



**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 amend the city Building Code (Chapter 16, Revised Ordinances of Honolulu 1990), by adopting the 2003 editions of the International Building Code and International Residential Code for One- and Two-Family Dwellings with local amendments, and by amending city building code provisions governing relocation of buildings, factory-built housing, and termite-infested lumber, respectively.

SECTION 2. Chapter 16, Article 1 ("Adoption of the Uniform Building Code"), Revised Ordinances of Honolulu 1990, is repealed.

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

**"Article 1. Adoption of the International Building Code and International Residential Code for One- and Two-Family Dwellings.**

**Sec. 16-1.1 International Building Code.**

The 2003 edition of the International Building Code is by reference incorporated herein and made a part hereof, subject to the following amendments.

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

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

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

**101.2 Scope.** The provisions of this code shall 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, mechanical equipment not specifically regulated in this code, and hydraulic flood control structures.



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## A BILL FOR AN ORDINANCE

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### 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 shall be permitted to comply with the International Residential Code.
2. Existing buildings undergoing repair, alterations or additions and change of occupancy shall be permitted to comply with the International Existing Building Code.
- (3) Deleting Section 101.4. Section 101.4 is deleted.
- (4) Amending Section 102.4. Section 102.4 is amended by adding the following exception:

**EXCEPTION:** Whenever in this code reference is made to the International Mechanical Code and International Fuel Gas Code, the provisions of the International Mechanical Code and International Fuel Gas Code shall be deemed guidelines and not mandatory.

- (5) Amending Section 102.6. Section 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.
- (6) Amending Section 103. Section 103 is amended to read:

### SECTION 103 – ORGANIZATION AND ENFORCEMENT

**103.1 Creation of Enforcement Agency.** There is hereby established in this jurisdiction a code enforcement agency that shall be under the administrative and operational control of the building official.



**A BILL FOR AN ORDINANCE**

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

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

- (7) Amending Section 105. Section 105 is amended to read:

**SECTION 105 – PERMITS**

A building permit is required to perform work covered by this code as provided in ROH Chapter 18.

- (8) Deleting Section 106. Section 106 is deleted.
- (9) Deleting Section 107. Section 107 is deleted.
- (10) Deleting Section 108. Section 108 is deleted.
- (11) Amending Section 109. Section 109 is amended to read:

**SECTION 109 – INSPECTIONS AND LOT SURVEY**

**109.1 General.** All construction or work for which a permit is required shall be subject to inspection by the building official. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of any other ordinance. Inspections presuming to give authority to violate or cancel the provisions of this code or of any other ordinances shall not be valid.

It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes. Neither the building official nor the city shall be liable for any expense entailed in the removal or replacement of any material required to allow inspection.



A BILL FOR AN ORDINANCE

A survey of the lot may be required by the building official to verify that the structure is located in accordance with the approved plans.

**109.2 Inspection Requests.** It shall be the duty of the person doing the work authorized by a permit to notify the building official that the work is ready for inspection. The building official may require that every request for inspection be filed at least one working day before the day for which inspection is requested. The request may be in writing or by telephone.

It shall be the duty of the person requesting any inspections required by this code to provide access to and means for proper inspection of such work.

**109.3 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 shall notify the permit holder or the permit holder's agent if the same fails to comply with this code:

**109.3.1 Lath and/or Gypsum Board Inspection:** To be made after all lathing and gypsum board, interior and exterior, in construction required to be fire-resistive is in place but before any plastering is applied or before gypsum board joints and fasteners are taped and finished.

**EXCEPTION:** Lath and gypsum board installed in Group R, Division 3, and Group U Occupancies.

**109.3.2 Final Inspection:** To be made after all construction is completed and prior to occupancy.

**109.4 Special Inspections.** For special inspections, see Sections 912, 1704 and 1707.

- (12) Amending Section 110.1. Section 110.1 is amended by adding two exceptions immediately thereafter to read:

**EXCEPTIONS:**



**A BILL FOR AN ORDINANCE**

1. For R-3 Occupancies, see International Residential Code Section 110.1.
2. Group U Occupancies.

(13) Amending Section 112. Section 112 is amended to read:

**Section 112 – BOARD OF APPEALS**

**112.1 Creation.** There shall be and is hereby created a board of appeals consisting of nine members who shall be qualified by experience and training to pass upon matters pertaining to building construction and fire safety and who shall be appointed by the mayor with the approval of the council. Four members shall 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 shall be qualified by experience and training to pass on matters pertaining to electrical work. One member shall be qualified by experience and training to pass on matters pertaining to plumbing work. Two members shall be qualified by experience and training to pass on matters pertaining to fire safety. One member shall be a general contractor licensed under HRS Chapter 444. The members of the board shall 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.

**112.2 Board Action.** All board action requires an affirmative vote of five or more board members.

**112.3 Power and Duties.** The board shall:

**112.3.1** Hear and determine appeals from the decisions of the building official in the administration of the Building Code, Electrical Code, Plumbing Code, Housing Code, Building Energy Efficiency Standards, and ROH Chapter 18, including, but not limited to, matters involving any approval or denial of the use of new or alternate materials, types of construction, equipment, devices or appliances, administrative



## A BILL FOR AN ORDINANCE

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enforcement, and 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 shall pay all expenses necessary for tests that may be ordered by the board.

The board may reverse, affirm or modify, in whole or in part, the decision appealed from.

**112.3.2** 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 criteria for the use of new or alternate materials, types of construction, equipment, devices or appliance shall be the same as for Section 112.3.1.

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



**A BILL FOR AN ORDINANCE**

**112.3.4** Hear and determine appeals from the decisions of the building official in the administrative enforcement of ROH Chapter 29, Article 4.

**112.3.5** 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.

**112.4 Compensation.** Each member of the board shall be compensated at the rate of \$20 per day for each day's actual attendance at a meeting, but such compensation shall not exceed, in the aggregate, \$60 in any one month.

**112.5 Procedure.** The proceedings of the board shall be 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.

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

**SECTION 113 – VIOLATIONS AND PENALTIES**

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

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

See ROH Section 18-7.5.

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

**SECTION 115 – UNSAFE BUILDINGS**

**115.1 General.** All buildings or structures which are structurally unsafe or not provided with adequate egress, or which 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



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## A BILL FOR AN ORDINANCE

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are, for the purpose of this section, unsafe buildings. All such unsafe buildings or structures are hereby declared to be public nuisances and shall be abated by repair, rehabilitation, demolition, removal, or other methods approved by the building official in accordance with the procedure specified in Sections 115.2, 115.3, and 115.4.

**115.2 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 written notice 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 improvements or demolition and removal of the building or structure or portions thereof, and all such work shall be completed within 90 days from the date of notice, unless otherwise required by the building official. If necessary, such notice 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 shall be by personal service, registered mail or certified mail upon the owner of record, provided that if such notice is by registered mail, 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 such notice.

**115.3 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 shall remain posted until the required repairs, demolition or removal is completed. Such notice shall not be removed without written permission of the building official, and no person shall enter the building except for the purpose of making the required repairs or of demolishing the building.

In the event of a major disaster, the building official may post "RESTRICTED USE" or "UNSAFE" placards at each entrance to a building or portion of a building if an inspection warrants such posting.



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## A BILL FOR AN ORDINANCE

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Entry or occupancy in a building or portion of a building posted with a "RESTRICTED USE" placard shall be limited to the restrictions stated on the placard. No entry is permitted in a building or portion of a building posted with an "UNSAFE" placard. Placards shall not be removed or altered unless authorized by the building official.

**115.4 Action Upon Noncompliance.** In case the owner shall fail, neglect or refuse to comply with the notice to repair, rehabilitate or to demolish and remove said building or structure or portions thereof, the building official may order the owner of the building prosecuted as a violator of the provisions of this code.

Nothing contained herein shall be construed to limit or restrict the building official from instituting, on behalf of the city, any other legal or equitable proceedings, in addition to those specified herein, to repair, rehabilitate or to demolish and remove the building or structure or portion thereof, and to recover the cost of such work from the owner or attach a lien to the property.

The structure determined to be unsafe by the building official is permitted to be restored to a safe condition. 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 shall comply with the requirements of this code and ROH Chapter 18, Article 3.

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

a. By amending the definition of "BUILDING" to read:

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



A BILL FOR AN ORDINANCE

- b. By adding the following definition immediately before the definition of "BUILDING, ENCLOSED":

**BUILDING ENERGY EFFICIENCY STANDARDS** shall mean ROH Chapter 32.

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

**BUILDING OFFICIAL** shall mean the director of planning and permitting of the city or the director's authorized representative.

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

**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.

A private garage which 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.

- e. By adding the following definition immediately before the definition of "CLADDING":

**CITY** shall mean the City and County of Honolulu.

- f. 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 not more than ten persons.

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

**ELECTRICAL CODE** shall mean ROH Chapter 17.



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A BILL FOR AN ORDINANCE

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- h. By amending the definition of "EXISTING STRUCTURE" to read:

**EXISTING STRUCTURE.** 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.

- i. By adding the following definition immediately before the definition of "FIBERBOARD":

**FAMILY** shall be as defined in the Land Use Ordinance, except that the number of residents in an adult residential care home, a special treatment facility, or other similar facility licensed or certified by the State of Hawaii shall be limited to six persons in order for the residents of the facility to be considered a family under this code.

- j. By adding the following definition immediately before the definition of "FIRE COMMAND CENTER":

**FIRE CODE** shall mean ROH Chapter 20.

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

**HOUSING CODE** shall mean ROH Chapter 27.

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

**LAND USE ORDINANCE** shall mean ROH Chapter 21.

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

**PLUMBING CODE** shall mean ROH Chapter 19.

- n. By adding the following definition immediately before the definition of "TOXIC":

**TOWNHOUSE.** A townhouse is a single-family dwelling unit constructed in a group of three or more attached units in which each unit



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A BILL FOR AN ORDINANCE

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extends from the foundation to roof and with open space on at least two sides.

- (18) Adding Section 303.2. A new Section 303.2 is added to read:

**303.2 Light and Ventilation.** Light and ventilation shall be in accordance with Chapter 12 of the 2003 edition of the International Building Code.

- (19) Adding Section 303.2.1. A new Section 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 shall be at least twice the number available to males who are not employed in that building or portion.

This section shall 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 shall exceed \$500,000.

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

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

- (20) Amending Section 307.9. Section 307.9 is amended by deleting the word "International."

- (21) Adding to Section 402.2.

- a. By adding the following definitions immediately before the definition of "COVERED MALL BUILDING":

**CONSUMER FIREWORKS STORAGE BUILDING.** A building in which finished consumer fireworks are received, stored, and shipped but in which no manufacturing is performed.



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A BILL FOR AN ORDINANCE

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**CONSUMER FIRE WORKS WORK BUILDING, ROOM, OR AREA.** A building, room, or area where finished consumer fireworks are picked and packaged into retail packages, including assortments and those picked and packed into DOT-approved packaging, and where related operations are performed.

- b. By adding the following definition immediately after the definition of "COVERED MALL BUILDING":

**DOT-APPROVED PACKAGING.** Packaging for fireworks complying with the regulations of the U.S. Department of Transportation (DOT), Title 49, Part 178.

- (22) Adding Section 402.16. A new Section 402.16 is added to read:

**402.16 Fire Alarm Systems.** Fire alarm systems shall comply with the Fire Code.

- (23) Amending Section 403.6. Section 403.6 is amended to read:

**403.6 Fire Alarm and Communications System.** The fire alarm and communications systems shall comply with the Fire Code and be approved by the fire chief.

- (24) Amending Section 403.7. Section 403.7 is amended to read:

**403.7 Fire Department Communications System.** The fire department communications system shall comply with the Fire Code and be approved by the fire chief.

- (25) Amending Section 403.8. Section 403.8 is amended to read:

**403.8 Fire Command Station.** Fire command station shall comply with the Fire Code and be approved by the fire chief.

- (26) Deleting Section 403.9. Section 403.9 is deleted.

- (27) Amending 403.10. Section 403.10 is amended to read:



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## A BILL FOR AN ORDINANCE

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**403.10 Standby and Emergency Power and Light Systems.** A permanently installed standby power-generator set conforming to the Electrical Code shall be provided. If the set is located inside a building, the set shall be located in a separate room enclosed with 2-hour fire-resistance-rated fire barrier assemblies. The set shall be equipped with suitable means for automatically starting the generator set upon failure of the normal electrical supply systems and for automatic transfer and operation of all the required electrical functions at full power within 30 seconds of such normal service failure. An on-premises fuel supply sufficient for not less than 8 hours of full demand operation of the set shall be provided. Should the standby unit become inoperable at any time due to breakdown of equipment and cannot be repaired immediately, a portable emergency power unit shall be installed to take its place until the equipment is repaired and in operable condition.

The building official may approve other reliable sources of energy to power the standby power-generation set.

All power, lighting, and signal facilities provided under the requirements of this section shall be transferable to the standby and emergency power system. The power requirement shall be determined so as to provide service to the following:

1. Fire alarm systems.
2. Exit and other emergency lighting.
3. Fire protection equipment.
4. Mechanical ventilation required by this section.
5. Elevator lighting and elevator designated for fire service as required by the State elevator code.
6. Electrically-operated exit locks.
7. Power and lighting for central control station.
8. Ventilation and automatic fire detection equipment for smoke-proof enclosures.



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A BILL FOR AN ORDINANCE

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9. Fire Department communication system.

The standby power to the fire pump may also be connected to the domestic water pump. In the event the sprinkler system is activated, the power shall be automatically transferred to service the fire pump if needed.

The standby power-generator set shall be tested regularly as required by the fire chief.

(28) Deleting Section 403.11. Section 403.11 is deleted.

(29) Amending Section 403.12. Section 403.12.1 is deleted and Section 403.12 is amended to read:

**403.12 Stairway Door Operation.** All stairway doors that are locked to prevent entry from the stairway side shall be automatically unlocked without unlatching upon actuation of the fire alarm system or in the event of power failure. Manual override of the automatic system shall be provided from the fire control station.

(30) Amending Section 404.2. Section 404.2 is amended by deleting the word "International."

(31) Amending Section 405.6. Section 405.6 is amended to read:

**405.6 Fire Alarm Systems.** Fire alarm systems shall comply with the Fire Code.

(32) Amending Section 406.1.3. Section 406.1.3 is amended to read:

**406.1.3 Garages and Carports.** Carport floor surfaces shall be of approved noncombustible material.

**EXCEPTION:** Asphalt surfaces shall be permitted at ground level in carports.



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A BILL FOR AN ORDINANCE

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The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

- (33) Amending Section 406.1.4. Subdivision 3 in Section 406.1.4 is amended to read:

3. An occupancy separation need not be provided between a Group R, Division 3, Occupancy and a carport having no enclosed uses above or below.

- (34) Amending Section 406.2.2. Section 406.2.2 is amended by deleting the last sentence.

- (35) Amending Section 406.2.4. Section 406.2.4 is amended by deleting the last sentence and replacing it with:

With barriers not less than 2 feet (607 mm) high shall be placed at the ends of drive lanes and at the end of parking spaces in openings located in exterior walls where the difference in the adjacent floor elevation is greater than 1 foot (305 mm).

- (36) Amending Section 406.4.2. Section 406.4.2 is amended to read:

**406.4.2 Ventilation.** A mechanical ventilation system shall be provided as specified in Chapter 39, Title 11, Administrative Rules of the Department of Health, State of Hawaii.

- (37) Amending Section 406.5.1. Section 406.5.1 is amended by deleting the word "International."

- (38) Amending Section 406.6.1. Section 406.6.1 is amended by deleting the word "International."

- (39) Amending Section 406.6.3. Section 406.6.3 is amended to read:

**406.6.3 Ventilation.** A mechanical ventilation system shall be provided as specified in Chapter 39, Title 11, Administrative Rules of the Department of Health, State of Hawaii.



A BILL FOR AN ORDINANCE

- (40) Amending Section 409.3. Delete Sections 409.3.1.1 and 409.3.1.2 and amend Section 409.3 to read:

**409.3 Projection Room and Equipment Ventilation.** Ventilation shall be provided as specified in Chapter 39, Title 11, Administrative Rules of the Department of Health, State of Hawaii.

- (41) Amending Section 410.3.6. Section 410.3.6 is amended by deleting the word "International" in the first and second sentence.

- (42) Amending Section 410.4. Section 410.4 is amended by amending the third sentence to read:

When the space beneath a raised platform is used for storage or any purpose other than equipment wiring or plumbing, the floor construction shall be not less than one-hour fire-resistive construction or of heavy timber floor construction.

- (43) Amending Section 411.1. Section 411.1 is amended by deleting the word "International."

- (44) Amending Section 411.2. Section 411.2 is amended to read:

**411.2 Special Amusement Building.** A special amusement building is a building or portion thereof in which the means of egress are not apparent due to theatrical distractions, or are disguised or not readily available. A portable special amusement building structure is an amusement building that is used on a short-term basis at each location. A temporary special amusement building is an amusement building used for a period of six weeks or less in any given 12-month period.

- (45) Amending Section 412.4.1. Section 412.4.1 is amended by deleting the word "International."

- (46) Amending Section 412.4.6. Section 412.4.6 is amended to read:

**412.4.6 Ventilation.** Aircraft paint hangers ventilation shall be provided as specified in Title 11, Administrative Rules of the Department of Health, State of Hawaii.



A BILL FOR AN ORDINANCE

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- (47) Amending Section 413.1. Section 413.1 is amended by deleting the word "International."
- (48) Amending Section 414.1.1. Section 414.1.1 is amended by deleting the word "International."
- (49) Amending Section 414.1.2. The second sentence in Section 414.1.2 is amended to read:

Individual material requirements are also found in Sections 307 and 415 and in the Fire Code.

- (50) Amending the first sentence in Section 414.1.2.1. The first sentence in Section 414.1.2.1 is amended by deleting the word "International" from the sentence.
- (51) Amending the second sentence in Section 414.1.2.1. The second sentence in Section 414.1.2.1 is amended to read:

Individual material requirements are also found in Sections 307 and 415 and in the Fire Code.

- (52) Amending Section 414.2.4. Section 414.2.4 is amended by deleting the word "International."
- (53) Amending Section 414.3. Section 414.3 is amended to read:

**414.3 Ventilation.** Rooms, areas or spaces of Group H occupancy in which explosive, corrosive, combustible, flammable or highly toxic dusts, mists, fumes, vapors or gases are or may be emitted due to the processing, use, handling or storage of materials shall be mechanically ventilated as required by the Fire Code and as specified in Title 11, Administrative Rules of the Department of Health, State of Hawaii.

Ducts conveying explosives or flammable vapors, fumes or dusts shall extend directly to the exterior of the building without entering other spaces. Exhaust ducts shall not extend into or through ducts and plenums.



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A BILL FOR AN ORDINANCE

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**EXCEPTION:** Ducts conveying vapor or fumes having flammable constituents less than 25 percent of their lower flammability limit may pass through other spaces.

Emissions generated at work stations shall be confined to the area in which they are generated as specified in the Fire Code.

Exhaust air contaminated by highly toxic material shall be treated in accordance with the Fire Code.

A manual shutoff control for ventilation equipment required by this section shall be provided outside the room adjacent to the principal access door to the room. The switch shall be of the break-glass type and shall be labeled: VENTILATION SYSTEM EMERGENCY SHUTOFF.

- (54) Amending Section 414.5. Section 414.5 is amended by deleting the word "International."
- (55) Amending Section 414.5.1. Section 414.5.1 is amended by deleting the word "International."
- (56) Amending Section 414.5.2. Section 414.5.2 is amended by deleting the word "International."
- (57) Amending Section 414.5.4. Section 414.5.4 is amended by deleting the words "ICC" and "International."
- (58) Amending Section 414.5.5. Section 414.5.5 is amended by deleting the word "International."
- (59) Amending Section 414.6. Section 414.6 is amended by deleting the word "International."
- (60) Amending Table 414.2.4. Table 414.2.4 is amended by deleting the word "International."
- (61) Amending Table 414.5.1. Table 414.5.1 is amended by deleting the word "International."



