

DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

Adoption of Chapter 3-185

Hawaii Administrative Rules

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SUMMARY

1. Chapter 185 of Title 4, Hawaii Administrative Rules, entitled "State Residential Code", is adopted to read as follows:

**HAWAII ADMINISTRATIVE RULES**

**TITLE 3**

**DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES**

**SUBTITLE 14**

**STATE BUILDING CODE COUNCIL**

**CHAPTER 185**

**STATE RESIDENTIAL CODE**

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Historical Note: Chapter 185 is added to Title 3 of the Hawaii Administrative Rules. [Eff  
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## **SUBCHAPTER 1 RULES OF GENERAL APPLICABILITY**

**§3-185-1 Purpose.** The purpose of this chapter is to adopt the state building code as required by section 107-25, Hawaii Revised Statutes (HRS).

**§3-185-2 Scope.** This chapter sets forth minimum requirements for the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of detached one and two family dwellings and multiple single family dwellings (townhouses) not more than three stories in height with separate means of egress.

**§3-185-3 Definitions.** In this chapter, unless the context otherwise requires:  
“Chapter” means chapter of this Hawaii Administrative Rule, Chapter 185.  
“ICC” means the International Code Council.  
“Section” means a section of a chapter of the International Residential Code.  
“IRC” means the ICC, International Residential Code, 2006 edition, as copyrighted by the International Code Council

**§3-185-4 Adoption of the International Residential Code.** The “International Residential Code, 2006 Edition”, as copyrighted and published in 2006 by International Code Council, Incorporated, 500 New Jersey Avenue, 6th Floor, Washington, DC 20001, is adopted by reference and made a part of this chapter. This incorporation by reference includes all parts of the International Residential Code subject to the amendments hereinafter set forth. The ICC International Residential Code, 2006 Edition, is made a part of this chapter, subject to the amendments provided in this chapter. The appendices of the ICC IRC are not adopted except as provided in this chapter.

**§3-185-5 Permit Authorization.** Each county may, by ordinance, require that a permit be obtained from the Building Official for any area regulated by this chapter.

SUBCHAPTER 2  
AMENDMENTS TO THE 2006 INTERNATIONAL RESIDENTIAL CODE

**§3-185-6 Title.** Section R101.1 is amended by revising to read as follows:

“**R101.1 Title.** These provisions shall be known as the *Residential Code for One- and Two-family Dwellings of the State of Hawaii* and shall be cited as such and will be referred to herein as “this code”.

**§3-185-7 Scope.** Section R101.2 is amended by revising to read as follows:

“**R101.2 Scope.** If adopted by the county jurisdiction, the provisions of the *International Residential Code for One- and Two-family Dwellings* shall be permitted to apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses not more than three stories above-grade in height with a separate means of egress and their accessory structures.”

**§3-185-8 Referenced codes and standards.** Section R102.4 is amended by revising to read as follows:

“**R102.4 Referenced codes and standards.** The codes and standards referenced in this code shall be considered [~~part of the requirements~~] guidelines of this code to the prescribed extent of each such reference. Where differences occur between provisions of this code and referenced codes and standards, the provisions of this code shall apply.

**R102.4.1 Conflicts with other codes.** If a referenced code conflicts with another applicable law of the jurisdiction, then said applicable law shall prevail over the guideline in the referenced code.”

**§3-185-9 Existing structures.** Section R102.7 is amended by revising to read as follows:

“**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, the *International Property Maintenance Code* or the *International Fire Code*, or as is deemed necessary by the building official for the general safety and welfare of the occupants and the public.] 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 occupant and the public.”~~

