section R403.1 Methods ABW and PFH shall not be permitted to attach to masonry stem walls.
4. Concrete stem walls with a length of 48 inches (1,219 mm) or less, greater than 12 inches (305 mm) tall, and less than 6 inches (152 mm) thick must have reinforcement sized and located in accordance with Figure R602.10.9.

(65) Amending Subsection R602.10.9.1. Subsection R602.10.9.1 is amended to read:

R602.10.9.1 Braced wall panel support for Seismic Design Category D₂. In one-story *buildings* located in Seismic Design Category D₂, *braced wall panels* must be supported on continuous foundations at intervals not exceeding 50 feet (15,240 mm). In two-story *buildings* located in Seismic Design Category D₂, all *braced wall panels* must be supported on continuous foundations.

Exception: Two-story *buildings* are permitted to have interior *braced wall panels* supported on continuous foundations at intervals not exceeding 50 feet (15,240 mm) provided that:

1. The height of cripple walls does not exceed 4 feet (1219 mm).
2. First-floor *braced wall panels* are supported on doubled floor joists, continuous blocking, or floor beams.



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3. The distance between bracing lines does not exceed twice the *building width measured parallel to the braced wall line.*

(66) Adding Section R614. Section R614 is added to read:

SECTION R614 – WALLS WITHOUT STUDS

R614.1 General. For Type V-B *buildings*, single-wall construction without studs may be used in accordance with this section for repairs to *existing buildings* of single-wall construction.

One-story and the uppermost story of wood frame Type V-B *buildings* may be of single-wall construction with board thickness specified in this section, without studs, when requirements of this section are met. Floor to ceiling height must not exceed 8 feet (2,438 mm).

Any provision of this code to the contrary notwithstanding, studding of not less than 2-inches by 3-inches (51 mm by 76.2 mm) may be used on one-story *buildings* of double-wall construction.

When wood-frame dwellings are supported by posts, 2-inch by 4-inch (51 mm by 102 mm) foundation bracing must be provided.

For one-story conventional residential structures, the local practice of using foundation blocks with termite shields is acceptable in all areas except in flood hazard areas and for developments adjacent to drainage facilities as specified in ROH Section 16-11.1.

R614.2 Board for Single-Wall Construction

R614.2.1 One and One-Eighth Inch Boards. Single-wall construction with boards of 1-1/8 inch (28.6 mm) net thickness are not required to have girts.

R614.2.2 One-Inch Boards. Where single-wall construction is with boards of one-inch thickness (25.4 mm), no girt is required, provided approved stiffeners for any section of such wall are spaced not more than 10 feet (3048 mm) along the wall.

R614.2.3 Three-Fourths-Inch Boards. Single-wall construction with boards of 3/4-inch (19.1 mm) net thickness must have girts and cross partitions at least every 30 feet (9144 mm).



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R614.2.4 Approved Stiffeners. Approved stiffeners must be studs at least 2-inches by 4-inches (51 mm by 102 mm), full height window or door jambs, posts, walls or partitions at right angles to the section of wall under construction.

R614.2.5 Girts. Girts for single-wall construction must be not less than 2-inches by 6-inches (51 mm by 152 mm) belt course or other approved strengthening about mid height between the floor and ceiling on all exterior walls.

R614.2.6 Complete Load Path. Blocking, bridging, straps, approved framing anchors or mechanical fasteners must be designed and installed to provide continuous ties from the roof to the foundation system. Sheet metal clamps, ties or clips, must be formed of ASTM A153 G90 galvanized steel or other approved corrosion-resistant material of not less than 0.040-inch (1.01 mm) nominal thickness. Uplift resistance must be in accordance with Table R802.11.