A BILL FOR AN ORDINANCE

- (62) Amending Section 415.1. Section 415.1 is amended by deleting the word "International."
- (63) Amending Section 415.3. Section 415.3 is amended by deleting the word "International."
- (64) Amending Section 415.3.1. Section 415.3.1 is amended by adding a fifth exception immediately following the fourth exception and to read as follows:

5. Group H-3. Occupancies containing consumer fireworks, 1.4G (Class C Common) shall conform to Table 415.5.3.

- (65) Amending Table 415.3.1. Table 415.3.1 is amended by deleting the word "International."
- (66) Adding Section 415.5.3. Section 415.5.3 is added to read:

**Section 415.5.3 Consumer Fireworks, 1.4G (Class C Common).** The requirements for commercial fireworks occupancies shall apply to the storage buildings or areas and the work buildings, rooms, or areas.

**EXCEPTIONS:**

- 1. Temporary storage in a room with one-hour fire-resistance-rated separation or a room equipped with an automatic sprinkler system is exempt from the provisions of Sections 415.3.1 and 903.2.4.1. The automatic sprinkler system shall meet the requirements of NFPA 13, Ordinary Hazard Group 2. The time period for storage shall not exceed 120 days in a 12-month period.
- 2. Detached storage less than 1,000 square feet is exempt from the provisions of Sections 415.3.1, 415.5.3.4, and 903.2.4.1. The provisions of Section 415.3.2 are not applicable and wall and opening protection shall be in accordance with Tables 602 and 704.8.
- 3. Buildings or facilities where the net weight of the consumer fireworks stored does not exceed 125 lb., or 250 lb., where



**A BILL FOR AN ORDINANCE**

the building is protected throughout with an automatic sprinkler system installed in accordance with NFPA 13.

**Section 415.5.3.1 Security.** Exterior door and window openings in fireworks storage buildings shall be equipped with a means for locking.

**Section 415.5.3.2 Prohibited Use.** Consumer fireworks storage buildings shall not be used for residential occupancies and shall not be located in residential areas.

**Section 415.5.3.3 Mixed Use.** Where consumer fireworks storage is located in buildings containing other occupancies, the consumer fireworks storage area shall be separated from the other occupancies by fire barriers having a fire resistance rating of not less than 2 hours. Penetrations of the fire barrier shall be protected in accordance with Section 712. Door and window openings in the fire barrier wall shall have a fire assembly rating of not less than 1 hour complying with the requirements of Section 715.

**Section 415.5.3.4 Separation Distances.** Consumer fireworks storage or work buildings shall be separated from adjacent permanent buildings and structures in accordance with Table 415.5.3.

**TABLE 415.5.3  
SEPARATION DISTANCE FOR CONSUMER  
FIREWORKS STORAGE OR WORK BUILDINGS**

Separation Distances Ft	Exterior Wall Fire Resistance Rating (hr)	Exterior Wall Openings Protection Rating (hr)
<5	3	3
≥ 5 to < 10	2	1 ½
≥ 10 to < 60	1	¾
≥ 60	0	0

**Section 415.5.3.5 Other Separation Distances.** Consumer storage and work buildings shall not be located within 50 ft. of the following:



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A BILL FOR AN ORDINANCE

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1. Motor vehicle fuel-dispensing station dispensers.
2. Retail propane-dispensing station dispenser.
3. Compressed natural gas dispensing facilities.
4. Above-ground storage tanks for flammable liquefied gas.

Or within 300 ft of any above-ground bulk storage or bulk dispensing area for the following:

1. Flammable or combustible liquid.
2. Flammable gas.
3. Flammable liquefied gas.

- (67) Amending Section 415.7. Section 415.7 is amended by deleting the word "International."
- (68) Amending Section 415.7.1. Section 415.7.1 is amended by deleting the word "International."
- (69) Amending Section 415.7.1.4. Section 415.7.1.4 is amended to read:

**415.7.1.4 Explosion Control.** Explosion control shall be provided as specified in the Fire Code.

- (70) Amending Section 415.7.2. The first sentence of Section 415.7.2 is amended to read:

The storage, handling, processing and transporting of flammable and combustible liquids shall be in accordance with the International Mechanical Code and the Fire Code.

- (71) Amending Section 415.7.2.3. Section 415.7.2.3 is amended by deleting the word "International."
- (72) Amending Section 415.7.2.5. Section 415.7.2.5 is amended by deleting the word "International."



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A BILL FOR AN ORDINANCE

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(73) Amending Section 415.7.2.7. Section 415.7.2.7 is amended by deleting the word "International."

(74) Amending Section 415.7.2.8. The second sentence in Section 415.7.2.8 is amended to read:

The mechanical ventilation system shall be as required by the Fire Code and as specified in Title 11, Administrative Rules of the Department of Health, State of Hawaii.

(75) Amending Section 415.7.2.9. Section 415.7.2.9 is amended by deleting the word "International."

(76) Amending Section 415.7.3. Section 415.7.3 is amended to read:

**415.7.3 Liquefied Petroleum Gas Distribution Facilities.** The design and construction of propane, butane, propylene, butylenes and other liquefied petroleum gas distribution facilities shall conform to the applicable provisions of Sections 415.7.3.1 through 415.7.3.5.2. The storage and handling of liquefied petroleum gas systems shall conform to the Fire Code. Liquefied petroleum gas distribution facilities shall be ventilated in accordance with Section 415.7.3.1 and Title 11, Administrative Rules of the Department of Health, State of Hawaii.

(77) Amending Section 415.7.3.3.3. Section 415.7.3.3.3 is amended by deleting the word "International."

(78) Amending Section 415.7.3.5. Section 415.7.3.5 is amended by deleting the word "International."

(79) Amending Section 415.7.4. Section 415.7.4 is amended to read:

**415.7.4 Dry Cleaning Plants.** The construction and installation of dry cleaning plants shall be in accordance with the requirements of this code, the International Mechanical Code, the Plumbing Code, and NFPA 32. Dry cleaning solvents and systems shall be classified in accordance with the Fire Code.



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A BILL FOR AN ORDINANCE

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- (80) Amending Section 415.8. Section 415.8 is amended by deleting the word "International."
- (81) Amending Section 415.9.1. Section 415.9.1 is amended by deleting the word "International."
- (82) Amending Section 415.9.2.7. Section 415.9.2.7 is amended by deleting the word "International."
- (83) Amending Section 415.9.2.8. Section 415.9.2.8 is amended by deleting the acronym "ICC."
- (84) Amending Section 415.9.5.1. Section 415.9.5.1 is amended by deleting the word "International."
- (85) Amending Section 415.9.7.2. Section 415.9.7.2 is amended by deleting the word "International."
- (86) Amending Section 416.1. Section 416.1 is amended by deleting the word "International."
- (87) Adding Section 419. A new Section 419 is added to read:

**SECTION 419 – COOKING UNIT CLEARANCE**

**419.1 Minimum Vertical Clearance.** There shall be a minimum vertical clearance of not less than 30 inches between the cooking top of domestic oil, gas, and electric ranges and the underside of unprotected combustible material above such ranges. When the underside of such combustible material is protected with insulating millboard at least ¼-inch (6.4 mm) thick covered with sheet metal of not less than 0.021-inch thick (No. 28 U.S. gage) or a metal ventilating hood, the distance shall be not less than 24 inches (610 mm).

**419.2 Minimum Horizontal Clearance.** The minimum horizontal clearance from the burner heads(s) of a top (or surface) cooking unit to combustible walls extending above the cooking surface shall be not less than 12 inches (305 mm).



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**A BILL FOR AN ORDINANCE**

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**EXCEPTION:** Walls of combustible materials may be installed within 12 inches (305 mm) of a cooking unit, provided there is protection equivalent to ½-inch (12.7 mm) gypsum wallboard covered with laminated plastic on wood backing.

**419.3 Surface Finish.** Where alternate materials other than as specified in Section 419.1 and the exception to Section 419.2 are used as approved by the building official, the surface of such material shall have a smooth, nonabsorbent finish.

(88) Adding Section 420. A new Section 420 is added to read:

**SECTION 420 – FENCES**

**420.1 General.** Fences shall 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 in height will be subject to the approval of the fire department as to access.

**420.2 Barbed or Razor Wire Fences.** Barbed or razor wire shall 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 shall 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 and used for storage or handling of hazardous materials, and premises zoned I-2 or I-3, intensive or waterfront industrial districts which are used for industrial purposes and are not adjacent to premises used for other purposes.



A BILL FOR AN ORDINANCE

1.3 Zoos for keeping animals and birds for public view or exhibition; and

1.4 Jails, prisons, reformatories, and other institutions which are involved in law enforcement or military activities where security against entry is an important factor.

2. Barbed wire may be used in fences enclosing premises used for pasturing cattle or raising swine.

**420.3 Construction Barrier.** See Section 3306 for fences allowed during construction or demolition.

(89) Adding Section 421. A new Section 421 is added to read:

**SECTION 421 – AGRICULTURAL BUILDINGS**

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

**421.2 Horticulture Buildings.** Buildings and structures of Group U for horticultural use with covering of wire screen, cheesecloth, or nonrigid plastic sheets are not required to conform to the requirements of Chapters 3-9, 11-26, 28, 30, 31, and 34 of this code when located in areas zoned for agriculture use and not part of any other structure.

(90) Adding Section 422. A new Section 422 is added to read:

**Section 422 – TENT STRUCTURES**

**422.1 Tent Structures.** Tent structures that stand alone and use a membrane material of canvas or pliable material supported by an approved manner except by air or the contents it protects shall be erected in accordance with the following prescriptive standards:

- 1. Membrane material: Membranes shall be either noncombustible as set forth in Section 703.4 or flame resistant



**A BILL FOR AN ORDINANCE**

as determined in accordance with NFPA 701.

- 2. Maximum aggregate area: 200 square feet.
- 3. Location on property: Minimum 5 feet separation on all sides.
- 4. Maximum height: 10 feet.
- 5. Foundation/footing: 3-inch concrete slab or concrete pier footings measuring 2 feet by 2 feet by 1 foot or 18 inches by 18 inches.
- 6. Frame support: Frame support shall meet requirements of ROH Chapter 16.

(91) Amending Section 501.2. Section 501.2 is amended to read:

**501.2 Premises Identification.** Numbers shall be provided for all new buildings as specified in ROH Section 2-9.2.

(92) Amending Section 506.2.2. Section 506.2.2 is amended by adding the 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.

(93) Adding Section 508.8. Section 508.8 is added to read:

**508.8 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.

(94) Amending Section 603.1.2. Section 603.1.2 is amended by replacing "International Plumbing Code" with "Plumbing Code."



**A BILL FOR AN ORDINANCE**

(95) Amending Section 603.1.3. Section 603.1.3 is amended by deleting the acronym "ICC."

(96) Amending Section 702. Section 702 is amended by amending the definition of "FIRE SEPARATION DISTANCE" to read:

**FIRE SEPARATION DISTANCE.** The distance measured from the building face to the closest boundary 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 and boundary lines established for condominium ownership purposes only shall not be considered as boundary lines. The distance shall be measured at right angles from the face of the wall.

(97) Amending Section 704.2. Section 704.2 is amended to read:

**704.2 Projections.** Cornices, eave overhangs, exterior balconies and similar architectural appendages extending beyond the floor area shall conform to the requirements of this section and Section 1406. Exterior egress balconies and exterior exit stairways shall also comply with Section 1022. Projections shall not extend:

- (a) (1) A point one third the distance to the property line from an assumed vertical plane located where fire-resistive protection of openings is first required due to location on property, or
- (2) A point one third the distance to the property line from an exterior wall, whichever is the least restrictive; or
- (b) More than 12 inches into areas where openings are prohibited, whichever is the most restrictive.

(98) Amending Section 704.8.2. Section 704.8.2 is amended by deleting the word "International."

(99) Amending Section 705.6. Section 705.6 is amended by adding Exception number 6 to read:



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A BILL FOR AN ORDINANCE

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6. Fire walls for Type IA or IB buildings sprinklered throughout in Group R-1 apartment house occupancies with not more than two dwelling units on any floor need not extend to the ground floor lobby or parking garage below the second floor.

(100) Amending Section 706.1. Section 706.1 is amended by deleting the word "International."

(101) Amending Section 717.5. Section 717.5 is amended by amending Exception 4 to read:

4. Combustible piping within partitions or enclosed shafts installed in accordance with the provisions of this code. Combustible piping shall be permitted within concealed ceiling spaces where installed in accordance with the Plumbing Code.

(102) Amending Section 719. Section 719 is amended as follows:

- a. Delete Exception 3 in Section 719.1.
- b. A new Section 719.8 is added to read:

**719.8 Insulation on or within ducts and plenums.** For the purpose of this section, DUCT is any tube or conduit for transmission of air. This definition shall not include:

- 1. A vent, a vent connector or a chimney connector.
- 2. Any tube or conduit wherein the pressure of the air exceeds one pound per square inch.
- 3. The air passages of listed self-contained systems.

Only approved materials shall be installed within ducts and plenums for insulating, sound deadening or other purposes. All such materials shall have a mold-, humidity- and erosion-resistant face that has met the requirements of U.L. Standard 181. Duct liners shall conform to ASTM Standard 1071 and installation shall conform to Sheet Metal and Air Conditioning Contractors' National Association Duct Construction Standards, Metal and Flexible.



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A BILL FOR AN ORDINANCE

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Insulation applied to the exterior surface of ducts located in buildings shall have a flame spread of not more than 25 and a smoke-density of not more than 50 when tested as a composite installation, including insulation, facing materials, tapes, and adhesives as normally applied.

**EXCEPTION:** Insulation having a flame-spread index not exceeding 50 and a smoke-density not greater than 100 may be installed in dwellings or apartment houses where the duct system serves not more than one dwelling unit.

Faced insulations intended for installation on the exterior of ducts shall be legibly printed with the name of the manufacturer, nominal thickness of insulation, and the flame-spread and smoke-developed ratings of the composite material.

- (103) Amending Section 901.2. Section 901.2 is amended by deleting the word "International" and by adding a third paragraph to read:

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

- (104) Amending Section 901.3. Section 901.3 is amended by deleting the word "International."

- (105) Amending Sections 901.5 and 901.6.2. Sections 901.5 and 901.6.2 are amended by deleting the word "International."

- (106) A new Section 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, a readily visible metal sign, with letters painted or stenciled, not less than 1 in. (25 mm) high on a contrasting background that states the maximum storage height allowable for the installed sprinkler system, shall be placed next to the main shutoff valve of the automatic sprinkler riser.



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A BILL FOR AN ORDINANCE

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- (107) Amending Section 903.2.6.1. Section 903.2.6.1 is amended by deleting the word "International."
- (108) Amending Section 903.2.7. Section 903.2.7 is amended by adding an Exception to read:
- EXCEPTION:** R-3 residential occupancies, not classified as R-1, R-2, R-4 or I and where buildings do not contain more than two dwelling units as applicable in Section 101.2.
- (109) Amending Section 903.2.10.1. Section 903.2.10.1 is amended by amending item number 2 to read:
2. Openings entirely above the adjoining ground level totaling at least 20 square feet (1.86 m<sup>2</sup>) in each 50 linear feet (15,240 mm), or fraction thereof, of exterior wall in the story on at least one side. Such required openings shall be unobstructed by sunshades, louvers, grillwork, or other construction on the exterior wall which will prevent or hinder access to the openings by the fire department personnel.
- (110) Amending Section 903.2.11. Section 903.2.11 is amended by deleting the word "International."
- (111) Amending Section 903.3.1.1.1. Section 903.3.1.1.1 is amended by adding the following:
5. Closets having an area of less than 12 square feet (1.1 m<sup>2</sup>) in individual dwelling units in R-1, and R-2 occupancies, shall not be required to be sprinklered. Closets that contain equipment such as washers, dryers, furnaces or water heaters shall be sprinklered regardless of size.
- (112) Amending Section 903.3.1.3. Section 903.3.1.3 is amended by deleting "one- and two-family dwellings" and replacing it with "R-3 residential occupancies."
- (113) Amending Section 903.3.5. Section 903.3.5 is amended by deleting the word "International."
- (114) Deleting Section 903.3.5.2. Section 903.3.5.2 is deleted.



A BILL FOR AN ORDINANCE

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(115) Amending Section 903.3.7. Section 903.3.7 is amended by replacing "building official" with "fire chief."

(116) Amending Section 903.4.1. Section 903.4.1 is amended by adding a sentence immediately before Exception 1 to read:

Alarm, supervisory and trouble signals shall be monitored on the island of Oahu.

(117) Amending Section 903.5. Section 903.5 is amended by deleting the word "International."

(118) Amending Section 904.2.1. Section 904.2.1 is amended to read:

**904.2.1 Hood System Suppression.** Each required commercial kitchen exhaust hood and duct system required by the Fire Code or the Mechanical Code to have a Type I hood shall be protected with an approved automatic fire-extinguishing system installed in accordance with the Fire Code.

(119) Amending Section 904.3.1. Section 904.3.1 is amended by deleting the acronym "ICC."

(120) Amending Section 905.1. Section 905.1 is amended to read:

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

(121) Amending Section 905.3.6. Section 905.3.6 is amended by deleting the word "International."

(122) Amending Section 906.1. Section 906.1 is amended by deleting the word "International."



A BILL FOR AN ORDINANCE

(123) Amending Section 907. Section 907 is amended to read:

**907.1 General.** Fire alarm systems and their components shall be as required by the Fire Code.

(124) Amending Section 909.3. Section 909.3 is amended by substituting reference to Section 1704 with Section 912.

(125) Amending Section 909.11. Section 909.11 is amended by deleting the acronym "ICC."

(126) Amending Section 909.12.1. Section 909.12.1 is amended by deleting the acronym "ICC."

(127) Amending Section 909.16.3. Section 909.16.3 is amended by deleting the acronym "ICC."

(128) Amending Section 909.20. Section 909.20 is amended by deleting the word "International."

(129) Amending Section 910.2.3. Section 910.2.3 is amended by deleting the word "International."

(130) Amending Section 911.1. Section 911.1 is amended to read:

**911.1 Features.** Where required by other sections of this code, a fire command center shall comply with the Fire Code and be approved by the fire chief.

(131) Adding Section 912. Section 912 is added to read:

**SECTION 912 – FIRE PROTECTION SYSTEMS SPECIAL INSPECTIONS**

**912.1 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 shall employ one or more fire protection systems special inspectors to provide inspections during construction on the types of work listed under Section 912. The fire



A BILL FOR AN ORDINANCE

protection system special inspector shall be approved by the building official. These inspections are in addition to the inspections specified in Section 109.

**912.1.1 Building Permit Requirement.** The permit applicant shall submit a statement of fire protection system inspection prepared by the licensed engineer of record as a condition for permit issuance. This statement shall include the fire protection system inspector required by this section who will conduct the inspection.

**912.1.2 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 shall indicate that work inspected was done in conformance to the applicable code and shall include, but not be limited to, working drawings, and acceptance tests required by this section. All discrepancies shall 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 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 and shall include two copies of the working drawings to the building official prior to the final inspection.

**912.2 Automatic Sprinkler Systems.** Automatic systems shall be inspected and evaluated in accordance to the requirements of Section 903.

1. During installation.

**EXCEPTION:** 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.



A BILL FOR AN ORDINANCE

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

**912.3 Alternative Automatic Fire-Extinguishing Systems.** Alternative automatic fire-extinguishing systems shall be inspected and evaluated in accordance to the requirements of Section 904.

- 1. During installation.

**EXCEPTION:** 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 acceptance tests as required by NFPA 16, 17, and 17A. Tests shall be conducted in the presence of the fire department official.

**912.4 Standpipe Systems.** Standpipe systems shall 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. Tests shall be conducted in the presence of the fire department official.

**912.5 Smoke Control Systems.** Smoke control systems shall 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.



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A BILL FOR AN ORDINANCE

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- 2. Prior to occupancy and after sufficient completion for the purposes of pressure difference testing, flow measurements, and detection and control verification. Testing shall be conducted in the presence of the fire department official.

(132) Amending Section 1001.3. Section 1001.3 is amended by deleting the word "International."

(133) Amending Section 1002.1. Section 1002.1 is amended by replacing "refuge" with "rescue assistance" in the definition of "ACCESSIBLE MEANS OF EGRESS."

(134) Amending Section 1003.1. Section 1003.1 is amended as follows:

**1003.1 Applicability.** The general requirements specified in Sections 1003 through 1012 shall apply to the exit access and the exit elements of the means of egress system, in addition to those specific requirements detailed elsewhere in this chapter. The general requirements of Section 1008 shall apply to the exit discharge element of the means of egress system, in addition to the specific requirements detailed elsewhere in this chapter.