- (67) Amending Subsection R903.4.1. Subsection R903.4.1 is amended to read:

R903.4.1 Secondary (emergency overflow) drains or scuppers. Where roof drains are required, secondary emergency overflow drains or scuppers must be provided where the roof perimeter construction extends above the roof in such a manner that water will be entrapped if the primary drains allow buildup for any reason. Overflow drains having the same size as the roof drains must be installed with the inlet flow line located 2 inches (51 mm) above the low point of the roof, or overflow scuppers having three times the size of the roof drains and having a minimum opening height of 4 inches (102 mm) shall be installed in the adjacent parapet walls with the inlet flow located 2 inches (51 mm) above the low point of the roof served.

- (68) Amending Chapter 11. Chapter 11 is amended to read:

CHAPTER 11 – ENERGY EFFICIENCY

Chapter 11 of the IRC is deleted in its entirety and replaced by the provisions in ROH Chapter 32.

- (69) Amending Chapter 12. Chapter 12 is amended by adding Sections M1201 and M1202 of the International Residential Code for One- and Two-Family Dwellings, 2012 Edition, and amending Subsection M1201.1 to read:



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M1201.1 Scope. The provisions of Chapters 12 through 24 regulate the mechanical installations that are permanently installed and used to control environmental conditions within *buildings*, mechanical systems, system components, equipment, and appliances specifically addressed in this code. Where an application is made for construction as described in these chapters, the owner, or the licensed design professional in responsible charge acting as the owner's agent, shall employ one or more special inspectors to provide inspections during construction on the work in these chapters. These inspections are in addition to the inspections specified in Section R109.

- (70) Amending Chapter 13. Chapter 13 is amended by adding Sections M1301 to M1308 of the International Residential Code for One- and Two-Family Dwellings, 2012 Edition, and amending Subsection M1306.3 to read:

M1306.3 Clearance to walls without studs. For walls constructed in accordance with Section R614, the minimum horizontal clearance from the burner head(s) of a top (or surface) cooking unit to combustible walls is 12 inches (305 mm), provided there is protection equivalent to 1/2-inch (12.7 mm) gypsum wallboard covered with laminated plastic on wood backing.

- (71) Amending Chapter 15. Chapter 15 is amended by adding Sections M1501 to M1507 of the International Residential Code for One- and Two-Family Dwellings, 2012 Edition, and amending Subsection M1502.6 to read:

M1502.6 Makeup Air. When a closet is designed for the installation of a clothes dryer, a minimum opening of 100 square inches (645 m²) for makeup air must be provided in the door or by other approved means.

- (72) Amending Subsection M2301.5. Subsection M2301.5 is amended to read:

M2301.5 Backflow protection. Connections from the potable water supply to solar systems shall comply with the *plumbing code*.



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(73) Amending Chapter 44. Chapter 44 is amended by amending AISI reference standard AISI S230-15, and ICC reference standard ICC 600-14 to read:

Standard reference number	Title	Referenced In code section number
AISI S230-15	Standard for Cold-formed Steel Framing-Prescriptive Method for One- and Two-Family Dwellings.....	R301.1.1, R301.2.1.1, R301.2.2.3.1 R301.2.2.3.5, R603.6, R603.9.4.1, R603.9.4.2, R611.9.2, R611.9.3, R611.10
ICC 600-14	Standard for Residential Construction in High-wind Regions.....	R301.2.1.1

SECTION 4. Article 9 of Chapter 16, Revised Ordinances of Honolulu 1990 ("Adoption of the International Existing Building Code"), is repealed.

SECTION 5. Chapter 16 ("Building Code"), Revised Ordinances of Honolulu 1990, is amended by adding a new Article 9 to read:

"Article 9. Adoption of the International Existing Building Code

16-9.1 Existing Building Code.

The 2012 edition of the International Existing Building Code as published by the International Code Council, Inc., 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001 is by reference incorporated herein and made a part hereof, subject to the following amendments.

(1) Amending Subsection 101.2. Subsection 101.2 is amended to read:

In lieu of Chapter 34 of the International Building Code, the International Existing Building Code is permitted to be used for the repair, alteration, change of occupancy, and addition to *existing buildings*.