(135) Amending Section 1006.3. Section 1006.3 is amended by adding a subdivision 6 to read:

- 6. Enclosed stairways of buildings more than 2 stories in height.

(136) Amending Section 1007.1. Section 1007.1 is amended:

- a. By amending Section 1007.1 to read:

**1007.1 Accessible means of egress required.** Accessible means of egress shall comply with this section. In buildings or facilities, or portions of buildings or facilities, required to be accessible, accessible means of egress shall be provided in the same number as required for exits by Section 1014.1 or 1018.1.

- b. By deleting Exceptions 2 and 3.



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A BILL FOR AN ORDINANCE

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(137) Amending Section 1007.2 Exception 2. Exception 2 is amended by deleting the word "refuge" and replacing it with the words "rescue assistance."

(138) Amending Section 1007.3. Section 1007.3 is amended by deleting all references to "refuge" and substituting in lieu thereof "rescue assistance."

(139) Amending Section 1007.4. Section 1007.4 is amended:

- a. By deleting all references to "refuge" and substituting in lieu thereof "rescue assistance."
- b. By replacing "an automatic sprinkler system" with "a supervised automatic sprinkler system" in Exception 2.

(140) Amending Section 1007.6. Section 1007.6 is amended by deleting the word "refuge" and substituting in lieu thereof "rescue assistance."

(141) Amending Section 1007.6.1. Section 1007.6.1 is amended to read:

**1007.6.1 Size.** Each area of rescue assistance shall provide at least two accessible areas, each being not less than 30 inches by 48 inches (762 mm by 1219 mm). The total number of such 30-inch by 48-inch (760 mm by 1220 mm) areas per story shall be not less than one for every 200 persons of calculated occupant load served by the area of rescue assistance. Such wheelchair spaces shall not reduce the required means of egress width. Access to any of the required wheelchair spaces in an area of rescue assistance shall not be obstructed by more than one adjoining wheelchair space.

(142) Amending Section 1007.6.2. Section 1007.6.2 is amended:

- a. By deleting the word "refuge" and substituting in lieu thereof "rescue assistance."
- b. By replacing "an automatic sprinkler system" with "a supervised automatic system" in Exception 2.

(143) Amending Section 1007.6.3. Section 1007.6.3 is amended by deleting the word "refuge" and substituting in lieu thereof "rescue assistance."



**A BILL FOR AN ORDINANCE**

(144) Amending Section 1007.6.4. Section 1007.6.4 is amended by deleting the word "refuge" and substituting in lieu thereof "rescue assistance."

(145) Amending Section 1007.6.5. Section 1007.6.5 is amended by deleting the word "refuge" and substituting in lieu thereof "rescue assistance."

(146) Amending Section 1007.8. Section 1007.8 is amended by replacing all references to 10 feet (3084 mm) with 20 feet (6 m).

(147) Amending Section 1007.8.3. Section 1007.8.3 is amended by deleting the word "refuge" and substituting in lieu thereof "rescue assistance."

(148) Amending Section 1008.1.1.1. Section 1008.1.1.1 is amended by:

- a. Replacing "34 inches (864 mm)" with "27 inches (685 mm)."
- b. Adding a sentence at the end of the paragraph to read "Projections shall not reduce the required clear width."

(149) Amending Section 1008.1.3.1. Section 1008.1.3.1 is amended by adding:

5. Revolving doors shall have a minimum width of 6 feet 6 inches (1981 mm).

(150) Amending Section 1008.1.9. Section 1008.1.9 is amended by adding an exception after the second paragraph to read:

**EXCEPTION:** Double-acting screen doors used in conjunction with exit doors having panic hardware in school cafeteriums.

(151) Amending Section 1008.2. Section 1008.2 is amended by amending the exception to read:

**EXCEPTIONS:**

- 1. Horizontal sliding or swinging gates exceeding the 4-foot (1219 mm) maximum leaf width limitation are permitted in fences and walls surrounding a stadium.



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A BILL FOR AN ORDINANCE

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2. Security gates may be permitted across corridors or passageways in school buildings if there is a readily visible durable sign on or adjacent to the gate, stating "THIS GATE IS TO REMAIN SECURED IN THE OPEN POSITION WHENEVER THIS BUILDING IS IN USE." The sign shall be in letters not less than one inch high on a contrasting background. The use of this exception may be revoked by the building official for due cause.

(152) Amending Section 1009.1. Section 1009.1 is amended by adding Exception 5 to read:

5. Private stairways serving an occupant load of less than 5 shall not be less than 30 inches in width.

(153) Amending Section 1009.3. Section 1009.3 is amended by deleting Exception number 6.

(154) Amending Section 1009.11.3. Section 1009.11.3 is amended by deleting the second and third sentences.

(155) Amending Section 1009.11.4. Section 1009.11.4 is amended by deleting Exception number 3.

(156) Amending Section 1009.11.5. Section 1009.11.5 is amended to read:

Handrails shall return to a wall, guard or the walking surface or shall be continuous to the handrail of an adjacent stair flight. Where handrails are not continuous between flights, the handrails shall extend horizontally at least 12 inches (305 mm) beyond the top riser and at least 12 inches (305 mm) plus the width of one tread beyond the bottom riser. The handrail shall continue to slope for the depth of one tread beyond the bottom riser; the remainder of the extension shall be horizontal.

(157) Amending Section 1010.7.1. Section 1010.7.1 is amended to read:

The surface of ramps shall be stable and firm and of slip-resistant materials that are securely attached.

(158) Amending Section 1010.8. Section 1010.8 is amended to read:



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A BILL FOR AN ORDINANCE

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Ramps with a rise greater than 6 inches (152 mm) or a width greater than 72 inches (1830 mm), shall have handrails on both complying with Section 1009.11.

(159) Amending Section 1010.9. Section 1010.9 is amended by deleting Exception number 3.

(160) Amending Section 1012.1. Section 1012.1 is amended by adding a second and third paragraph after the Exception to read:

Openings or portions of openings in exterior walls which are less than 30 inches above a floor shall be provided with at least one rail between 30 inches and 36 inches above the floor when such openings are located on floors more than 5 feet above the adjacent grade or finished floor and are not provided with structurally adequate safety glass installations or other barriers to prevent a person from falling through the openings.

Openable windows or portions of openable windows located on floors more than 5 feet above the adjacent grade or finished floor shall be provided with guardrails as specified in this section, when such windows are less than 42 inches above the floor in Group R, Division 1 and 2 Occupancies and less than 36 inches in Group R, Division 3 Occupancies. Guardrails are not required where such windows are provided with securely installed "insect" screen or other equal or better barriers to young children falling through such openings and one rail between 30 inches and 36 inches above the floor.

(161) Amending Section 1012.3. Section 1012.3 is amended by adding a second paragraph after the exceptions to read:

Guardrails in Group R-1 and R-2 Occupancies shall not contain:  
(1) horizontal rails other than top and bottom rails, or (2) cutouts or indentations greater than 1-3/4 inches in width of protrusions that may provide a foothold for young children.

(162) Adding Section 1018.5. A new Section 1018.5 is added to read:



**A BILL FOR AN ORDINANCE**

**1018.5 Dead Ends.** Buildings conforming to Section 1018.2 shall not have dead ends within the path of exit access, exceeding:

- a) 30 feet for A, B, E, F, M, U, H-4, H-5, I, and R occupancies.
- b) 30 feet for S occupancies except for open parking occupancies. Open parking path of exit access shall conform to Section 1018.1.1.
- c) 20 feet for R-2 occupancies.

(163) Amending Section 1025.2.1. Section 1025.2.1 is amended by adding an exception to read:

**EXCEPTION:** Glass jalousie bladed windows may be used for emergency escape or rescue.

(164) Amending Section 1025.3. Section 1025.3 is amended by adding an exception to read:

**EXCEPTION:** Escape or rescue windows in Group R, Division 1 and 2 Occupancies opening into an exit balcony serving more than two dwelling units or hotel guest rooms shall have a finished sill height not more than 68 inches above the floor.

(165) Amending Section 1101.1. Section 1101.1 is amended by deleting "shall control" with "are guidelines for."

(166) Amending Section 1102.2. Section 1101.2 is amended by adding a paragraph immediately following the first paragraph to read:

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 shall be equivalent to meeting the accessibility of this code. At the time of submittal of an application for a building permit, the applicant shall state on the plans that the project is subject to the above requirements.

(167) Amending Section 1103.2.3. Section 1103.2.3 is amended to read:



**A BILL FOR AN ORDINANCE**

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Spaces and elements within employee work areas shall only be required to comply with Sections 907.9.1.2, 107 and 1004.3.1 and shall be designed and constructed so that individuals with disabilities can approach, enter, and exit the work area.

- (168) Amending Section 1104.1. Section 1104.1 is amended by deleting the exception.
- (169) Amending Section 1104.2. Section 1104.2 is amended by deleting the exception.
- (170) Amending Section 1104.3.1. Section 1104.3.1 is amended by deleting the exceptions.
- (171) Amending Section 1104.4. Section 1104.4, Exceptions, is amended to read:

**EXCEPTIONS:** An accessible route is not required in facilities that are less than 3,000 square feet (278.7 m<sup>2</sup>) or that have less than 3,000 square feet per story. This exception shall not apply to:

1. Multiple tenant facilities of M occupancies containing five or more tenant spaces.
2. Levels containing office of health care providers (Group B or I); or
3. Passenger transportation facilities and airports (Group A-3 or B).

- (172) Amending Section 1104.5. Amending Section 1104.5 by deleting the exception.
- (173) Amending Section 1107.6.1.1. Section 1107.6.1.1 is amended by adding a sentence to the end thereof to read:

Visual and audible alarms required by Section 907.9 shall be provided in the accessible sleeping room or suite.

- (174) Amending Section 1107.6.2.2.1. Section 1107.6.2.2.1 is amended by deleting "Table" and substituting in lieu thereof "Section."



**A BILL FOR AN ORDINANCE**

(175) Amending Table 1108.2.2.1. Table 1108.2.2.1. is amended to read:

**TABLE 1108.2.2.1  
ACCESSIBLE WHEELCHAIR SPACES**

<b>CAPACITY OF SEATING IN ASSEMBLY AREAS</b>	<b>MINIMUM REQUIRED NUMBER OF WHEELCHAIR SPACES</b>
4 to 25	1
26 to 50	2
51 to 300	4
301 to 500	6
Over 500	6 plus 1 additional space for each total seating capacity increase of 100

(176) Amending Section 1108.2.4. Section 1108.2.4. is amended:

- a. By deleting the first sentence of Section 1108.2.4.
- b. By deleting Section 1108.2.4.1.

(177) Amending Section 1108.2.5. Section 1108.2.5 is amended to read:

At least one companion seat complying with the ADAAG shall be provided next to wheelchair space required by Section 1108.2.2.

(178) Amending Section 1108.2.6. Section 1108.2.6 is amended to read:

One percent, but not less than one, of all fixed seats shall be designated aisle seats with no armrests on the aisle side, or removable or folding armrests on the aisle side. Each of these designated aisle seats shall be identified by a sign or marker. Signage notifying patrons of the availability of these designated aisle seats shall be posted at the ticket office.

(179) Amending Section 1108.2.7. Section 1108.2.7 is amended:



**A BILL FOR AN ORDINANCE**

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- a. By adding a sentence following the first sentence to read:

For assembly areas, a permanently installed assistive listening system, or an adequate number of electrical outlets or other supplementary wiring necessary to support a portable assistive listening system shall be provided.

- b. By deleting the exception.

- c. By amending Section 1108.2.7.1 to read:

The minimum number of receivers to be provided shall be equal to 4 percent of the total number of seats, but in no case less than two.

- d. By deleting Table 1108.2.7.1.

- (180) Amending Section 1108.2.8. Section 1108.2.8 is amended to read:

An accessible route shall connect wheelchair seating locations with performing areas. An accessible route shall be provided from performance areas to ancillary areas or facilities used by performers.

- (181) Amending Section 1108.2.9. Section 1108.2.9 is amended by deleting Exception 2.

- (182) Amending Section 1109.2. Section 1109.2 is amended by:

- a. Deleting Exceptions 3, 5, and 6.
- b. Re-designating Exception 4 to 3.

- (183) Amending Section 1109.2.1.6. Section 1109.2.1.6 is amended to read:

Where doors swing into a unisex toilet or bathing room, a clear floor space not less than 60 inch (1524 mm) minimum diameter or a T-shaped space within a 60 inch (1524 mm) square shall be provided, within the room.

- (184) Amending Section 1109.7. Section 1109.7 is amended by:



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A BILL FOR AN ORDINANCE

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- a. Deleting Exception 5.
  - b. Re-designating Exception number 6 to 5, and;
  - c. Re-designating Exception number 7 to 6.
- (185) Amending Section 1109.13. Section 1109.13 is amended by deleting the exceptions.
- (186) Amending Section 1110.1. Section 1110.1 is amended by adding an exception to the end thereof to read:
- 9. Accessible toilet and bathing facilities when not all are accessible.
- (187) Amending Sections 1110.1 and 1110.3. Sections 1110.1 and 1110.3, item 3, is amended by deleting the word "refuge" and substituting in lieu thereof "rescue assistance."
- (188) Amending Section 1203.1. Section 1203.1 is amended to read:
- 1203.1 General.** Buildings shall be provided with natural ventilation in accordance with Section 1203.4 or shall be provided with mechanical ventilation as specified in Title 11, Administrative Rules of the Department of Health, State of Hawaii.
- (189) Amending Section 1203.2. Section 1203.2 is amended by deleting the first sentence and replacing it with:
- Attics and enclosed rafter spaces of combustible construction where ceilings are applied directly to the underside of roof rafters shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain.
- (190) Amending Section 1203.3.2. Section 1203.3.2 is amended by replacing "the International Energy Conservation Code" in number 4 with "ROH Chapter 32."
- (191) Amending Section 1203.4.1. Section 1203.4.1 is amended by replacing "4 percent" with "5 percent."



**A BILL FOR AN ORDINANCE**

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(192) Amending Section 1203.4.1.1. Section 1203.4.1.1 is amended by replacing all references to "8 percent" with "10 percent."

(193) Amending Section 1203.4.2. Section 1203.4.2 is amended to read:

**1203.4.2 Contaminants Exhausted.** Contaminant sources in naturally ventilated spaces shall be removed as specified in Title 11, Administrative Rules of the Department of Health, State of Hawaii, or the Fire Code.

(194) Amending Section 1203.4.2.1. Section 1203.4.2.1 is amended to read:

**1203.4.2.1 Bathrooms.** Rooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated as specified in Chapter 39, Title 11, Administrative Rules of the Department of Health, State of Hawaii.

(195) Amending Section 1203.5. Section 1203.5 is amended to read:

**1203.5 Other ventilation and exhaust systems.** Ventilation and exhaust systems for occupancies and operations involving flammable or combustible hazards or other contaminant sources shall be provided as required by the Fire Code.

(196) Amending Section 1205.4.1. Section 1205.4.1 is amended by deleting the acronym "ICC."

(197) Amending Section 1206.3.3. Section 1206.3.3 is amended by deleting the word "International."

(198) Deleting Section 1207. Section 1207 is deleted.

(199) Deleting Section 1208. Section 1208 is deleted.

(200) Amending Section 1301.1. Section 1301.1 is amended to read:

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

(201) Amending Section 1403.2. Section 1403.2 is amended by deleting the last sentence in the first paragraph.



A BILL FOR AN ORDINANCE

(202) Amending Section 1405.10.4. Section 1405.10.4 is amended by deleting the acronym "ICC."

(203) Amending Section 1503.4. Section 1503.4 is amended:

- a. By deleting the words "the International Plumbing Code" and replacing with "this section."
- b. By adding Sections 1503.4.1 through 1503.4.5.

**1503.4.1 General.** Roofs shall be sloped a minimum of 1 unit vertical in 48 units horizontal (2 percent slope) for drainage unless designed for water accumulation in accordance with Section 1611 and approved by the building official.

**1503.4.2 Roof Drains.** Unless roofs are sloped to drain over roof edges, roof drains shall be installed at each low point of the roof.

Roof drains may be sized in accordance with the Plumbing Code, and roof drain.

Discharge at the public way shall be in accordance with ROH Chapter 14.

**1503.4.3 Overflow Drains and Scuppers.** Where roof drains are required, overflow.

Overflow drains having the same size as the roof drains shall 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) may be installed in the adjacent parapet walls with the inlet flow line located 2 inches (51 mm) above the low point of the adjacent roof.

Over flow drains shall discharge to an approved location and shall not be connected to roof drain lines.



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A BILL FOR AN ORDINANCE

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**1503.4.4 Concealed Piping.** Roof drains and overflow drains, where concealed within the construction of the building, shall be installed in accordance with the Plumbing Code.

**1503.4.5 Over Public Property.** Roof drainage water from a building shall not be permitted to flow over public property.

**EXCEPTION:** Group R, Division 3 and Group U Occupancies.

(204) Amending Section 1505.1. Section 1505.1 is amended by adding an exception to read:

**EXCEPTION:** Aluminum roofing shall be approved as Class B roof, providing that an automatic sprinkler is installed throughout the building.

(205) Amending Section 1603.1. Section 1603.1 is amended to read:

**1603.1 General.** Construction documents shall 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 Sections 1603.1.1 through 1603.1.8 shall be clearly indicated on the construction documents for parts of the building or structure.

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

1. Floor and roof live loads.
2. Effective wind speed (3-second gust),  $V_{off}$  miles per hour (mph)(km/hr) and wind exposure.
3. Seismic design category and site class.

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



**A BILL FOR AN ORDINANCE**

**1603.1.2 Roof live Load.** The roof live load used in the design shall be indicated for roof areas (Section 1607.11).

(206) Deleting Section 1603.1.3. Section 1603.1.3 is deleted.

(207) Amending Section 1603.1.4. Section 1603.1.4 is amended to read:

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

1. Basic wind speed (3-second gust), miles per hour (km/hr),  $V$ , or effective windspeed  $V_{eff}$ .
2. Wind important factor  $I_w$  and building category.
3. Wind exposure, if more than one wind exposure is utilized, the wind exposure and applicable wind direction shall be indicated.
4. The applicable internal pressure coefficient.
5. Components and cladding. The design wind pressures in terms of psf ( $kN/m^2$ ) used for the design of exterior components, and cladding.

(208) Amending Section 1603.1.8. Section 1603.1.8 is amended to read:

**1603.1.8 Work Requiring Special Inspections.** Construction documents shall identify the work requiring special inspection as specified in Sections 1704 and 1707.

(209) Amending Section 1603.3. Section 1603 is amended to read:

**1603.3 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 ( $4.80 kN/m^2$ ), such design live loads shall be conspicuously posted by the owner in that part of each story in which they apply, using durable signs. It shall be unlawful to remove or deface such notices.