(2) Deleting Subsections 101.4.1 and 101.4.2. Subsections 101.4.1 and 101.4.2 are deleted.

(3) Deleting Sections 103 through 117. Sections 103 through 117 are deleted.

(4) Amending Subsection 301.1.1. Subsection 301.1.1 is amended to read:

301.1.1 Prescriptive compliance method. *Repairs, alterations, additions and changes of occupancy* complying with Chapter 4 of this code are considered in compliance with the provisions of this code.



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(5) Amending Subsection 301.2. Subsection 301.2 is amended to read:

301.2 Additional codes. *Alterations, repairs, additions, and changes of occupancy* to, or relocation of, *existing buildings* and structures must comply with the provisions for *alterations, repairs, additions, changes of occupancy*, or relocation, respectively, in this code and ROH Chapter 32 Building Energy Conservation Code, ROH Chapter 20, *Fire Code* of the City and County of Honolulu, ROH Chapter 19, *Plumbing Code*, and ROH Chapter 17, *Electrical Code*. Where provisions of the other codes conflict with provisions of this code, the provisions of this code take precedence.

(6) Amending Subsection 402.5. Subsection 402.5 is amended to read:

402.5 Smoke alarms in existing portions of a building. Where an addition is made to a *building* or structure of a Group R or I-1 occupancy, the *existing building* must be provided with smoke alarms in accordance with Section 402.5.1 through 402.5.3.

402.5.1 Single- and multi-station smoke alarms. Existing Group I-1 and R occupancies must be provided with single-station smoke alarms.

Exceptions:

1. Where the code that was in effect at the time of construction required smoke alarms and smoke alarms complying with those requirements are already provided.
2. Where smoke alarms have been installed in occupancies and dwellings that were not required to have them at the time of construction, additional smoke alarms are not required, provided that the existing smoke alarms comply with requirements that were in effect at the time of installation.
3. Where smoke detectors connected to a fire alarm system have been installed as a substitute for smoke alarms.

402.5.2 Interconnection. Where more than one smoke alarm is required to be installed within an individual *dwelling or sleeping unit*, the smoke alarms must be interconnected in such a manner that the activation of one alarm activates all of the alarms in the individual unit. Physical interconnection of smoke alarms is not required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.



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The alarm must be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

Exceptions:

1. Interconnection is not required in *buildings* that are not undergoing *alterations*, repairs, or construction of any kind.
2. Smoke alarms in existing areas are not required to be interconnected where *alterations* or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space, or *basement* available that could provide access for interconnection without the removal of interior finishes.

402.5.3 Power source. Single-station smoke alarms must receive their primary power from the *building* wiring, provided that such wiring is served from a commercial source, and must be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery backup must be connected to an emergency electrical system. Smoke alarms must emit a signal when the batteries are low. Wiring must be permanent and without a disconnecting switch other than as required for overcurrent protection.

Exceptions:

1. Smoke alarms are permitted to be solely battery operated in *existing buildings* where no construction is taking place.
2. Smoke alarms are permitted to be solely battery operated in *buildings* that are not served from a commercial power source.
3. Smoke alarms are permitted to be solely battery operated in existing areas of *buildings* undergoing *alterations* or repairs that do not result in the removal of interior walls or ceiling finishes exposing the structure, unless there is an attic, crawl space, or *basement* available that could provide access for *building* wiring without the removal of interior finishes.



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(6) Amending Subsection 403.6. Subsection 403.6 is amended to read:

403.6 Smoke alarms in existing portions of a building. Where an addition is made to a *building* or structure of a Group R or I-1 occupancy, the *existing building* must be provided with smoke alarms in accordance with Section 402.5.1 to 402.5.3.

403.6.1 Single- and multi-station smoke alarms. Existing Group I-1 and R occupancies must be provided with single-station smoke alarms.

Exceptions:

1. Where the code that was in effect at the time of construction required smoke alarms and smoke alarms complying with those requirements are already provided.
2. Where smoke alarms have been installed in occupancies and dwellings that were not required to have them at the time of construction, additional smoke alarms are not required, provided that the existing smoke alarms comply with requirements that were in effect at the time of installation.
3. Where smoke detectors connected to a fire alarm system have been installed as a substitute for smoke alarms.

403.6.2 Interconnection. Where more than one smoke alarm is required to be installed within an individual *dwelling* or *sleeping unit*, the smoke alarms must be interconnected in such a manner that the activation of one alarm activates all of the alarms in the individual unit. Physical interconnection of smoke alarms is not required where listed wireless alarms are installed and all alarms sound upon activation of one alarm. The alarm must be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

Exceptions:

1. Interconnection is not required in *buildings* that are not undergoing *alterations*, repairs, or construction of any kind.
2. Smoke alarms in existing areas are not required to be interconnected where *alterations* or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure,



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unless there is an attic, crawl space, or *basement* available that could provide access for interconnection without the removal of interior finishes.

403.6.3 Power source. Single-station smoke alarms must receive their primary power from the *building* wiring, provided that such wiring is served from a commercial source, and must be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery backup must be connected to an emergency electrical system. Smoke alarms must emit a signal when the batteries are low. Wiring must be permanent and without a disconnecting switch other than as required for overcurrent protection.

Exceptions:

1. Smoke alarms are permitted to be solely battery operated in *existing buildings* where no construction is taking place.
 2. Smoke alarms are permitted to be solely battery operated in *buildings* that are not served from a commercial power source.
 3. Smoke alarms are permitted to be solely battery operated in existing areas of *buildings* undergoing *alterations* or repairs that do not result in the removal of interior walls or ceiling finishes exposing the structure, unless there is an attic, crawl space, or *basement* available that could provide access for *building* wiring without the removal of interior finishes.
- (7) Amending Subsection 609.2. Subsection 609.2 is amended by deleting the exception.
- (8) Amending Subsection 803.2.1. Subsection 803.2.1 is amended by amending Exception 1 to read:
1. Where vertical opening enclosure is not required by the International Building Code.



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- (9) Amending Subsection 803.2.3. Subsection 803.2.3 is amended by amending the exception to read:

Exception:

Where stairway enclosure is not required by the International Building Code."

SECTION 6. Section 16-14.1, Revised Ordinances of Honolulu 1990, is amended to read as follows:

"Sec. 16-14.1 Intent and scope.

The purpose of this article is to establish minimum life safety design criteria for enhanced hurricane protection areas within high occupancy state- or county-owned buildings permitted to be occupied during hurricanes of up to Saffir Simpson Category 3. This article applies to Occupancy Category III and IV buildings, as defined by ~~[ROH Section 16-1.1 (173),]~~ Table 1604.5~~[- of the following specific occupancies:~~

- ~~(1) Covered structures whose primary occupancy is public assembly with an occupant load greater than 300.~~
- ~~(2) Health care facilities with an occupant load of 50 or more resident patients, but not having surgery or emergency treatment facilities.~~
- ~~(3) Any other state or county owned building with an occupant load greater than 5,000.~~
- ~~(4) Hospitals and other health care facilities having surgery or emergency treatment facilities.~~

~~**Exception:** Facilities located within flood zone V and flood zone A that are designated by the owner to be evacuated during hurricane warnings declared by the National Weather Service, shall not be subject to these requirements]."~~



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SECTION 7. In SECTION 6 of this ordinance, ordinance material to be repealed is bracketed and stricken. When revising, compiling, or printing this ordinance for inclusion in the Revised Ordinances of Honolulu, the Revisor of Ordinances need not include the brackets or the material that has been bracketed and stricken.

SECTION 8. This ordinance takes effect 90 calendar days after its approval.

INTRODUCED BY:

Ikaika Anderson (br)

DATE OF INTRODUCTION:

September 3, 2019
Honolulu, Hawaii

Councilmembers

APPROVED AS TO FORM AND LEGALITY:

Molly A. Stebbins
Deputy Corporation Counsel **MOLLY A. STEBBINS**

APPROVED this _____ day of _____, 20____.