**A BILL FOR AN ORDINANCE**

(210) Amending Table 1604.5. Table 1604.5 is amended to read:

**Table 1604.5  
CLASSIFICATION OF BUILDINGS AND OTHER STRUCTURES  
FOR IMPORTANCE FACTORS**

OCCUPANCY CATEGORY	SEISMIC USE GROUP SEC. 1616.2	NATURE OF OCCUPANCY	SEISMIC FACTOR I <sub>E</sub>	WIND FACTOR I <sub>W</sub>
I	I	Buildings and other structures that represent a low hazard to human life in the event of failure including, but not limited to: <ul style="list-style-type: none"> <li>• Agricultural facilities</li> <li>• Certain temporary facilities</li> <li>• Minor storage facilities</li> </ul>	1.00	0.87
II		Buildings and other structures except those listed in Categories I, III and IV	1.00	1.00
III	II	Buildings and other structures that represent a substantial hazard to human life in the event of failure including, but not limited to: <ul style="list-style-type: none"> <li>• Buildings and covered structures whose primary occupancy is public assembly with an occupant load greater than 300.</li> <li>• Buildings and other structures with elementary school, secondary school or day care facilities with an occupant load greater than 250</li> <li>• Buildings and other structures with an occupant load greater than 500 for colleges or adult education facilities</li> <li>• Health care facilities with an occupant load of 50 or more resident patients but not having surgery or emergency treatment facilities</li> <li>• Jails and detention facilities</li> <li>• Any other occupancy with an occupant load greater than 5,000</li> <li>• Power-generating stations, water treatment for potable water, waste water treatment facilities and other public utility facilities not included in Category IV</li> <li>• Buildings and other structures not included in Category IV containing sufficient quantities of toxic or explosive substances to be dangerous to the public if released</li> </ul>	1.25	1.15
		Buildings and other structures designed as essential facilities including, but not limited to: <ul style="list-style-type: none"> <li>• Hospitals and other health care facilities having surgery or emergency treatment facilities</li> </ul>		



**A BILL FOR AN ORDINANCE**

IV	III	<ul style="list-style-type: none"> <li>• Fire, rescue and police stations and emergency vehicle garages</li> <li>• Designated earthquake, hurricane and other emergency shelters</li> <li>• Designated emergency preparedness, communication, and operation centers and other facilities required for emergency response</li> <li>• Power-generating stations and other public utility facilities required as emergency backup facilities for Category IV structures</li> <li>• Structures containing highly toxic materials as defined by Section 307 where the quantity of the material exceeds the maximum allowable quantities of Table 307.7(2)</li> <li>• Aviation control towers, air traffic control centers and emergency aircraft hangars</li> <li>• Buildings and other structures having critical national defense functions</li> <li>• Water treatment facilities required to maintain water pressure for fire suppression</li> </ul>	1.50	1.15
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(211) Amending Section 1605.2.1. Section 1605.2.1 is amended to read:

**1605.2.1 Basic Load Combinations.** Where strength design or load and resistance factor design is used, structures and portions thereof shall resist that most critical effects from the following combinations of factored loads:

1.4 (D + F) (Equation 16-1)

1.2 (D + F + T) + 1.6 (L + H) + 0.5 (L<sub>r</sub> or R) (Equation 16-2)

1.2D + 1.6 (L<sub>r</sub> or R) + (f<sub>1</sub>L or 0.8W) (Equation 16-3)

1.2D + 1.6W + f<sub>1</sub>L + 0.5 (L<sub>r</sub> or R) (Equation 16-4)

1.2D + 1.0E + f<sub>1</sub>L (Equation 16-5)

0.9D + 1.6W + 1.6H (Equation 16-6)

0.9D + 1.0E + 1.6H (Equation 16-7)



**A BILL FOR AN ORDINANCE**

$f_1 = 1.0$  for floors in places of public assembly, for live loads in excess of 100 pounds per square foot (4.79 kN/m<sup>2</sup>), and for parking garage live load.

$f_1 = 0.5$  for other live loads.

**EXCEPTION:** Where other factored load combinations are specifically required by the provisions of this code, such combinations shall take precedence.

(212) Amending Section 1605.3.1. Section 1605.3.1 is amended to read:

**1605.3.1 Basic Load Combinations.** Where allowable stress design (working stress design), as permitted by this code, is used, structures and portions thereof shall resist the most critical effects resulting from the following combinations of loads:

$D + F$  (Equation 16-8)

$D + H + F + L + T$  (Equation 16-9)

$D + H + F + (L_r \text{ or } R)$  (Equation 16-10)

$D + H + F + 0.75 (L + T) + 0.75 (L_r \text{ or } R)$  (Equation 16-11)

$D + H + F + (W \text{ or } 0.7E)$  (Equation 16-12)

$D + H + F + 0.75 (W \text{ or } 0.7E) + 0.75L + 0.75 (L_r \text{ or } R)$   
(Equation 16-13)

$0.6D + W + H$  (Equation 16-14)

$0.6D + 0.7E + H$  (Equation 16-15)

**EXCEPTIONS:** Crane loads need not be combined with roof live load or one-half of the wind load.

(213) Amending Section 1609.1.1. Section 1609.1.1 is amended to read:



**A BILL FOR AN ORDINANCE**

**1609.1.1 Determination of Wind Loads.** Wind loads on every building or structure shall be determined in accordance with Section 6 of ASCE 7-02. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

**EXCEPTIONS:**

1. Minimum values for Directionality Factor,  $K_d$ , Velocity Pressure Exposure Coefficient,  $K_z$ , and Topographic Factor,  $K_{zt}$ , shall be determined in accordance with Section 1609.
2. Wind loads determined by the provisions of Section 1609.6.
3. Subject to the limitations of Section 1609.1.1.1, residential structures using the provisions of the AF & PA Wood Frame Construction Manual for One- and Two-Family Dwellings.
4. Designs using National Association of Architectural Metal Manufacturers FP 1001 Guide Specification for Design of Metal Flagpoles.
5. Designs using Telecommunications Industry Association/Electronics Industries Association-222 Structural Standards for Steel Antenna Towers and Supporting Structures.

**16091.1.1 Applicability.** The provisions of the AF & PA Wood Frame Construction Manual for One- and Two-Family Dwellings, NAAM FP 1001 Guide Specification for Design of Metal Flagpoles, and TIA/EIA-222 shall be based on an effective wind speed,  $V_{eff}$ , shown in Figure 1609.1.1.1.

(214) Amending Section 1609.3. Section 1609.3 is amended to read:

**1609.3 Basic Wind Speed and Topographic and Directionality Factors.** The basic wind speed, in mph, for the determination of the wind loads shall be determined by Figure 1609. Special wind regions near mountainous terrain and valleys are accounted within the Topographic Factor defined in Section 1609.3.3. Wind speeds derived from simulation techniques shall only be used in lieu of the basic wind speeds given Figure 1609 when, (1) approved simulation or extreme-value statistical-



**A BILL FOR AN ORDINANCE**

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 design wind speeds resulting from the study shall not be less than the resulting 500-year return period wind speed divided by  $\sqrt{1.5}$ .

**1609.3.1 Fastest-Mile Wind Speed Conversion.** When required, the 3-second gust wind speeds of Figure 1609 shall be converted to fastest-mile wind speeds using Table 1609.3.1, or the following equation:

$$V_{fm} = (V_{3S} - 10.5)/1.05$$

**TABLE 1609.3.1  
EQUIVALENT BASIC WIND SPEEDS**

$V_{3S}$	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

**1609.3.2 Effective Basic Wind Speed Conversion.** For the Simplified Wind Load Method of Section 1609.6, Wind uplift connectors of Section 2308.10.1, the provision of ASCE Section 6.4, and the AF & PA Wood Frame Construction Manual for One- and Two-Family Dwellings, the basic wind speed value used for determination of the wind loads, shall be the Effective Basic Wind Speed,  $V_{eff}$ , determined by Figure 1609.1.1.1, which adjusts the basic wind speed for special topographic wind regions of Oahu.



**A BILL FOR AN ORDINANCE**

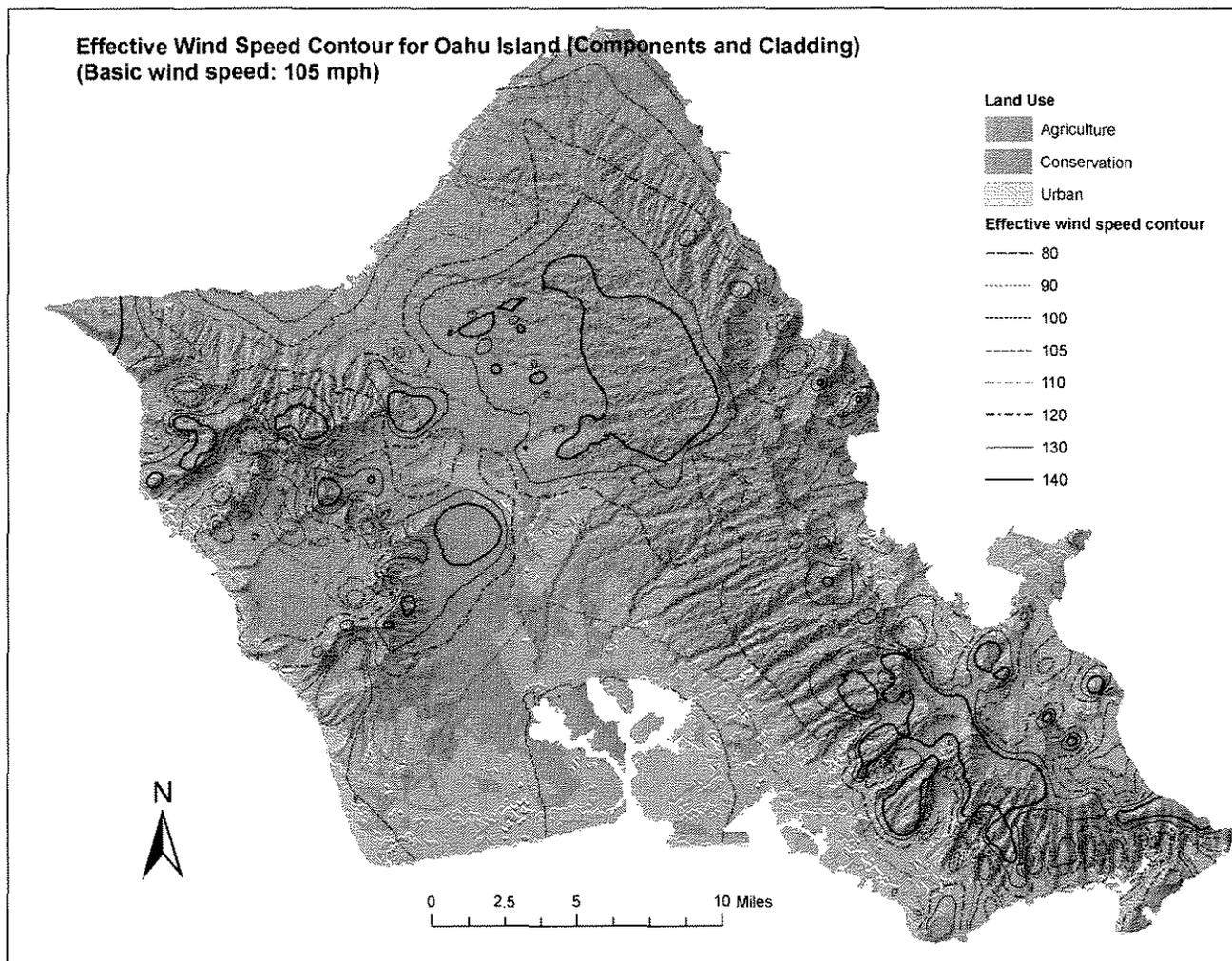


Figure 1609.1.1.1 Effective Basic Wind Speed,  $V_{eff}$ , for Components and Cladding for Buildings less than 60 feet tall.



**A BILL FOR AN ORDINANCE**

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

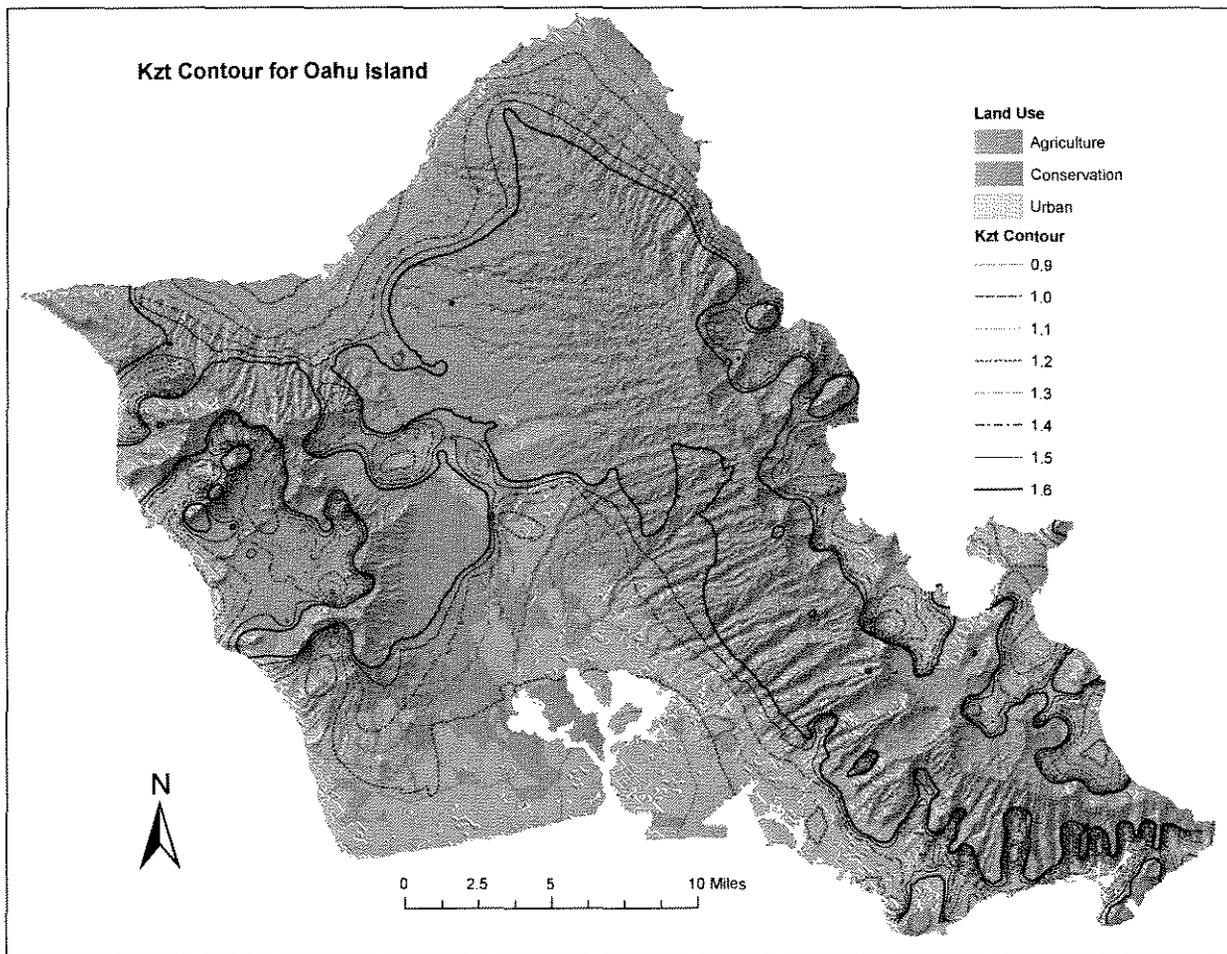


Figure 1609.3.3 Peak Topographic Factor  $K_{zt}$  for Building Heights up to 100 feet.

Notes:

1. At Exposure B sites with ground elevations less than 500 feet,  $K_{zt}$  values  $\geq 1.2$  shall 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 following table. Interpolation is permitted.



**A BILL FOR AN ORDINANCE**

Height Adjustment of Mapped $K_{zt}$ Values at Sites with Ground Elevation less than 500 feet								
Building roof height above ground (ft)	≤100	120	140	160	180	200	220	≥240
Adjustment factor $K_{zt} \geq 1.2$	100%	98%	96%	94%	92%	990%	92%	94%

2. Site-specific probabilistic analysis of directional  $K_{zt}$  based on wind-tunnel testing of topographic speed-up shall be permitted to be submitted for approval by the building official. For buildings taller than 160 feet, this submittal shall include peak gust velocity profiles for all wind direction sectors.

**1609.3.4 Directionality Factor.** The wind directionality factor,  $K_d$ , shall be determined from Tables 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<sup>1, 2</sup>**

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) no greater than 1.2	0.75	0.80	0.75	0.80	0.95
All other areas, including Hills, Hillside, Ridges, Bluffs, and	0.70		0.75	0.80	0.90



**A BILL FOR AN ORDINANCE**

Escarpments at any elevation or height; coastal and inland areas with $K_{zt}$ (10m) greater than 1.2		0.75			
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Notes:

1. The values of  $K_d$  for other no- building structures indicated in ASCE-7 Table 6-4 shall be permitted.
2. Site-specific probabilistic analysis of  $K_d$  based on wind-tunnel testing of topography and peak gust velocity shall be permitted to be submitted for approval by the building official, but  $K_d$  shall 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 <sup>1, 2</sup>**

Topographic Location on Oahu	Components and Cladding		
	Mean Roof Height less than or equal to 100 ft.	Mean Roof Height greater than 100 ft.	Occupancy 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) no greater than 1.2	0.75	0.80	0.85
All other areas, including Hills, Hillside, 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

Notes:

1. The values of  $K_d$  for other non-building structures indicated in ASCE-7 Table 6-4 shall be permitted.



**A BILL FOR AN ORDINANCE**

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

(215) Amending Section 1609.4. Section 1609.4 is amended to read:

**1609.4 Exposure Category.** For each wind direction considered, an exposure category that adequately reflects the characteristics of ground surface irregularities shall be determined for the site at which the building or structure is to be constructed. An intermediate exposure between categories is permitted in a transition zone provided it is determined in accordance with ASCE 7-02. Account shall be taken of variations in ground surface roughness that arise from natural topography and vegetation as well as from constructed features.

**1609.4.1 Wind Directions and Sectors.** For any given wind direction, the exposure in which a specific building or other structure is sited shall be assessed as being one of the following categories. For each selected wind direction at which the wind loads are to be evaluated, the exposure of the building or structure shall be determined for the two upwind sectors extending 45 degrees either side of the selected wind direction. The exposures in these two sectors shall be determined and the exposure resulting in the highest wind loads shall be used or represent the winds from that direction.

**EXCEPTIONS:**

1. When applying the simplified wind load method of Section 1609.6, a single exposure category shall be used based upon the most restrictive for any given wind direction.
2. Components and cladding shall be designed using the exposure resulting in the highest wind loads for any wind direction at the site.

**Exposure B.** Urban and suburban areas, wooded areas or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger, prevailing in the upwind direction from the



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## A BILL FOR AN ORDINANCE

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building site for a distance of at least 2600 ft. (792 m), or 20 times the height of the building, whichever is greater.

**EXCEPTION:** For buildings whose mean roof height is less than or equal to 30 ft. (9.1 m), the upwind distance may be reduced to 1500 ft. (457 m).

**Exposure C.** Open terrain with scattered obstructions, including surface undulations or other irregularities, having heights generally less than 30 feet (9144 mm). This category includes flat open country, grasslands, water surfaces, and the areas shown within Exposure b-type terrain where the building is directly adjacent to open areas of Exposure C-type terrain in any quadrant for a distance of more than 600 feet (182.9 m).

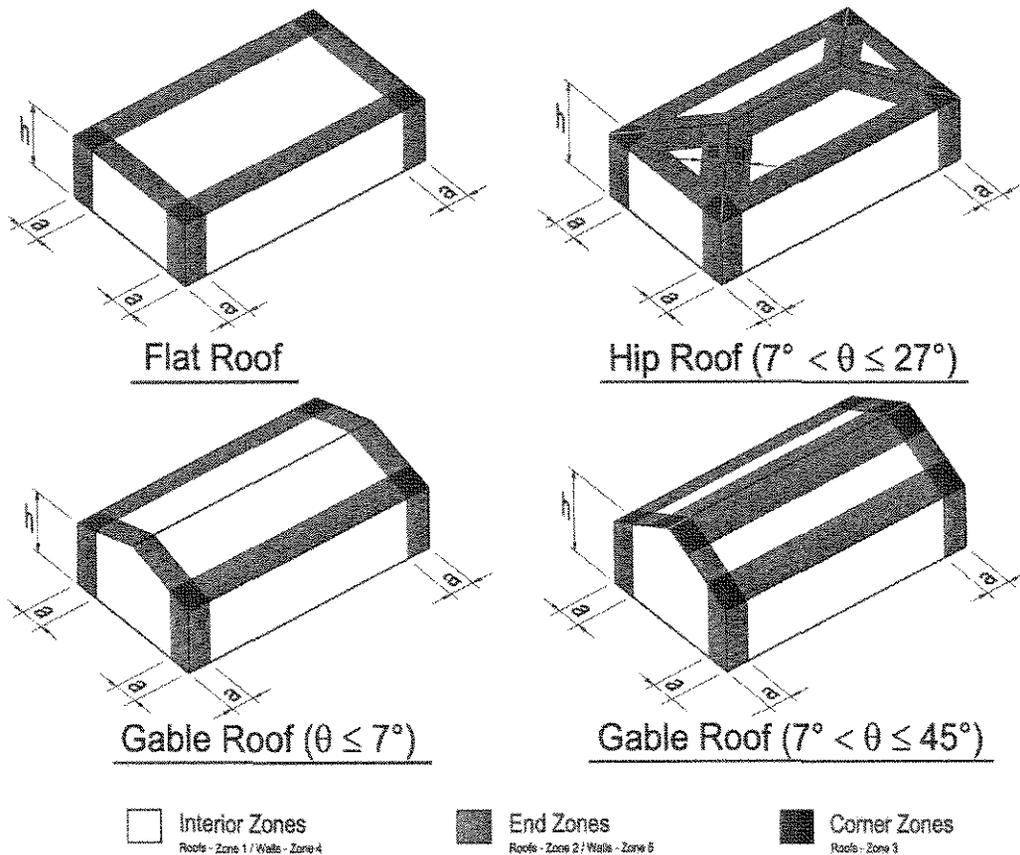




**A BILL FOR AN ORDINANCE**

3. An exposure category shall be determined in accordance with Section 1609.4.
4. A height and exposure adjustment coefficient,  $\lambda$ , shall be determined from Table 1609.6.2.1 (4).

(218) Amending Figure 1609.6.2.2. Figure 1609.6.2.2 is amended to read:



For SI: 1 foot = 304.8 mm, 1 degree = 0.0174 rad.

Notes:

1. Pressures are applied normal to the surface for Exposure B, at  $h = 30$  feet, for  $l_w = 1.0$ . Adjust to other exposures and heights with adjustment factor  $\lambda$ .



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A BILL FOR AN ORDINANCE

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2. Plus and minus signs signify pressures acting toward and away from the surfaces, respectively.
3. For hip roofs with  $\theta \leq 25$  degrees, Zone 3 shall be treated as Zone 2.
4. For effective areas between those given, the value is permitted to be interpolated, otherwise use the value associated with the lower effective area.
5. Notation:
  - a: Ten (10) percent of least horizontal dimension or  $0.4h$ , whichever is smaller, but not less than either 4 percent of least horizontal dimension or 3 feet.
  - h: Mean roof height, in feet (meters), except that eave height shall be used for roof angles  $< 10$  degrees.
  - $\theta$ : Angle of plane of roof from horizontal, in degrees.

(219) Amending Section 1612.3. Section 1612.3 is amended to read:

**1612.3 Flood Hazard Areas.** See ROH Chapter 21, Article 9.

(220) Amending Section 1612.4. Section 1612.4 is amended to read:

**1612.4 Design and Construction.** See ROH Chapter 16, Article 11.

(221) Amending Section 1612.5. Section 1612.5 is amended to read:

**1612.5 Flood Hazard Documentation.** The following documentation shall be prepared and sealed by a registered design professional and submitted to the building official:

1. For construction in flood hazard areas not subject to high-velocity wave action:



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## A BILL FOR AN ORDINANCE

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- 1.1 The elevation of the lowest floor, including basement, as required by the lowest floor elevation inspection in Section 109.3.3.
- 1.2 Floor fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of flood waters do not meet the minimum requirements in Section 2.6.2.1, ASCE 24, construction documents shall include an statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.6.2.2, ASCE 24.
- 1.3 For dry flood proofed nonresidential buildings, construction documents shall include a statement that the dry flood proofing is designed with ASCE 24.
2. For construction in flood hazard areas subject to high-velocity wave action:
  - 2.1 The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 109.3.3.
  - 2.2 Construction documents shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.
  - 2.3 For breakaway walls designed to resist a nominal load of less than 10 psf (0.48 kN/m<sup>2</sup>) or more than 20 psf (0.96 kN/m<sup>2</sup>). Construction documents shall include a statement that the breakaway wall is designed in accordance with ASCE 24.



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A BILL FOR AN ORDINANCE

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(222) Amending Section 1614.1.1. Section 1614.1.1 is amended to read:

**1614.1.1 Additions to Existing Buildings.** An addition that is structurally independent from an existing structure shall be designed and constructed as required for a new structure in accordance with the seismic requirements for new structures. An addition that is not structurally independent from an existing structure shall be designed and constructed such that the entire structure conforms to the seismic-force resistance requirements for new structures unless the following conditions are satisfied:

1. The addition conforms with the requirements for new structures;
2. The addition does not increase the seismic forces in any structural element of the existing structure by more than 10 percent, unless the element has the capacity to resist the increased forces determined in accordance with Sections 1613 and 1622; and
3. Additions do not decrease the seismic resistance of any structural element of the existing structure by more than 10 percent cumulative since the original construction, unless the element has the capacity to resist the forces determined in accordance with Sections 1613 and 1622.

(223) Amending Section 1614.3. Section 1614.3 is amended to read:

**1614.3 Alterations.** Alterations are permitted to be made to any structure without requiring the structure to comply with Sections 1613 through 1623 provided the alterations conform to the requirements for a new structure. Alterations that increase the seismic force in any existing structural element by more than 10 percent or decrease the design strength of any existing structural element to resist seismic forces by more than 10 percent shall not be permitted unless the entire seismic-force-resisting system is determined to conform to Sections 1613 through 1623 for a new structure.

**EXCEPTION:** Alterations to existing structural elements or additions of new structural elements that are not required by Sections



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## A BILL FOR AN ORDINANCE

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1613 through 1623 and are initiated for the purpose of increasing the strength or stiffness of the seismic-force-resisting system of an existing structure need not be designed for forces conforming to Sections 1613 through 1623 provided that an engineering analysis is submitted indicating the following:

1. The design strength of existing structural elements required to resist seismic forces is not reduced.
2. The seismic force to required existing structural elements is not increased beyond their design strength.
3. New structural elements are detailed and connected to the existing structural elements as required by this chapter.
4. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by this chapter.
5. The alterations do not create a structural irregularity as defined in Section 1616.5 or make an existing structural irregularity more severe.
6. The alterations do not result in the creation of an unsafe condition.



**A BILL FOR AN ORDINANCE**

(224) Amending Tables 1616.3 (1) and 1616.3 (2). Tables 1616.3 (1) and 1616.3 (2) are amended to read:

**TABLE 1616.3 (1)  
SEISMIC, DESIGN CATEGORY BASED ON  
SHORT-PERIOD RESPONSE ACCELERATION**

VALUE OF $S_{DS}$	SEISMIC USE GROUP		
	I	II	III
$S_{DS} < 0.167g$	A	A	A
$0.167g \leq S_{DS} < 0.33g$	B	B	C
$0.33g \leq S_{DS} < 0.50g$	C	C	D
$0.50 \leq S_{DS} < 0.60g$	C	D	D
$0.60g \leq S_{DS}$	D <sup>a</sup>	D <sup>a</sup>	D <sup>a</sup>

Seismic Use Group I and II structures located on sites with mapped maximum considered earthquake spectral response acceleration at 1-second period  $S_1$  equal to or greater than 0.75g, shall be assigned to Seismic Design Category E, and Seismic use Group III structures located on such sites shall e assigned to Seismic Design Category F.

**TABLE 1616.3 (2)  
SEISMIC DESIGN CATEGORY BASED ON  
1-SECOND PERIOD RESPONSE ACCELERATION**

VALUE OF $S_{DI}$	SEISMIC USE GROUP		
	I	II	III
$S_{DI} < 0.167g$	A	A	A
$0.167g \leq S_{DI} < 0.133g$	B	B	C
$0.133g \leq S_{DI} < 0.20g$	C	C	D
$0.20g \leq S_{DI} < 0.25g$	C	D	D
$0.25g \leq S_{DI}$	D <sup>a</sup>	D <sup>a</sup>	D <sup>a</sup>

Seismic Use Group I and II structures located on sites with mapped maximum considered earthquake spectral response acceleration at 1-second period  $S_1$  equal to or greater than 0.75g, shall be assigned to Seismic Design Category E, and Seismic use Group III structures located on such sites shall e assigned to Seismic Design Category F.



A BILL FOR AN ORDINANCE

(225) Amending Section 1616.5. Section 1616.5 is amended to delete the exception and to read:

**1616.5 Building Configuration.** Buildings shall be classified as regular or irregular based on the criteria in Section 9.5.2.3 of ASCE 7-02.

(226) Amending Section 1616.6. Section 1616.6 is amended to read:

**1616.6 Analysis Procedure.** A structural analysis conforming to one of the types permitted in Section 9.5.2.5.1 of ASCE 7 or to the simplified procedure in Section 1616.6.1 shall be made for all structures. The analysis shall form the basis for determining the seismic forces  $E$  and  $E_m$ , to be applied in the load combinations of Section 1605 and shall form the basis for determining the design drift as required by Section 9.5.2.8 of ASCE 7.

(227) Amending Section 1616.6.1. Section 1616.6.1 is amended to read:

**1616.6.1 Simplified Analysis.** A simplified analysis in accordance with ASCE 7-05 Section 12.14 Simplified Alternative Structural Design Criteria for Simple Bearing Wall or Building Frame Systems, shall be permitted to be used, or a more rigorous analysis procedure shall be used.

(228) Amending Section 1617.1. Section 1617.1 is amended to read:

**1617.1 Seismic Load Effect  $E$  and  $E_m$ .** The seismic load effect,  $E$ , for use in the basic load combinations of Sections 1605.2 and 1605.3 shall be determined from Section 9.5.2.7 of ASCE 7-02. The maximum seismic load effect,  $E_m$ , for use in the special seismic load combination of Section 1605.4 shall be the special seismic load determined from Section 9.5.2.7.1 of ASCE 7-02.

(229) Amending Section 1617.1.1. Section 1617.1.1 is deleted.

(230) Amending Section 1617.2. Section 1617.2 exception is amended to read:

**1617.2 Redundancy.** The provisions given in Section 9.5.2.4 of ASCE 7-02 shall be used.



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A BILL FOR AN ORDINANCE

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**EXCEPTION:** Structures designed using the simplified analysis procedure in Section 1616.6.1.

(231) Amending Section 1617.2.2. Section 1617.2.2 is deleted.

(232) Amending Section 1617.3. Section 1617.3 is amended to read:

**1617.3 Definition and Drift Limits.** The provisions given in Section 9.5.2.8 of ASCE 7-02 shall be used.

(233) Amending Section 1617.5. Section 1617.5 is deleted.

(234) Amending Section 1617.6.2. Section 1617.6.2 is deleted.

(235) Amending Section 1620.1. Section 1620.1 is amended to read:

**1620.1 Structural Component Design and Detailing.** The design and detailing of the components of the seismic-force-resisting system shall comply with the requirements of Section 9.5.2.6 of ASCE 7-02 in addition to the non-seismic requirements of this code except as modified in Sections 1620.1.1, 1620.1.2 and 1620.1.3.

**EXCEPTION:** For structures designed using the simplified analysis procedure in Section 1616.6.1, the provisions of ASCE 7-05 Section 12.14 shall be used.

(236) Amending Sections 1620.2 through 1620.5. Sections 1620.2 through 1620.5 are deleted.

(237) Amending Section 1702. Section 1702, definition of "STRUCTURAL OBSERVATION" is amended to read:

**STRUCTURAL OBSERVATION:** Structural "observation of construction" means making visits to the site by a licensed engineer in the structural branch or architect, or qualified representatives working under the supervision of a licensed engineer in the structural branch or architect, as the case may require, to observe the progress and quality of the executed work and to determine, in general, if the work is proceeding in accordance with the contract documents. It is not required that they make exhaustive or continuous on-site observations to check the quality or



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## A BILL FOR AN ORDINANCE

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quantity of work, nor is it intended that the engineer be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the work. Structural observation does not include or waive the responsibility for the inspection required by Section 109, 1704 or other sections of this code.

(238) Amending Section 1704. Section 1704 is amended:

a. By amending Section 1704.1 to read:

**1704.1 General.** 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 1704 and 1707. These inspections are in addition to the inspections specified in Section 109. The special inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the building official, for inspection of the particular type of construction or operation requiring special inspection. The building official may impose reasonable fees to cover the cost to conduct examination 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 minor nature.
2. The employment of a special inspector shall not be required for construction work for any government agency that provides for its own inspections.

b. By amending Section 1704.4.1 to read:

**1704.1.1 Building Permit Requirement.** The permit applicant shall submit a statement of special inspections prepared by the licensed engineer or architect of record as a condition for permit issuance. The statement shall include a complete list of special inspections required by this section and the qualified person who will conduct the special inspection.



A BILL FOR AN ORDINANCE

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- c. By amending Section 1704.1.2 to read:

**1704.1.2 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 shall indicate that work inspected was done in conformance to approved construction documents. All discrepancies shall be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the proper design authority and to the building official.

The special inspector shall submit a final signed report 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.

- d. By amending Section 1704.3 to add Section 1704.3.4. Section 1704.3.4 is added to read:

**1704.3.4 Structural Steel for Seismic Resistance.** Continuous special inspection for structural welding of seismic-resisting systems in accordance with AISC 341, Seismic Provisions for Structural Steel Buildings, in structures assigned to Seismic Design Category C, D, E, or F as determined in Section 1616.

**EXCEPTIONS:**

1. Single-pass fillet welds not exceeding 5/16 inch (7.9 mm) in size.
2. Floor and roof deck welding.

- e. By amending Section 1704.4 to read:

**1704.4 Concrete Construction.** The special inspections and verifications for concrete construction shall be as required by this section and Table 1704.4.

**EXCEPTIONS:** Special inspections shall not be required for:



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A BILL FOR AN ORDINANCE

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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 of all concrete footings shall be required.
  3. Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, where the effective prestress in the concrete is less than 150 psi (1.03 Mpa).
  4. Concrete foundation walls constructed in accordance with Tables 1805.5 (1), 1805.5 (2), 1805.5 (3) or 1805.5 (4).
  5. Concrete patios, driveways and sidewalks, on grade.
- f. By amending Section 1704.5.

**1704.5 Masonry Construction.** Masonry construction shall be inspected and evaluated in accordance with the requirements of Sections 1704.5.1 through 1704.5.3, depending on the classification of the building or structure or nature of occupancy, as defined by this code.

**EXCEPTIONS:** Special inspections shall not be required for:

1. Empirically designed masonry, glass unit masonry, or masonry veneer designed by Section 2109, 2110, or Chapter 14, respectively, or by Chapters 5, 7, or 6, of ACI 530/ASCE 5/TMS 402, respectively, when they are part of structures classified as Seismic Use Group I or II.



**A BILL FOR AN ORDINANCE**

2. Masonry foundation walls with permanent lateral support at the top and bottom constructed in accordance with Table 1805.5 (2), 1805.5 (3), or 1805.5 (4).
3. Structures permitted to be designed under the International Residential Code.

**1704.5.1 Empirically Designed Masonry, Glass Unit Masonry and Masonry Veneer in Seismic Use Group III Facilities.** The minimum inspection program for empirically designed masonry, glass unit masonry or masonry veneer designed by Section 2109, 2110, or Chapter 14, respectively, or by Chapter 5, 7, or 6 of ACI 530/ASCE 5/TMS 402, respectively, in building classified as Seismic Use Group III shall comply with Table 1704.5.1.

**1704.5.2 Engineered Masonry in Seismic Use Group I or II Facilities.** The minimum special inspection program for masonry designed by Section 2107 or 2108, or by chapters other than Chapters 5, 6, or 7 of ACI 530/ASCE 5/TMS 402, in Seismic Use Group I or II facilities (see Table 1604.5 and Section 1616.2), shall comply with Table 1704.5.1.

**1704.5.3 Engineered Masonry in Seismic Use Group III Facilities.** The minimum special inspection program for masonry designed by Section 2107 or 2108, or by chapters other than Chapter 5, 6, 7 or ACI 530/ASCE 5/TMS 402, in Seismic Use Group III facilities (see Table 1604.5 and Section 1616.2), shall comply with Table 1704.5.3.

- g. By amending Section 1704.6. Section 1704.6.2 is added to read:

**1704.6.2 Structural Wood.** Continuous special inspection during field gluing operations of elements of the lateral-force-resisting system. Periodic special inspections for nailing, bolting, anchoring and other fastening of components within the lateral-force-resisting system, including drag struts, braces, sheathed shear walls, shear panels, diaphragms, and hold-downs.

**EXCEPTION:** Fastening of wood sheathing used for wood shear walls, shear panels and diaphragms where the fastener spacing is more than 4 inches (102 mm) on center (o.c.).



A BILL FOR AN ORDINANCE

h. By amending Section 1704.14 to read:

**1704.14 Fire-Protection Systems.** Special inspection for fire-protection systems shall be as required by Section 912.

i. By adding Section 1704.15 to read:

**1704.15 Complete Load Path and Uplift Ties.** Metal connectors, anchors, or fasteners for wood and cold-formed steel construction at the following locations: roof ridges, roof rafters to beam or wall supports, beams to posts, posts or walls to floor framing or foundation below, ground anchors, and all other connections that are part of the load path to resist uplift forces.

**EXCEPTION:** The special inspector need not be present during the installation of all of the connectors, provided that the special inspector verifies that all of the connectors are installed in conformance with the requirements of this code.

j. By adding Section 1704.16 to read:

**1707.16 Cold-Formed Steel Framing.** Periodic special inspections during welding operations of elements of the lateral-force-resisting system. Periodic special inspections for screw attachment, bolting, anchoring and other fastening of components within the lateral-force-resisting system, including struts, braces, and hold-downs.

k. By adding Section 1704.17 to read:

**1704.17 Termite Protection.** Termite barrier, treated structural lumber and pipe penetrations for new wood frame residential buildings.

(239) Amending Section 1705. Section 1705 is deleted.

(240) Amending Section 1706. Section 1706 is deleted.

(241) Amending Section 1707. Section 1707 is amended to read:



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A BILL FOR AN ORDINANCE

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**1707.1 Special Inspections for Seismic Resistance of Mechanical and Electrical Components.** Special inspection as specified in this section is required for the following:

1. Where required in Section 1704.1.
2. Special inspections itemized in Sections 1707.2 for Mechanical and electrical components in structures assigned to Seismic Design Category C, D, E or F.

**1707.2 Mechanical and Electrical Components.** Periodic special inspection is required during the anchorage of electrical equipment for emergency or standby power systems in structures assigned to Seismic Design Category C, D, E or F. Periodic special inspection is required during installation of piping systems intended to carry flammable, combustible or highly toxic contents and their associated mechanical units in structures assigned in Seismic Design Category C, D, E or F. Periodic special inspection is required during the installation of HVAC ductwork that will contain hazardous materials in structures assigned to Seismic Design Category C, D, E or F.

**1707.2.1 Component Inspection.** Special inspection required for the installation of the following components, where the component has a Component Importance Factor of 1.5 in accordance with Section 9.6.1.5 of ASCE 7-02, shall maintain an approved quality control program. Evidence of the quality control program shall be permanently identified on each piece of equipment by a label.

1. Equipment using combustible energy sources.
2. Electrical motors, transformers, switchgear unit substations and motor control centers.
3. Reciprocating and rotating-type machinery.
4. Piping distribution systems 3 inches (76 mm) and larger.
5. Tanks, heat exchangers and pressure vessels.



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## A BILL FOR AN ORDINANCE

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**1707.2.2 Component and Attachment Testing.** The component manufacturer shall test or analyze the component and the component mounting system or anchorage for the design forces in Chapter 16 for those components having a Component Importance Factor of 1.5 in accordance with Chapter 16. The manufacturer shall submit a certificate of compliance for review and acceptance by the registered design professional responsible for the design, and for approval by the registered design professional responsible for the design, and for approval by the building official. The basis of certification shall be by test on a shaking table, by three-dimensional shock tests, by an analytical method using dynamic characteristics and forces from Chapter 16 or by more rigorous analysis. The special inspector shall inspect the component and verify that the label, anchorage or mounting conforms to the certificate of compliance.

(242) Amending Section 1709.1. Section 1709.1 is amended to read:

**1709.1 Structural Observations.** The owner shall employ a registered design professional to perform structural observations as defined in Section 1702. Significant deficiencies shall be reported in writing to the owner. At the conclusion of the work included in the permit, if there are any reported significant deficiencies which, to the best of the structural observer's knowledge, have not been resolved, the structural observer shall submit to the building official a written statement identifying the significant deficiencies.

(243) Amending Section 1801.1. Section 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.

(244) Amending Section 1805.5. Section 1805.5 is amended to read:

**1805.5 Foundation Walls.** Concrete and masonry foundation walls shall be designed in accordance with Chapter 19 or 21. Foundation walls that are laterally supported at the top and bottom and within the parameters of Tables 1805.5 (2) through 1805.5 (4) are permitted to be designed and constructed in accordance with Sections 1805.5.1.1 through 1805.5.5.



A BILL FOR AN ORDINANCE

(245) Amending Table 1805.5 (1). Table 1805.5 (1) is deleted.

(246) Amending Section 1807.4.3. Section 1807.4.3 is amended by deleting the word "International."