Kirk Caldwell, Mayor
City and County of Honolulu

CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII
CERTIFICATE

ORDINANCE 20-7

BILL 50 (2019), CD2

Introduced: 09/03/19 By: IKAIKA ANDERSON – BY REQUEST Committee: ZONING, PLANNING AND HOUSING


Title: A BILL FOR AN ORDINANCE TO AMEND CHAPTER 16 OF THE REVISED ORDINANCES OF HONOLULU 1990, AS AMENDED, RELATING TO THE BUILDING CODE.

Voting Legend: * = Aye w/Reservations

10/09/19	COUNCIL	BILL PASSED FIRST READING AND REFERRED TO COMMITTEE ON ZONING, PLANNING AND HOUSING. 9 AYES: ANDERSON, ELEFANTE, FUKUNAGA, KOBAYASHI, MANAHAN, MENOR, PINE, TSUNEYOSHI, WATERS.
10/24/19	ZONING, PLANNING AND HOUSING	CR-333 – BILL REPORTED OUT OF COMMITTEE FOR PASSAGE ON SECOND READING AND SCHEDULING OF A PUBLIC HEARING AS AMENDED IN CD1 FORM. 3 AYES: ELEFANTE, KOBAYASHI, MENOR. 2 EXCUSED: MANAHAN, WATERS.
10/26/19	PUBLISH	PUBLIC HEARING NOTICE PUBLISHED IN THE HONOLULU STAR-ADVERTISER.
11/06/19	COUNCIL/PUBLIC HEARING	CR-333 ADOPTED. BILL PASSED SECOND READING AS AMENDED, PUBLIC HEARING CLOSED AND REFERRED TO COMMITTEE ON ZONING, PLANNING AND HOUSING. 7 AYES: ELEFANTE, FUKUNAGA, KOBAYASHI, MANAHAN, MENOR, PINE, WATERS. 2 ABSENT: ANDERSON, TSUNEYOSHI.
11/09/19	PUBLISH	SECOND READING NOTICE PUBLISHED IN THE HONOLULU STAR-ADVERTISER.
04/23/20	ZONING, PLANNING AND HOUSING	CR-108(20) – BILL REPORTED OUT OF COMMITTEE FOR PASSAGE ON THIRD READING AS AMENDED IN CD2 FORM. 5 AYES: ELEFANTE, KOBAYASHI, MANAHAN, MENOR, WATERS.
05/06/20	COUNCIL	CR-108(20) ADOPTED AND BILL 50 (2019), CD2 PASSED THIRD READING AS AMENDED. 9 AYES: ANDERSON, ELEFANTE, FUKUNAGA, KOBAYASHI, MANAHAN, MENOR, PINE, TSUNEYOSHI, WATERS.

I hereby certify that the above is a true record of action by the Council of the City and County of Honolulu on this BILL.


GLEN I. TAKAHASHI, CITY CLERK


IKAIKA ANDERSON, CHAIR AND PRESIDING OFFICER

ORDINANCE NO. 20-7


CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII

CERTIFICATE

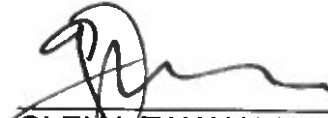
I hereby certify that on May 6, 2020, Bill 50 (2019), CD2 was presented to the Honorable Kirk Caldwell, Mayor of the City and County of Honolulu, for his approval or otherwise; and that on May 20, 2020, the Mayor returned said Bill without his signature; therefore, pursuant to Section 3-203 of the Revised Charter of Honolulu, said Bill 50 (2019), CD2 became a duly enacted ordinance on May 20, 2020.

Dated, Honolulu, State of Hawaii, this 20th day of May 2020.

CITY COUNCIL

By 
IKAIKA ANDERSON
Chair and Presiding Officer

ATTEST:


GLENI TAKAHASHI
City Clerk