(247) Amending Section 1808.2.7. Section 1808.2.7 is amended to read:

**1808.2.7 Splices.** Splices shall be constructed so as to provide and maintain true alignment and position of the component parts of the pier or pile during installation and subsequent thereto and shall be of adequate strength to transmit the vertical and lateral loads and moments occurring at the location of the splice during driving and under service loading. Splices occurring in the upper 10 feet (3048 mm) of the embedded portion of the pier or pile shall be capable of resisting at allowable working stresses the moment and shear that would result from an assumed eccentricity of the pier or pile load of 3 inches (76 mm), or the pier or pile shall be braced in accordance with Section 1808.2.5 to other piers or piles that do not have splices in the upper 10 feet (3048 mm) of embedment.

(248) Adding Section 2104.1.9. Section 2104.1.9 is added to read:

**2104.1.9 Cleanouts.** Cleanouts shall be provided for all grout pours over 5 feet 4 inches in height.

Special provisions shall be made to keep the bottom and sides of the grout spaces, as well as the minimum total clear area required by ACI 530.1-05/ASCE 6-05/TMS 602-05 clean and clear prior to grouting.

**EXCEPTION:** Cleanouts are not required for grout pours 8 feet or less in height providing all of the following conditions are met:

- a. The hollow masonry unit is 8-inch nominal width or greater with specified compressive strength  $f'_m$  less than or equal to 1,500 psi;
- b. Fine grout is used complying with ASTM C-476 minimum compressive strength of 2,500 psi;
- c. Special Inspection is provided.



**A BILL FOR AN ORDINANCE**

(249) Amending Section 2107.2.3. Section 2107.2.3 is amended to read:

**2107.2.3 ACI 530/ASCE 5/TMS 402, Section 2.1.10.6.1.1, Lap Splices.**

Modify Section 2.1.10.6.1.1 as follows:

**2.1.10.6.1.1** The minimum length of lap splices for reinforcing bars in tension or compression  $l_d$ , shall be:

$$l_d = 0.002d_b f_s$$

For SI:  $l_d = 0.29d_b f$ , but not less than 12 inches (305 mm). In no case shall the length of the lapped splice be less than 40 bar diameters.

Where:  $d_b$  = diameter of reinforcement, inches (mm)  
 $f_s$  = computed stress in reinforcement due to design loads, psi (MPa).

In regions of moment where the design tensile stresses in the reinforcement are greater than 80 percent of the allowable steel tension stress  $F_s$ , the lap length of splices shall be increased not less than 50 percent of the minimum required length. Other equivalent means of stress transfer to accomplish the same 50 percent increase shall be permitted.

(250) Amending Section 2108.3. Section 2108.3 is amended by adding the following text:

**2108.3 ACI 530/ASCE 5/TMS 402, Section 3.2.3.3.**

Modify Section 3.2.3.3 as follows:

The required development length of reinforcement shall be determined by Eq. (3-13), but shall not be less than 12 in. (305 mm) and need not be greater than 72  $d_b$ .

(251) Amending Section 2303.1.8. Section 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,



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## A BILL FOR AN ORDINANCE

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sleepers, roof and floor sheathing, flooring and headers of new wood-frame buildings and additions shall be:

1. Treated in accordance with AWPA Standards C1-03, C2-02, and C9-03 (UC1 through UC4B) for AWPA Standardized Preservatives, all marked or branded by an approving agency. Incising is not required, providing that the retention and penetration requirements of these standards are met; or
2. Treated in accordance with AWPA Standards C-31-02 and C-9-03 (UC1 and UC2) for SBX disodium octaborate tetrahydrate (DOT), amended as follows: retention shall be not less than 0.28 pcf  $B_2O_3$  (0.42 pcf DOT) for exposure to Formosan termites, all marked and monitored by an approving agency. Incising is not required, providing that the retention and penetration requirements of these standards are met. All such lumber shall 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 C28-03 and C33-03 (UC1 through UC3B) 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 N2-04 (UC1, UC2 and UC3A) or approved by the building official.

**2303.1.8.1 Treatment.** Wood treatment shall 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 shall be an independent agency



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## A BILL FOR AN ORDINANCE

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approved by the building official, accredited by the American Lumber Standards Committee (ALSC) and contracted by the treating company;

3. Field protection of all cut surfaces with a preservative, which shall 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 shall be applied to all structural lumber 2 inches or greater nominal thickness, with the following information provided on each piece as permanent ink stamp on one face 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 in nominal thickness, shall be identified per bundle by means of a label consisting of the above requirements. Labels measuring no less than 6 inches by 8 inches shall 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 shall be at a moisture content of 19 percent or less before being covered with insulation, interior wall finish, floor covering or other material.

(252) Amending Section 2304.9.5. Section 2304.9.5 is amended to read:



**A BILL FOR AN ORDINANCE**

**2304.9.5 Fasteners in Non-Borate-Preservative-Treated and Fire-Retardant Treated Wood.** Fasteners for preservative-treated and fire-retardant-treated wood, other than Borate (SBX, ZB) or LSOP treatments as approved in Section 2303.1.8 Preservative-Treated Wood, shall be of hot dipped zinc-coated galvanized steel, stainless steel, silicone bronze or copper. The coating weights for zinc-coated fasteners shall be in accordance with ASTM A 153.

**EXCEPTION:** Fasteners other than nails, timber rivets, wood screws and lag screws shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum.

Fastenings for wood foundations shall be as required in AF & PA Technical Report No. 7.

(253) Amending Section 2304.11. Section 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 shall be provided by the use of preservative-treated wood.

**2304.11.1.1** 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 shall be either:
  - a. chemically treated at the maximum label rate for control of Formosan subterranean termites by a licensed pest control operator, or
  - b. 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:



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## A BILL FOR AN ORDINANCE

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- a. 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 beyond the concrete; or
  - b. a continuous barrier of BTB at least 4 inches in thickness extending at least 6 inches beyond the concrete slab.
3. A poured-in-place concrete foundation wall, the foundation wall must be protected from the adjacent soil by either:
- a. a continuous chemical barrier applied at the maximum label rates, by an operator licensed to control ground termites, to the backfill in 12-inch lifts in a band extending at least 12 inches beyond the concrete; or
  - b. a continuous barrier of BTB at least 6 inches in thickness extending the full height of the retained soil; or
  - c. 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:
- a. a continuous barrier of BTB at least 6 inches in thickness extending the full height of the retained soil; or
  - b. an approved stainless steel termite barrier mesh between the top of the CMU and all wood framing; or
  - c. a continuous gap or reinforced concrete at least 4 inches 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



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## A BILL FOR AN ORDINANCE

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CMU must be protected from the soil by a full barrier of BTB or stainless steel termite barrier.

**2304.11.2 Wood Used Above Ground.** Wood installed above ground in the locations specified in this paragraph shall be preservative-treated in accordance with AWPA C2-02 or C09-03 (UC1 through UC3B) or other applicable AWPA standards for above-ground use. For structural glued-laminated members made up of dimensional lumber, engineered wood products or structural composite lumber will follow the requirements of paragraph 3 in Section 2303.1.8 Preservative-Treated wood.

1. Joists, girders, beams, and subfloor.
2. Framing.
3. Sleepers and sills.
4. Wood siding. Clearance between wood siding and earth on the exterior of a building shall not be less than 6 inches (152 mm).
5. Posts or columns. Posts or columns supporting permanent structures and supported by concrete or masonry slab or footing that is in direct contact with the earth.
6. Glu-laminated, engineered or composite structural members. The portions of these structural members that form the structural supports of a building or other structure.

**2304.11.3 Wood in Contact with the Ground.** Wood in contact with the ground (exposed earth) shall be preservative-treated in accordance with AWPA C2-02, C9-03 (UC4 and UC4B) or other applicable AWPA standard for soil contact.

1. Posts and columns supporting permanent structures that are embedded in concrete in direct contact with the earth or embedded in concrete exposed to the weather or in direct contact with the earth.
2. Wood structural members in direct contact with the ground.



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A BILL FOR AN ORDINANCE

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3. Wood members that form the structural supports of buildings, balconies, porches or similar permanent building appurtenances in direct contact with the ground.
4. Wood used in retaining walls and cribs.
5. Where wood is used with less than 6-inch vertical separation from earth (finished grade), it shall be treated for ground-contact use.
6. Where planter boxes are installed adjacent to wood frame walls, a 2-inch-wide (51 mm) air space shall be provided between the planter and the wall. Flashings shall be installed when the air space is less than 6 inches (152 mm) in width. Where flashing is used, provisions shall be made to permit circulation of air in the air space. The wood-frame wall shall be provided with an exterior wall covering conforming to the provisions of Section 2304.6.

**2304.11.4 Under-Floor Clearance.** Minimum clearance between the bottom of floor joists or bottom of floors without joists and the ground beneath shall be 24"; the minimum clearance between the bottom of girders and the ground shall be 18".

**EXCEPTION:** Open slat wood decks shall have ground clearance of at least 6" for any wood member. Accessible under-floor areas shall be provided with a minimum 14"x24" access opening.

**2301.11.5 Under-Floor Ventilation.** For under-floor ventilation (crawl space), see Section 1203.3.

**2304.11.6 Attic Ventilation.** For attic ventilation, see Section 1203.2.

**2304.11.7 Pipe and Other Penetrations.** Openings around pipes or similar penetrations in a concrete or masonry slab which is in direct contact with earth, shall be filled with non-shrink grout, basaltic termite barrier, or other approved barrier. Insulation around pipes and conduits shall not pass through ground floor slabs.



**A BILL FOR AN ORDINANCE**

(254) Amending Section 2308.2.1. Section 2308.2.1 is amended to read:

**2308.2.1** Basic wind speed greater than 100 mph (3-second gust). Where the Effective Basic Wind Speed exceeds 100 mph, the provisions of the AF & PA Wood Frame Construction Manual for One- and Two-Family Dwellings (WFCM) are permitted to be used.

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

**TABLE 2308.10.1**  
**REQUIRED RATING OF APPROVED UPLIFT CONNECTORS (pounds)<sup>a,b,c,d,e,f</sup>**

Effective Basic Wind Speed, $V_{eff, 3-sec}$ gust	Roof Span (feet)							Overhangs (pounds/foot)
	12	20	24	28	32	36	40	
<b>85</b>	-72	-120	-144	-168	-192	-216	-240	-38.55
<b>90</b>	-91	-152	-182	-213	-243	-274	-304	-43.22
<b>100</b>	-131	-218	-262	-305	-349	-392	-436	-53.36
<b>110</b>	-175	-292	-350	-409	-467	-526	-584	-64.56
<b>120</b>	-240	-400	-480	-560	-640	-720	-800	-76.83
<b>130</b>	-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.
- b. The uplift connection requirements are based on the framing being spaced 24 inches on center. Multiply by 0.67 for framing spaced 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.



**A BILL FOR AN ORDINANCE**

- d. The uplift connection requirements do not account for the effects of overhangs. The magnitude of the above loads shall be 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 shall be 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 Section 1609.6.3. 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 by 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.  $V_{eff}$  is given by figure 1609.1.1.1.
- j. The uplift connection requirements are based on 30-foot mean roof height located in Exposure B. For Exposure C 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	1.40	1.45	1.49	1.53	1.56	1.59	1.62



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A BILL FOR AN ORDINANCE

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(256) Amending Section 2403.5. Section 2403.5 is amended to read:

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

(257) Amending Section 2603.4.1.3. Section 2603.4.1.3 is amended by replacing "400 square feet (37 m<sup>2</sup>)" with "800 square feet (74 m<sup>2</sup>)."

(258) Amending Section 2701.1. Section 2701.1 is amended by deleting the acronym "ICC."

(259) Amending Section 2702.1. Section 2702.1 is amended by deleting the acronym "ICC."

(260) Amending Section 2702.2.8. Section 2702.2.8 is amended by deleting the word "International."

(261) Amending Section 2702.2.10. Section 2702.2.10 is amended by deleting the word "International."

(262) Amending Section 2702.2.11. Section 2702.2.11 is amended by deleting the word "International."

(263) Amending Section 2702.2.12. Section 2702.2.12 is amended by deleting the word "International."

(264) Amending Section 2702.3. Section 2702.3 is amended by deleting the word "International."

(265) Amending Section 2901.1. Section 2901.1 is amended to read:

**2901.1 Plumbing Code.** Plumbing systems shall comply with the Plumbing Code.

(266) Deleting Section 2902. Section 2902 is deleted.



A BILL FOR AN ORDINANCE

(267) Deleting Chapter 30. Chapter 30 is deleted.

(268) Amending Section 3103.1. Section 3103.1 is amended to read:

**3103.1 General.** See ROH Section 18-3.4.

(269) Amending Section 3105.3. Section 3105.3 is amended to read:

**3105.3 Design and Construction.** Awnings and canopies shall 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 shall be protected to prevent deterioration. Awnings shall have frames of noncombustible material, fire-retardant-treated wood, wood of Type IV sizes, or 1-hour construction with combustible or noncombustible covers and shall be either retractable, folding or collapsible. When collapsed, retraced or folded, the design shall be such that the awning does not block any required exit.

**EXCEPTIONS:**

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

(270) Amending Section 3106. Section 3106 is amended to read:

**SECTION 3106 – MARQUEES**

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

**3106.2 Construction.** A marquee shall be supported entirely from the building and shall be constructed entirely of noncombustible materials.



A BILL FOR AN ORDINANCE

**EXCEPTION:** Drop-off curtains may be suspended below the exterior periphery provided a minimum clearance of 7 feet from the sidewalk below is maintained.

**3106.3 Roof Construction.** The roof or any part thereof may be a skylight, provided glass skylights are of laminated or wired glass complying with Section 2405. Plastic skylights shall comply with Section 2610.

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

**3106.4 Location Prohibited.** Every marquee shall 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 Thickness.** The maximum height or thickness of a marquee measured vertically from its lowest to its highest point shall not exceed 3 feet.

(271) Amending Section 3107.1. Section 3107.1 is amended by adding the following sentence:

Signs shall conform to ROH Chapter 21.

(272) Deleting Section 3109. Section 3109 is deleted.

(273) Amending 3202. Section 3202 is amended to read:

**SECTION 3202 – ENCROACHMENTS**

**3202.1 Balconies, Sun-Control Devices and Appendages.** 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:



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A BILL FOR AN ORDINANCE

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Clearance above grade less than 8 feet – no projection is permitted.

Clearance above the grade 8 feet and over – one inch of projection is permitted for each additional inch of clearance provided that no such projection shall exceed a distance of 4 feet.

Roof eaves shall be sloped to downspouts and/or gutters leading back to the building which shall conduct any drainage under the sidewalk area through the curb to the street gutter. A drain connection permit may be required.

**3202.2 Awnings.** Awnings may extend over public property not more than 7 feet (2134 mm) from the face of a supporting building, but not portion shall extend nearer than 2 feet 6 inches to the face of the nearest curb line measured horizontally. In no case shall 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 shall be at least 8 feet (2438 mm) above any public walkway.

**EXCEPTION:** Any valance attached to an awning shall not project above the roof of the awning at the point of attachment and shall not extend more than 12 inches (305 mm) below the roof of the awning at the point of attachment, but in no case shall any portion of a valance be less than 7 feet (2134 mm) in height above a public way.

**3202.3 Marquees.** Marquees shall project not more than three fourths of the distance from the property line to the face of the curb but in no case reach within 2 feet 6 inches of the face of the curb.

There shall be a minimum of 8 feet vertical clearance between the lowest point of any marquee to the sidewalk below.

**3202.4 Doors.** No doors, either fully opened or when opening, shall project beyond the property line.

(274) Deleting Section 3305. Section 3305 is deleted.



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A BILL FOR AN ORDINANCE

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(275) Amending Section 3306.1. Section 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.

(276) Amending Section 3306.5. Section 3306.5 is amended by replacing "8 feet (2438 mm)" with "6 feet (1829 mm)."

(277) Adding Section 3306.10. Section 3306.10 is added to read:

**3306.10 Watchman.** A watchman shall be employed to warn the general public when intermittent hazardous operations are conducted on or above the sidewalk.

(278) Amending Section 3307.1. Section 3307.1 is amended by adding a second paragraph to read:

The owner and contractor doing the excavation or fill shall be 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.

(279) Adding Section 3308.1.2. Section 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 shall be adequately lighted between sunset and sunrise.

(280) Amending Section 3308.2. Section 3308.2 is amended to read:



A BILL FOR AN ORDINANCE

**3308.2 Utility Fixtures.** Building materials, fences, sheds or any obstruction of any kind shall 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 shall be provided to such utility fixtures during the progress of the work, but sight of them shall not be obstructed. This protection shall be maintained while such work is being done and shall not obstruct the normal functioning of the device.

(281) Amending Section 3309.2. Section 3309.2 is amended by deleting the word "International."

(282) Deleting Section 3401.3. Section 3401.3 is deleted.

(283) Amending Section 3403.1. Section 3403.1 is amended by amending the exception to read:

**EXCEPTION:** For buildings and structures in flood hazard areas, see ROH Chapter 21, Article 9.

(284) Amending Section 3409.1. Section 3409.1 is amended by adding a second paragraph after the exception to read:

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 shall be equivalent to meeting the accessibility of this code. At the time of submittal of an application for a building permit, the applicant shall state on the plans that the project is subject to the above requirements.

(285) Amending Section 3409.3. Section 3409.3 is amended to read:

Requirements for new construction shall apply to existing buildings that undergo a change of occupancy group, unless technically infeasible.

(286) Amending Section 3410. Section 3410 is amended to read:

**SECTION 3410 – EXISTING NONCONFORMING BUILDINGS**



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## A BILL FOR AN ORDINANCE

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**Section 3410.1 Purpose.** The purpose of this section is to provide a reasonable degree of safety to persons occupying existing Groups R-1 and R-2 buildings that do not conform with the minimum requirements of this code by requiring alterations to such existing buildings.

**Section 3410.2 Scope.** The provisions of this section shall apply exclusively to existing nonconforming Groups R-1 and R-2 Occupancies more than 2 stories in height.

**Section 3410.3 Stair Construction.** All stairs shall have a minimum run of 9 inches and a maximum rise of 8 inches and a minimum width of 30 inches exclusively of handrails. Every stairway shall have at least one handrail. A landing having a minimum 30-inch run in the direction of travel shall be provided at each point of access to the stairway.

**Section 3410.4 Doors and Openings.** Exit doors shall meet the requirements of Sections 715.3.3, 1008.1.2, and 1008.1.8. Doors shall not reduce the required width of stairways more than 7 inches when open. Transoms, and openings other than doors, from corridors to rooms shall be fixed closed and shall be covered with a minimum of  $\frac{3}{4}$ -inch plywood of  $\frac{1}{2}$ -inch gypsum wall board or equivalent material on the room side.

**EXCEPTIONS:**

1. Existing solid-bonded wood core doors 1 and  $\frac{3}{8}$ -inches thick or their equivalent may be continued in use.
2. Where the existing frame will not accommodate a door complying with Section 715.3.3, a 1 and  $\frac{3}{8}$ -inch thick solid-bonded wood core may be used.

**Section 3410.5 Separation of Occupancies.** Occupancy separations shall be provided as specified in Section 302.1 of this code. When approved by the building official, existing wood lath and plaster in good condition of  $\frac{1}{2}$ -inch gypsum wallboard may be acceptable where one-hour occupancy separations are required.



A BILL FOR AN ORDINANCE

**Sec. 16-1.2 International Residential Code for One- and Two-Family Dwellings**

The "International Residential Code for One- and Two-Family Dwellings, 2003 Edition," as published in 2003 by the International Code Council, Inc., 5203 Leesburg Pike, Falls Church, Virginia, is by reference incorporated herein and made a part hereof, subject to the following amendments.

(287) Amending Section R101.1. Section R101.1 is amended to read:

**R101.1 Title.** These provisions shall be part of the Building Code of the City and County of Honolulu, and will be referred to herein as "this code."

(288) Amending Section R101.2. Section R101.2 is amended to read:

**R101.2 Scope.** The provisions of the International Residential Code for One- and Two-Family Dwellings shall 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 as 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.

(289) Amending Section R102.7. Section 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 shall be 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.

(290) Amending Section R103. Section R103 is amended to read:

**SECTION R103 – ORGANIZATION AND ENFORCEMENT**



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A BILL FOR AN ORDINANCE

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**R103.1 General.** Code enforcement agency shall be in accordance with International Building Code Section 103.

(291) Deleting Section R104.10.1. Section R104.10.1 is deleted.

(292) Amending Section R105. Section R105 is amended to read:

**SECTION R105 – PERMITS**

**R105.1 General.** A building permit is required to perform work covered by this code as provided in ROH Chapter 18.

(293) Deleting Section R106. Section R106 is deleted.

(294) Deleting Section R107. Section R107 is deleted.

(295) Deleting Section R108. Section R108 is deleted.

(296) Amending Section R109. Section R109 is amended to read:

**SECTION R109 – INSPECTIONS AND LOT SURVEY**

**R109.1 General.** Inspections and lot survey shall be in accordance with the International Building Code Section 109.

**R109.4 Special Inspections.** Special inspections shall be in accordance with the International Building Code, Section 109.4.

**(B) 1704.1 General.** 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 1704 and 1707. These inspections are in addition to the inspections specified in Section 109. The special inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the building official, for inspection of the particular type of construction or operation requiring special inspection. The building official may impose reasonable fees to cover the cost to conduct examination in licensing of special inspectors and issuance of registration cards.



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A BILL FOR AN ORDINANCE

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**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 shall not be required for construction work for any government agency that provides for its own inspections.

**(B) 1704.1.1 Building Permit Requirement.** The permit applicant shall submit a statement of special inspections prepared by the licensed engineer or architect of record as a condition for permit issuance. The statement shall include a complete list of special inspections required by this section and the qualified person who will conduct the special inspection.

**(B) 1704.1.2 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 shall indicate that work inspected was done in conformance to approved construction documents. All discrepancies shall be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the proper design authority and to the building official.

The special inspector shall submit a final signed report 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.

**(B) 1704.3.4 Structural Steel for Seismic Resistance.** Continuous special inspection for structural welding of seismic-force-resisting systems in accordance with AISC 341, Seismic Provisions for Structural Steel Buildings, in structures assigned to Seismic Design Category C, D, E, or F as determined in Section 1616.

**EXCEPTIONS:**



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## A BILL FOR AN ORDINANCE

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1. Single-pass fillet welds not exceeding 5/16 inch (7.9 mm) in size.
2. Floor and roof deck welding.

**(B) 1704.4 Concrete Construction.** The special inspections and verifications for concrete construction shall be as required by this section and Table 1704.4.

**EXCEPTIONS:** Special inspections shall not be 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 shall be required.
3. Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, where the effective prestress in the concrete is less than 150 psi (1.03 Mpa).
4. Concrete foundation walls constructed in accordance with Table 1805.5 (1), 1805.5 (2), 1805.5 (3) or 1805.5 (4).
5. Concrete patios, driveways and sidewalks, on grade.

**(B) 1704.6.2 Structural Wood.** Continuous special inspection during field gluing operations of elements of the lateral-force-resisting system. Periodic special inspections for nailing, bolting, anchoring and other fastening of components within the lateral-force-resisting system, including drag struts, braces, sheathed shear walls, shear panels, diaphragms, and hold-downs.



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## A BILL FOR AN ORDINANCE

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**EXCEPTION:** Fastening of wood sheathing used for wood shear walls, shear panels and diaphragms where the fastener spacing is more than 4 inches (102 mm) on center (o.c.).

**(B) 1704.14 Fire-Protection Systems.** Special inspection for fire-protection system shall be as required by Section 912.

### **(B) SECTION 912 – FIRE PROTECTION SYSTEMS SPECIAL INSPECTIONS**

**(B) 912.1 General.** Where application is made for construction as described in this section, the owner or the licensed design professional in charge acting as the owner's agent shall employ one or more fire protection systems special inspectors to provide inspections during construction on the types of work listed under Section 912. The fire protection system special inspector shall be approved by the building official. These inspections are in addition to the inspections specified in Section 109.

**(B) 912.1.1 Building Permit Requirement.** The permit application shall submit a statement of fire protection system inspection prepared by the licensed engineer of record as a condition for permit issuance. This statement shall include the fire protection system inspector required by this section who will conduct the inspection.

**(B) 912.1.2 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 shall indicate that work inspected was done in conformance to this by Section 912 and shall include but not limited to, working drawings and acceptance tests required by this section. All discrepancies shall be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the proper design authority and to the building official.

The special inspector shall submit a final signed report 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.



A BILL FOR AN ORDINANCE

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**(B) 912.2 Automatic Sprinkler Systems.** Automatic systems shall be inspected and evaluated in accordance to the requirements of Section 903.

1. During installation.

**EXCEPTION:** 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, 13D and 13R.

**(B) 1704.15 Complete Load Path and Uplift Ties.** Metal connectors, anchors, or fasteners for wood and cold-formed steel construction at the following locations: roof ridges, roof rafters to beam or wall supports, beams to posts, posts or walls to floor framing or foundation below, ground anchors, and all other connections that are part of the load path to resist uplift forces.

**EXCEPTION:** The special inspector need not be present during the installation of all of the connectors, provided that the special inspector verified that all of the connectors are installed in conformance with the requirements of this code.

**(B) 1707.16 Cold-formed Steel Framing.** Periodic special inspections during welding operations of elements of the lateral-force-resisting system. Periodic inspections for screw attachment, bolting, anchoring and other fastening of components within the lateral-force-resisting system, including struts, braces, and hold-downs.

**(B) 1704.17 Termite Protection.** Termite barrier, treated structural lumber and pipe penetrations for new wood frame residential buildings.

(297) Amending Section R110. Section R110 is amended to read:

**SECTION R110 – CERTIFICATE OF OCCUPANCY**



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## A BILL FOR AN ORDINANCE

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**R110.1 Use and Occupancy.** No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made until the building official has issued a certificate of occupancy therefore as provided herein. Issuance of a certificate of occupancy shall not be construed as approval of a violation of the provisions of this code or other ordinances of the jurisdiction.

**R110.2 Certified 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 completion which shall 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. If an automatic sprinkler system is provided.
9. Any special conditions for this permit.

**R110.3 Temporary Occupancy.** The building official is authorized to issue a temporary certificate of occupancy before the completion of the entire work covered by the permit, provided that such portion or portions



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## A BILL FOR AN ORDINANCE

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shall be occupied safely and is in compliance with the requirements of this code.

**R110.4 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 provided, or where it is determined that the structure or portion thereof violates any ordinance or regulation or any of the provisions of this code.

(298) Amending Section R112. Section R112 is amended to read:

### **SECTION R112 – BOARD OF APPEALS**

**R112.1 General.** Board of Appeals shall be in accordance with International Building Code Section 112.

(299) 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.

(300) Amending Section R202. Section R202 is amended:

a. 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.

b. By amending the definition of “BUILDING OFFICIAL” to read:

**BUILDING OFFICIAL** shall mean the director of planning and permitting of the city or the director’s authorized representative.

c. By amending the definition of “KITCHEN” to read:

**KITCHEN** shall be as defined in the Land Use Ordinance.



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A BILL FOR AN ORDINANCE

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- d. By amending the definition of "TOWNHOUSE" to read:

**TOWNHOUSE.** 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.

- (301) Amending Section R301.2.1. Section R301.2.1 is amended to read:

**R301.2.1 Wind Limitations.** Buildings and portions thereof shall be limited by wind speed, and construction methods in accordance with Table R301.2 (1) and this code. Wherever the basic wind speed is used for determination of the wind loads, the value shall be the Effective Basic Wind Speed,  $V_{eff}$ , determined by Figure R301.2 (9), which adjusts the basic wind speed for special topographic wind regions. Where different construction methods and structural materials are used for various portions of a building, the applicable requirements of this section for each portion shall apply. Where loads for components and cladding, windows, skylights and exterior doors are not otherwise specified, the loads listed in Table R301.2 (2) adjusted for height and exposure per Table R301.2 (3), shall be used to determine design load performance requirement for these building elements.



**A BILL FOR AN ORDINANCE**

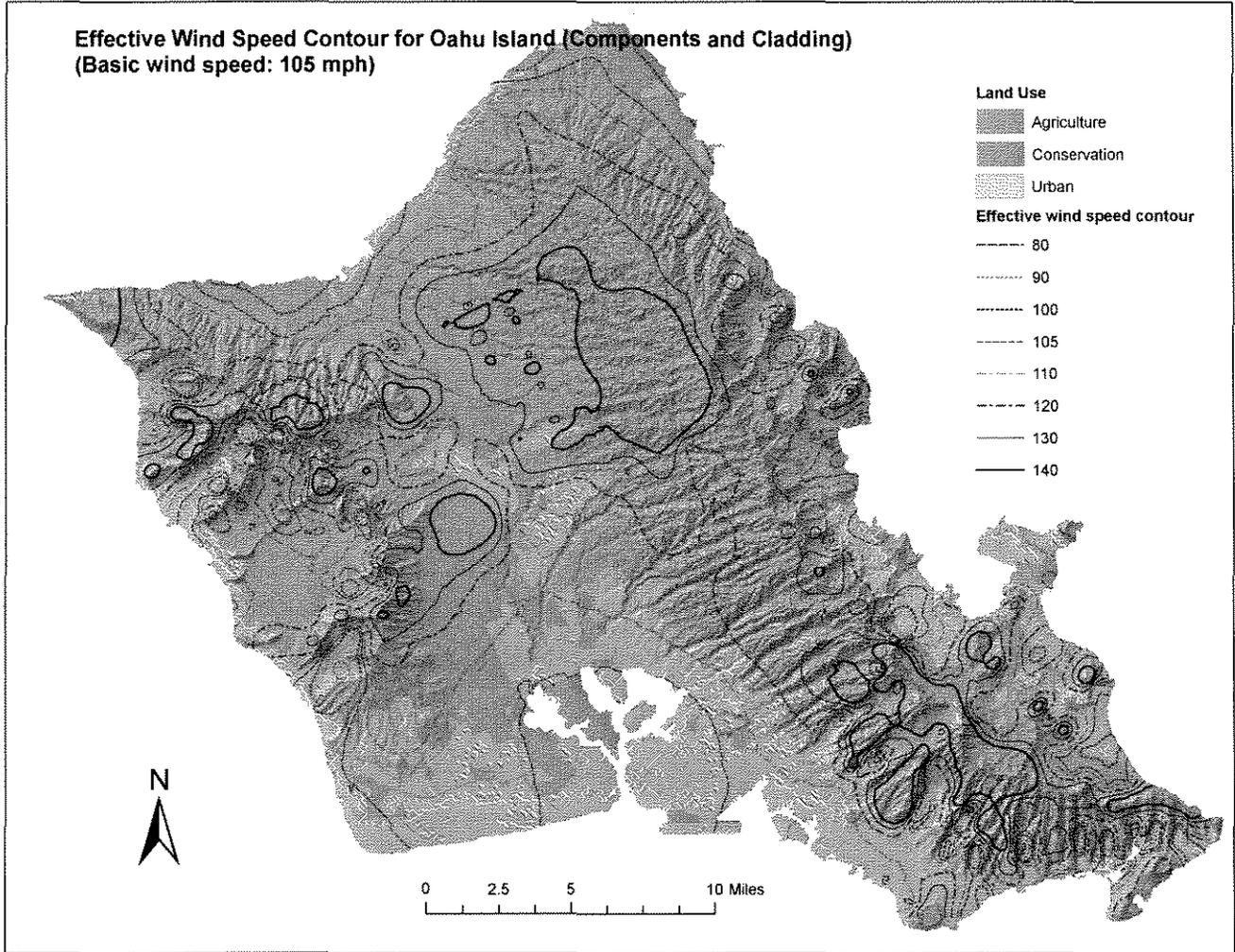


Figure R301.2 (9) Effective Basic Wind Speed (mph) for Components and Cladding for Buildings less than 60-ft. tall

**R301.2.1.1 Design Criteria.** Construction in regions where the basic effective wind speeds equal or exceed 100 miles per hour (160.9 km/h) shall be designed in accordance with one of the following:

1. American Forest and Paper Association (AF & PA) Wood Frame Construction Manual for One- and Two-Family Dwellings (WFCM); or



**A BILL FOR AN ORDINANCE**

2. Minimum Design Loads for Buildings and Other Structures (ASCE-7); or
3. American Iron and Steel Institute (AISI), Standard for Cold-Formed Steel Framing-Prescriptive Method for One- and Two-Family Dwellings (COFS/PM).
4. Concrete construction shall be designed in accordance with the provisions of this code.

**R301.2.1.2 Internal Pressure.** Windows in buildings located in wind borne debris regions shall have glazed openings protected from windborne debris or the building shall be designed as a partially enclosed building in accordance with the International Building Code. Glazed opening protection for windborne debris shall meet the requirements of the Large Missile Test of ASTM E 1996 and of ASTM E 1886 referenced therein.

**EXCEPTION:** Wood structural panels with a minimum thickness of 7/16-inch (11.1 mm) and a maximum span of 8 feet (2438 mm) shall be permitted for opening protection in one- and two-story buildings. Panels shall be precut to cover the glazed openings with attachment hardware provided. Attachments shall be provided in accordance with Table R301.2.1.2 or shall be designed to resist the components and cladding loads determined in accordance with the provisions of the International Building Code.

**TABLE R301.2.1.2  
WINDBORNE DEBRIS PROTECTION FASTENING SCHEDULE  
FOR WOOD STRUCTURAL PANELS<sup>a, b, c</sup>**

FASTENER TYPE	FASTENER SPACING		
	Panel span ≤ 4 foot	4 foot < panel span ≤ 6 foot	6 foot < panel span ≤ 8 foot
2-1/2" #6 Wood screws	16"	12"	9"
2-1/2" #6 Wood screws	16"	16"	12"



**A BILL FOR AN ORDINANCE**

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.

- <sup>a</sup> This table is based on 130 mph wind speeds and a 33-foot mean roof height.
- <sup>b</sup> Fasteners shall be installed at opposing ends of the wood structural panel.
- <sup>c</sup> Where screws are attached to masonry or masonry/stucco, they shall be attached utilizing vibration-resistant anchors having a minimum ultimate withdrawal capacity of 490 pounds.

(302) 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(9)___	C	Negligible	Very heavy	Moderate to severe	FEMA

(303) Amending Section R301.2.1.3. Section 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, the three-second gust effective wind velocities of Figure R301.2 (9) shall be converted to fastest mile wind velocities using Table R301.2.1.3.

**TABLE R301.2.1.3  
CONVERSION OF EQUIVALENT BASIC WIND SPEEDS**

V <sub>3s</sub>	85	90	95	100	105	110	120	125	130	140	145	150	160	170
V <sub>fm</sub>	71	76	80	85	90	95	104	109	114	123	128	133	142	152



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## A BILL FOR AN ORDINANCE

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(304) Amending Section R301.2.1.4. Section R301.2.1.4 is amended to read:

**R301.2.1.4 Exposure Category.** For each wind direction considered, an exposure category that adequately reflects the characteristics of ground surface irregularities shall be determined for the site at which the building or structure is to be constructed. For a site located in the transition zone between categories, the category resulting in the largest wind forces shall apply. Account shall be taken of variations in ground surface roughness that arise from natural topography and vegetation as well as from constructed features. For any given wind direction, the exposure in which a specific building or other structure is sited shall be assessed as being one of the following categories:

1. Exposure B. Urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger, extending at least 1500 ft. (457 m) from the building site in any quadrant.
2. Exposure C. Open terrain with scattered obstructions, including surface undulations or other irregularities, having heights generally less than 30 feet (9144 mm). This category includes flat open country, grasslands and shorelines and areas shown in figure R301.2 (10), and all water surfaces. This exposure shall also apply to any building located within Exposure B type terrain where the building is directly adjacent to open areas of Exposure C type terrain in any quadrant for a distance of more than 600 feet (183m).



**A BILL FOR AN ORDINANCE**

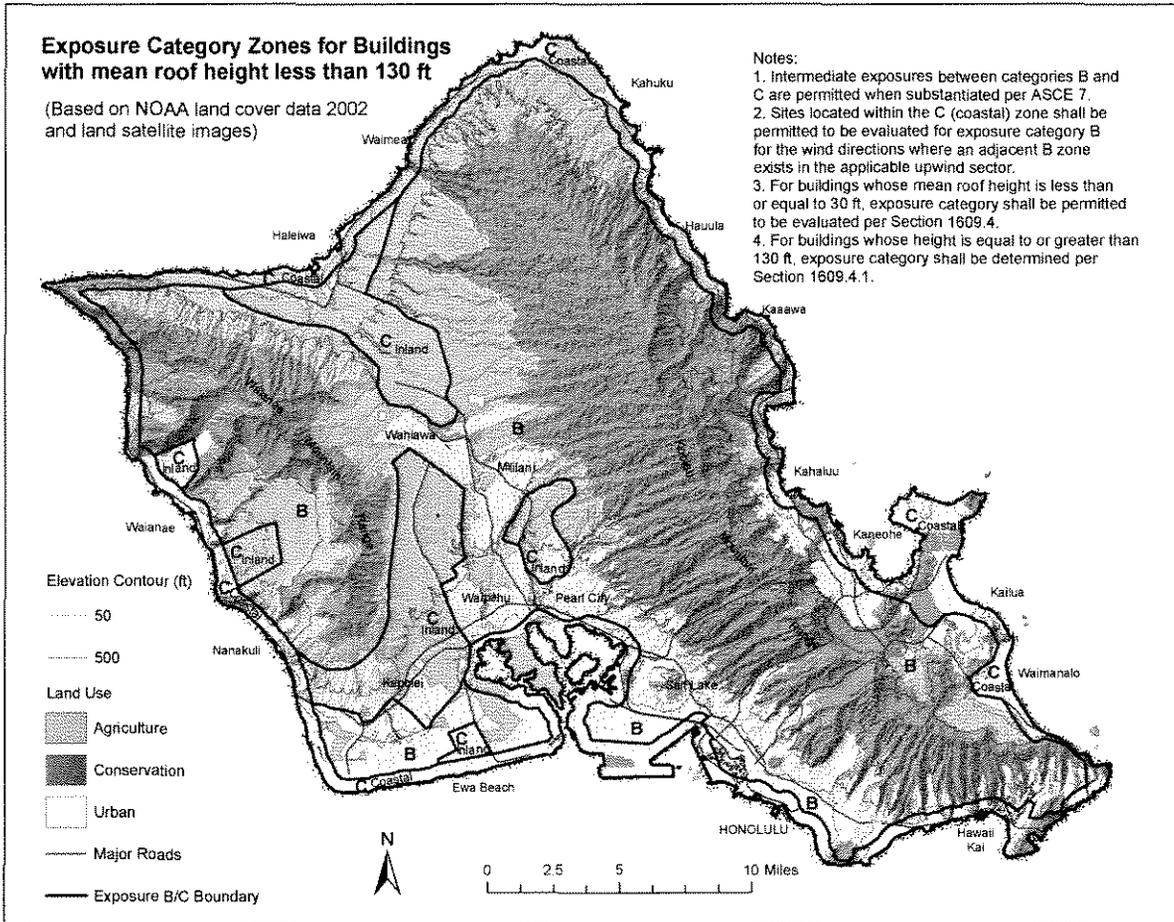


Figure R301.2 (10) Exposure Category zones of Oahu Island



**A BILL FOR AN ORDINANCE**

(305) Amending Table R301.2.2.1.1. Table R301.2.2.1.1 is amended to read:

**TABLE R301.2.2.1.1  
SEISMIC DESIGN CATEGORY DETERMINATION**

CALCULATED $S_{DS}$	SEISMIC DESIGN CATEGORY
$0.17g < S_{DS} \leq 0.33g$	B
$0.33g < S_{DS} \leq 0.60g$	C
$0.60g < S_{DS} \leq 0.83g$	D <sub>1</sub>
$0.83g < S_{DS} \leq 1.17g$	D <sub>2</sub>
$1.17g < S_{DS}$	E

(306) Amending Section R303.1. Section R303.1 is amended to read:

**Section R303.1 Natural Light and Ventilation.** Natural light and ventilation shall be as specified in the Housing Code.

(307) Amending Section R303.2. Section R303.2 is amended to read:

**Section R303.2 Mechanical Ventilation.** Mechanical ventilation shall be as specified in the Housing Code.

(308) Amending Section R303.3. Section R303.3 is amended to read:

**Section R303.3 Bathrooms.** Light and ventilation for bathrooms shall be as specified in the Housing Code."

(309) Amending Section R304. Section R304 is amended to read:

**SECTION R304 – MINIMUM ROOM AREA**

Minimum room area shall be as specified in the Housing Code.

(310) Amending Section R305. Section R305 is amended to read:

**SECTION R305 – CEILING HEIGHT**



A BILL FOR AN ORDINANCE

Ceiling height shall be as specified in the Housing Code.

(311) Amending Section R306. Section R306 is amended to read:

**SECTION R306 – SANITATION**

Sanitation shall be as specified in the Housing Code.

(312) Amending Section R309.4. Section R309.4 is amended to read:

**R309.4 Carports.** Carports shall be as defined in the International Building Code. Carport floor surfaces shall be of approved noncombustible material.

**EXCEPTIONS:**

1. Asphalt surfaces shall be 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 shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

(313) Amending Section R309.5. Section R309.5 is amended to read:

**R309.5 Flood Hazard Areas.** See ROH Chapter 16, Article 11.

(314) Amending Section R310.1.1. Section R310.1.1 is amended by amending the existing exception, and adding a new exception thereafter, to read:

**EXCEPTIONS:**

1. Grade floor openings shall have a minimum net clear opening of 5 square feet (0.465 m<sup>2</sup>).



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**A BILL FOR AN ORDINANCE**

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2. Glass jalousie bladed windows may be used for emergency escape or rescue.

(315) Amending Section R319.3. Section R319.3 is amended to read:

**R319.3 Fasteners.** Fasteners for non-borate pressure preservative and fire-retardant-treated wood shall be of hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper. The coating weights for zinc-coated fasteners shall be in accordance with ATSM A 153.

**EXCEPTIONS:**

1. One-half-inch (12.7 mm) diameter or greater steel bolts.
2. Fasteners other than nails and timer rivets shall be permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B695, Class 55 minimum.

(316) Amending Section R320. Section R320 is amended to read:

**SECTION R320 – PROTECTION AGAINST TERMITES**

**R320.1 General.** Protection against termites shall be in accordance with International Building Code Sections 2303.1.8 and 2304.11.

(317) Amending Section R321. Section R321 is amended to read:

**R321 – SITE ADDRESS**

See ROH Section 2.9.1.

(318) Amending Section R323. Section R323 is amended to read:

**SECTION R323 – FLOOD-RESISTANT CONSTRUCTION**

See ROH Chapter 16, Article 11.

(319) Adding Section R324. Section R324 is added to read:



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A BILL FOR AN ORDINANCE

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**SECTION R324 – COMPLETE LOAD PATH AND UPLIFT TIES**

**R324.1 General.** Blocking, bridging, straps, approved framing anchors or mechanical fasteners shall be designed and installed to provide continuous ties from the roof to the foundation system. Sheet metal clamps, ties or clips, shall be formed of galvanized steel or other approved corrosion-resistant material not less than 0.040-inch (1.01 mm) nominal thickness. Uplift resistance shall be in accordance with Table R802.11.

(320) Amending Section R401. Section R401 is amended to read:

**R401.1 Applicability.** The design and construction of the foundation and foundation spaces for all buildings shall be in accordance with Chapter 18 of the International Building Code.

(321) Deleting Sections R403 and R404. Sections R403 and R404 are deleted.

(322) Adding Section R408.7. Section R408.7 is added to read:

**R408.7 Under-Floor Clearance.** Minimum clearance between the bottom of floor joists or bottom of floors without joists and the ground beneath shall be 24 inches (610 mm); the minimum clearance between the bottom of girders and the ground shall be 18 inches (457 mm).

**EXCEPTION:** Open slat wood decks shall have ground clearance of at least 6 inches (152 mm) for any wood member.



**A BILL FOR AN ORDINANCE**

(323) Amending Table R611.7.4. Table R611.7.4 is amended to read:

**TABLE R611.7.4  
EFFECTIVE WIND VELOCITY PRESSURE FOR DETERMINATION OF  
MINIMUM SOLID WALL LENGTH<sup>a</sup>**

3-Sec Gust Effective WIND SPEED (mph) <sup>c</sup>	VELOCITY PRESSURE (psf)	
	Exposure <sup>b</sup>	
	B	C
85	14	19
90	16	21
100	19	26
110	23	32
120	27	38
130	32	44
140	37	51
150	43	59

For SI: 1 psf = 0.0479 kN/m<sup>2</sup>, 1 mph = 1.6093 km/hr

<sup>a</sup> Table values are based on ASCE-98 Figure 6-4 using a mean roof height of 35 ft. (10.7 m).

<sup>b</sup> Exposure Categories shall be determined in accordance with Section R301.2.1.4.

<sup>c</sup> Interpolation is permitted between wind speeds.

(324) 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



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## A BILL FOR AN ORDINANCE

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in this section, without studs, when requirements of this section are met. Floor to ceiling height shall not exceed 8 feet (2438 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 shall be provided.

For one-story conventional residential structures, the local practice of using foundation blocks with termite shields will be acceptable in all areas except in flood hazard districts and 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 shall have girts and cross partitions at least every 30 feet (9144 mm).

**R614.2.5 Approved Stiffeners.** Approved stiffeners shall 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.

**R614.2.6 Girts.** Girts for single-wall construction shall be not less than 2-inch-by-6-inch (51 mm by 152 mm) belt course or other approved strengthening about mid-height between the floor and ceiling on all exterior walls.



**A BILL FOR AN ORDINANCE**

**R614.2.7 Complete Load Path.** Blocking, bridging, straps, approved framing anchors or mechanical fasteners shall be designed and installed to provide continuous ties from the roof to the foundation system. Sheet metal clamps, ties or clips, shall be formed of ASTM A153 G90 galvanized steel or other approved corrosion-resistant material not less than 0.040-inch (1.01 mm) nominal thickness. Uplift resistance shall be in accordance with Table R802.11.

(325) Amending Table R802.11. Table R802.11 is amended to read:

**TABLE R802.11  
REQUIRED STRENGTH OF TRUSS OR RAFTER CONNECTIONS TO  
RESIST WIND UPLIFT FORCES (Pounds per connection)**

Effective Basic Wind Speed, $V_{eff}$ , 3-sec gust	Roof Span (feet)							Overhangs (pounds/foot)
	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	-64.56
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 = 305 mm, 1 mile per hour = 1.61 km/hr,  
1 pound/foot = 14.5939 N/m, 1 pound = 454 grams.

- a. The uplift connection requirements are based on a 30-foot mean roof height located in Exposure B.
- b. The uplift connection requirements are based on the framing being spaced 24 inches on center. Multiply by 0.67 for framing spaced 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.



**A BILL FOR AN ORDINANCE**

- d. The uplift connection requirements do not account for the effects of overhangs. The magnitude of the above loads shall be 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 shall be 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 Section M1609.6 of the International Building Code. Connection loads for connections located a distance of 20% of the least horizontal dimension 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.  $V_{eff}$  is given by Figure R301.2(9))
- g. The uplift connection requirements are based on 30-foot mean roof height located in Exposure B. For Exposure C 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	1.40	1.45	1.49	1.53	1.56	1.59	1.62

(326) Amending Section R903.4.1. Section R903.4.1 is amended by deleting the last sentence of the first paragraph.

(327) Amending International Residential Code Chapter 11. International Residential Code Chapter 11 is amended to read:

**CHAPTER 11 – ENERGY EFFICIENCY**

See ROH Chapter 16, Article 5, and ROH Chapter 32.

(328) Amending Section M1201.1. Section M1201.1 is amended to read:



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## A BILL FOR AN ORDINANCE

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**Scope.** The provisions of International Residential Code Chapters 12 through 24 are guidelines, and not mandatory for the design, installation, maintenance, alterations, and inspection of mechanical systems that are permanently installed and utilized to provide control of environmental conditions within buildings.

- (329) Amending Section M1201.2. Section M1201.2 is amended by adding a second paragraph to read:

Whenever in the code reference is made to the International Mechanical Code and International Fuel Gas Code, the provisions of the International Mechanical Code and International Fuel Gas Code shall be deemed guidelines and not mandatory.

- (330) Deleting Section M1301.1. Section M1301.1 is deleted.

- (331) Amending Section M1501. Section M1501 is amended to read:

See ROH Chapter 27, Housing code.

- (332) Amending Section M1506. Section M1506 is amended to read:

See ROH Chapter 27, Housing Code.

- (333) Amending Section M1901.1. Section M1901.1 is amended to read:

**M1901.1 Clearances.** Cooking unit clearance shall be in accordance with International Building Code Section 419.

- (334) Amending Section M2301.5. Section M2301.5 is amended by deleting reference to "Section P2902.4.5" and replacing it with reference to "Plumbing Code."

- (335) Deleting Chapters 24 through 42. Chapters 24 through 42 are deleted.



A BILL FOR AN ORDINANCE

SECTION 4. Section 16-2.3, Revised Ordinances of Honolulu 1990, as amended, is amended to read as follows:

**“Sec. 16-2.3 Performance security.**

Upon filing of an application for a relocation permit, the applicant shall deposit with the [director of finance] city the sum of \$500.00, either in cash or in a certified or cashier’s check, as security for the faithful performance by the applicant in obtaining the required traffic permits and police escort and in repairing or in paying for damages to any property owned by the city or by others which has been damaged in the process of moving such building or structure. Upon the faithful performance of such obligation by the applicant or by any person on behalf of the applicant, to the satisfaction of the building [official] office, [or] and if no such damage has resulted thereby, the sum so deposited shall be returned to the applicant. Applicant shall forfeit the performance security if building or structure is moved without the required traffic permits or police escort. If the applicant fails or refuses to repair or pay for such damage within 30 days after written notification thereof by the building official, the building official shall use such sums deposited or any portion thereof to cause the repair of such property so damaged. Any money remaining after such repair has been completed and has not been forfeited shall be returned to the applicant. In lieu of the aforementioned \$500.00 security deposit, the applicant may establish with the [director of finance] city a revolving fund for the amount of \$2,000.00.”

SECTION 5. Article 3 of Chapter 16, Revised Ordinances of Honolulu 1990, is amended:

- a. By amending the title thereof to read as follows:

**“Article 3. Factory-Built [Housing] Buildings”**

- b. By amending Section 16-3.1 to read as follows:

**“Sec. 16-3.1 Applicability.**

- (a) These provisions are applicable to the design, construction, installation, and transportation of factory-built [housing (FBH)] buildings (FBB) within the city. Unless otherwise specified, this article shall be applicable only to [FBH] FBB which [is] are sold or offered for sale to first users [as defined below].”



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A BILL FOR AN ORDINANCE

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**Exception:** Manufactured homes manufactured and certified in accordance with the Manufactured Home Construction and Safety Standards as promulgated by the United States Department of Housing and Urban Development. Foundations, exterior stairs, additions and accessory structures shall comply with Article 1.

(b) All provisions of the building, housing, electrical, and plumbing codes shall be applicable unless indicated otherwise in this article.”

c. By amending Section 16-3.2 to read as follows:

**“Sec. 16-3.2 Definitions.**

The following terms are defined for specialized use within this article.

“Factory-built [housing] building” means any structure or portion thereof designed primarily for [residential] occupancy by human beings, which is either entirely prefabricated or assembled at a place other than the building site.

“First user” means a person, firm, or corporation who initially installs [FBH] FBB within [this] the state. A person who subsequently purchases an installed [FBH] FBB is not a first user within the meaning of this definition.

“Insignia of approval” means a tag, tab, stamp, label, or other device issued by the building official to indicate compliance with [the statutes and these rules.] this article.

“Installation” means the assembly of [FBH] an FBB on site and the process of affixing [FBH] an FBB to land, a foundation, or an existing building.

“Manufacture” means the process of making, fabricating, constructing, forming, or assembling a product from raw, unfinished, or semi-finished materials to produce [FBH] an FBB.

“Site” means the parcel of land on which [FBH] an FBB is installed.”

d. By amending Section 16-3.3 to read as follows:

**“Sec. 16-3.3 Building permit required.**



**A BILL FOR AN ORDINANCE**

No person shall install [FBH] an FBB or cause the foregoing to be done without first obtaining a building permit from the building official for each [FBH] FBB."

e. By amending Section 16-3.4 to read as follows:

**"Sec. 16-3.4 Building permit fee.**

A fee for each building permit as set forth in Table [No.] 18-A [of Chapter 18], ROH 1990, [as amended,] shall be paid to the building official. The fee shall be based on the valuation of the building in place complete including the cost of carport, fences, walls, etc."

f. By amending Section 16-3.5 to read as follows:

**"Sec. 16-3.5 Insignia of approval.**

- (a) [FBH] An FBB manufactured in [this] the city, which is sold or offered for sale to first users within [this] the city, shall bear the insignia of approval issued by the building official indicating that the [FBH] FBB is in compliance with this article.
- (b) [FBH] An FBB manufactured outside the city shall bear the insignia of approval issued by any governmental or inspectional agency approved by the building official."

g. By amending Section 16-3.6 to read as follows:

**"Sec. 16-3.6 Performance of plumbing and electrical work.**

- (a) All electrical and plumbing work performed within the state shall comply with State of Hawaii contracting and licensing laws and regulations.
- (b) All electrical and plumbing work to be performed at the factory outside of this state must be accomplished:
  - [(a)] (1) By licensed electricians or plumbers, respectively, of the [county] jurisdiction having authority in which the factory is located, if the manufacturer does not submit a quality control manual which is approved by the building official; or



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## A BILL FOR AN ORDINANCE

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[(b)] (2) Under the supervision of a licensed supervising electrician or master plumber, respectively, of the [county] jurisdiction having authority in which the factory is located, if the manufacturer submits a quality control manual which is approved by the building official."

h. By amending Section 16-3.7 to read as follows:

**"Sec. 16-3.7 Plans and specifications.**

- (a) For each model of [FBH] FBB, three sets of plans and specifications shall be submitted and approval obtained prior to fabrication.
- (b) With each application for a building permit, three sets of installation plans and specifications including the plot plan shall be submitted.
- (c) Preparation of plans and observation of construction shall be by a professional architect or structural engineer licensed in the State of Hawaii.

i. By amending Section 16-3.8 to read as follows:

**"Sec. 16-3.8 Inspections.**

- (a) An FBB manufactured outside of the city shall be inspected by an approved third party inspectional agency.
- (b) The building official may make periodic in-plant inspections to verify that the [FBH] FBB produced [comply] complies with the plans as approved by the building official.
- (c) Special inspectors shall be hired as required by the building code. Once construction has been completed, the special inspector shall submit a final signed special inspection report along with a copy of the third party inspection worksheet showing special inspection done at the manufacturing plant.

j. By adding a new section thereto to be appropriately designated by the revisor of ordinances and to read as follows:

**"Sec. 16-3.9 Manufacturer's label.**



A BILL FOR AN ORDINANCE

A manufacturer's label on a metal plate showing the manufacturer's name, serial number of the building, manufacture date, design load criteria, and third party inspection stamp shall be securely fastened on the FBB."

k. By amending Section 16-3.9 to read as follows:

**"[Sec. 16-3.9] Sec. 16-3.10 Transporting factory-built [housing] buildings.**

- (a) The transportation of [FBH] an FBB shall be governed by the provisions of the city and State traffic codes.
- (b) Article 2, Relocation of Buildings, shall be applicable to [FBH] an FBB once it has been installed on a zoning lot."

l. By amending Section 16-3.10 to read as follows:

**"[Sec. 16-3.10] Sec. 16-3.11 Violations – Penalty.**

For violation and penalty provisions, see Article 10 of this chapter."

SECTION 6. Section 16-8.5, Revised Ordinances of Honolulu 1990, is amended to read as follows:

**"Sec. 16-8.5 Violation – Penalty.**

[Any person violating any provision of this article shall upon conviction be punished by a fine of not less than \$100.00 nor more than \$500.00 or by imprisonment for a term not exceeding 12 months, or by both.] For violation and penalty provisions, see Article 10 of this chapter."

SECTION 7. Ordinance material in Sections 4, 5 and 6 to be repealed is bracketed. New material is underscored. When revising, compiling, or printing this ordinance for inclusion in the Revised Ordinances of Honolulu, the revisor of ordinances need not include the brackets, the bracketed material or the underscoring.



**CITY COUNCIL**  
CITY AND COUNTY OF HONOLULU  
HONOLULU, HAWAII

07-22

ORDINANCE \_\_\_\_\_

BILL 26 (2007), CD2

**A BILL FOR AN ORDINANCE**

SECTION 8. This ordinance shall take effect 90 days after the date of its approval, but nothing in this ordinance shall be construed to prohibit any person from erecting, constructing, enlarging, altering, repairing, moving, improving, removing, converting, or demolishing any building or structure in the city, or causing the same to be done pursuant to the provisions of the new code and the amendments thereto adopted hereunder.

INTRODUCED BY:

Barbara Marshall (BR)

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DATE OF INTRODUCTION:

February 23, 2007  
Honolulu, Hawaii

Councilmembers

APPROVED AS TO FORM AND LEGALITY:

*Doyle S. Kitoaka*  
Deputy Corporation Counsel

APPROVED this 20th day of June, 2007.

*Mufi Hannemann*  
MUFU HANNEMANN, Mayor  
City and County of Honolulu

CITY COUNCIL  
 CITY AND COUNTY OF HONOLULU  
 HONOLULU, HAWAII  
 CERTIFICATE

ORDINANCE **07-22**

**BILL 26 (2007), CD2**

Introduced: 02/23/07 By: BARBARA MARSHALL (BR)

Committee: PLANNING &  
 SUSTAINABILITY

Title: A BILL FOR AN ORDINANCE RELATING TO AMEND CHAPTER 16 OF THE REVISED ORDINANCES OF HONOLULU 1990, AS AMENDED, RELATING TO THE BUILDING CODE.

Links: [BILL 26 \(2007\)](#)  
[BILL 26 \(2007\), CD1](#)  
[BILL 26 \(2007\), CD2](#)  
[D-122](#)  
[CR-91](#)  
[CR-162](#)

COUNCIL	03/14/07	BILL PASSED FIRST READING AND REFERRED TO COMMITTEE ON PLANNING & ECONOMIC DEVELOPMENT, PUBLIC WORKS & ENERGY (CONSECUTIVELY)
	APO Y	CACHOLA Y DELA CRUZ Y DJOU Y GARCIA Y
	KOBAYASHI Y	MARSHALL Y OKINO Y TAM Y
PED	03/27/07	CR-91 – BILL REPORTED OUT OF COMMITTEE TO COMMITTEE ON PUBLIC WORKS & ENERGY DUE TO CONSECUTIVE REFERRALS.
COUNCIL	04/11/07	CR-91 ADOPTED.
	APO Y	CACHOLA Y DELA CRUZ Y DJOU Y GARCIA Y
	KOBAYASHI Y	MARSHALL Y OKINO Y TAM Y
PWE	04/19/07	CR-162 – BILL REPORTED OUT OF COMMITTEE FOR PASSAGE ON SECOND READING AND SCHEDULING OF A PUBLIC HEARING AS AMENDED IN CD1 FORM
PUBLISH	04/21/07	PUBLIC HEARING NOTICE PUBLISHED IN THE HONOLULU STAR-BULLETIN.
COUNCIL/PUBLIC HEARING	05/02/07	BILL PASSED SECOND READING AS AMENDED (BILL 26 (2007), CD1), CR-162 ADOPTED, PUBLIC HEARING CLOSED AND REFERRED TO PUBLIC WORKS & ENERGY COMMITTEE.
	APO Y	CACHOLA Y DELA CRUZ Y DJOU Y GARCIA Y
	KOBAYASHI Y	MARSHALL Y OKINO Y TAM Y
	05/07/09	CC-83 (2007) – BILL RE-REFERRED TO PLANNING & SUSTAINABILITY COMMITTEE.
PUBLISH	05/12/07	SECOND READING NOTICE PUBLISHED IN THE HONOLULU STAR BULLETIN.
PS	05/15/07	CR-165 – BILL REPORTED OUT OF COMMITTEE FOR THIRD READING AS AMENDED IN CD2 FORM.
COUNCIL	06/06/07	BILL PASSED THIRD READING AS AMENDED (BILL 26 (2007), CD2), AND CR-165 ADOPTED,
	APO Y	CACHOLA Y DELA CRUZ Y DJOU Y GARCIA Y
	KOBAYASHI Y	MARSHALL Y OKINO Y TAM Y

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.

  
 DENISE C. DE COSTA, CITY CLERK

**07-22**

  
 BARBARA MARSHALL, CHAIR AND PRESIDING OFFICER