**§3-185-10 Department of Building Safety.** Section R103 is deleted in its entirety.

**§3-185-11 Areas prone to flooding.** Section R104.10.1 is deleted in its entirety.

**§3-185-12 Permits.** Section R105 is deleted in its entirety.

**§3-185-13 Construction Documents.** Section R106 is deleted in its entirety.

**§3-185-14 Temporary Structures and Uses.** Section R107 is deleted in its entirety.

**§3-185-15 Fees.** Section R108 is deleted in its entirety.

**§3-185-16 Certificate of Occupancy.** Section R110 is deleted in its entirety.

**§3-185-17 Board of Appeals.** Section R112 is deleted in its entirety.

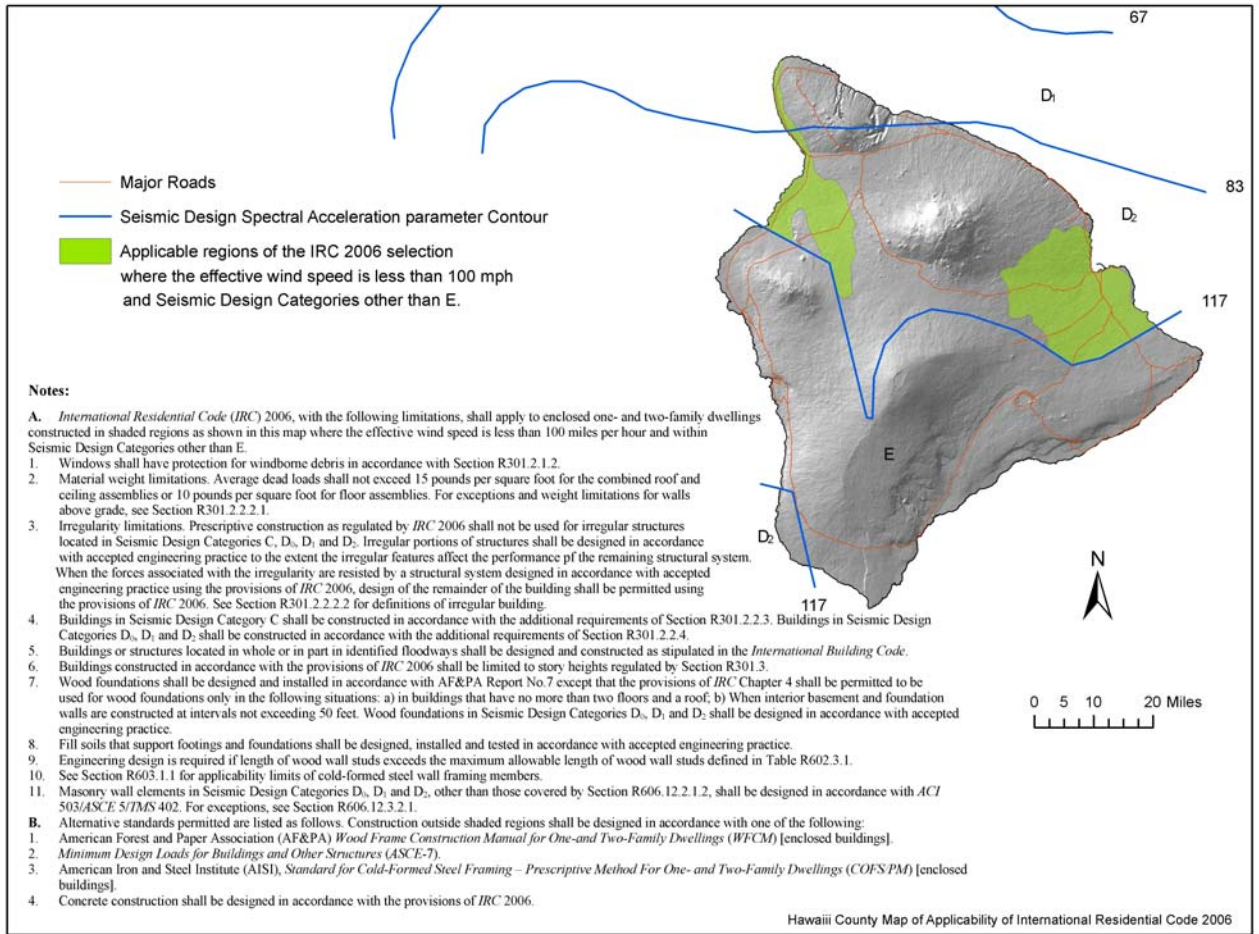
**§3-185-18 Complete Load Path and Uplift Ties.** Section R301.1.2.1 is added to Chapter 3 to read as follows:

**“SECTION R301.1.2.1 COMPLETE LOAD PATH AND UPLIFT TIES**

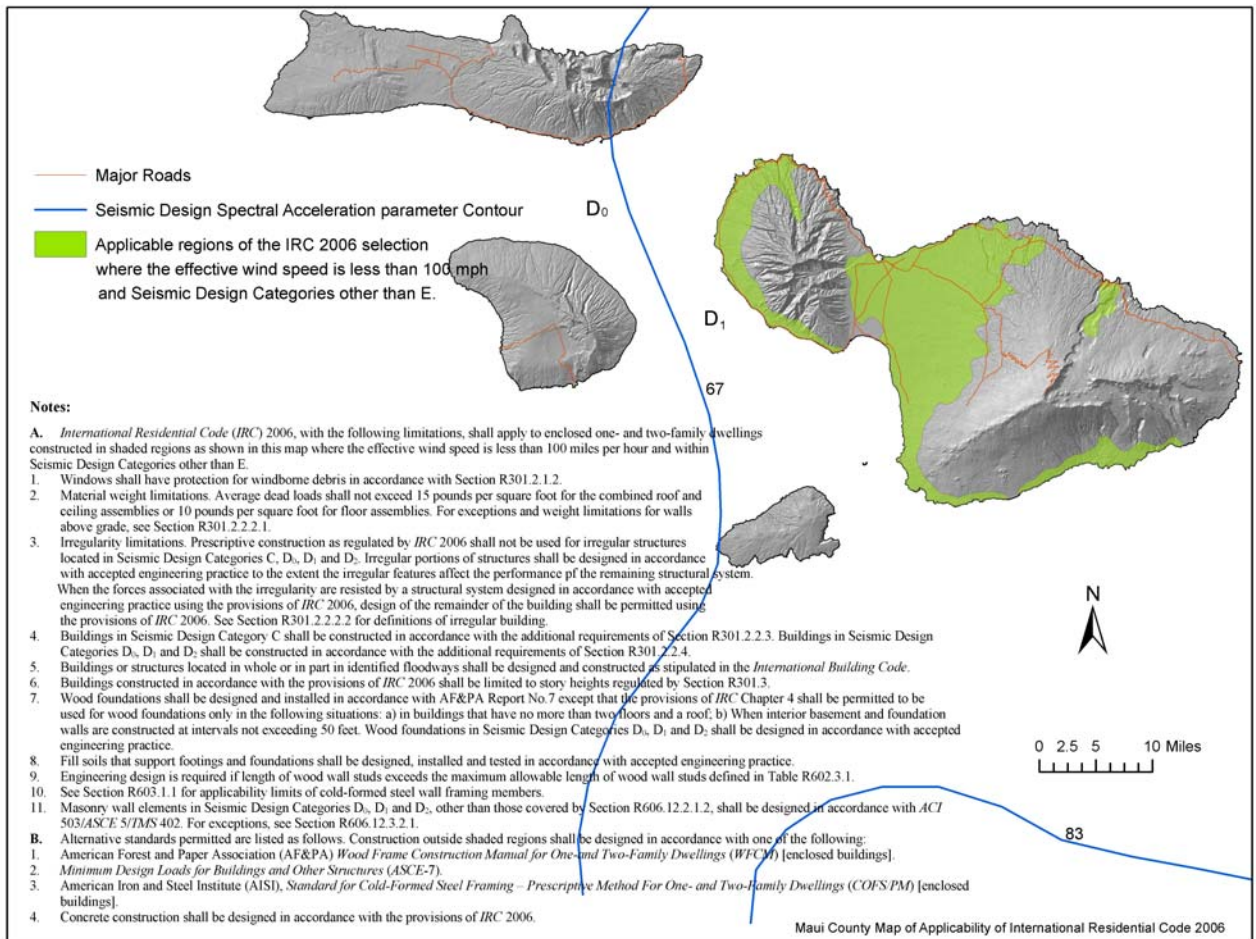
“R301.1.2.1 General. Blocking, bridging, straps, approved framing anchors or mechanical fasteners shall be designed and installed to provide continuous ties from the roof to the foundation system. Sheet metal clamps, ties or clips, shall be formed of galvanized steel or other approved corrosion-resistant material not less than 0.040 inch (1.01 mm) nominal thickness. Uplift resistance shall be in accordance with Table R802.11.”

**§3-185-19 Wind Limitations.** Section R301.2.1 is amended by revising to read as follows:

**“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), Figure R301.2(8), 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 from 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 wall coverings, curtain walls, roof coverings, exterior windows, skylights, garage doors and exterior doors are not otherwise specified, the loads listed in Table R301.2(2) adjusted for height and exposure using Table R301.2(3), shall be used to determine design load performance requirements for wall coverings, curtain walls, roof coverings, exterior windows, skylights, garage doors and exterior doors. Asphalt shingles shall be designed for wind speeds in accordance with Section R905.2.6.”

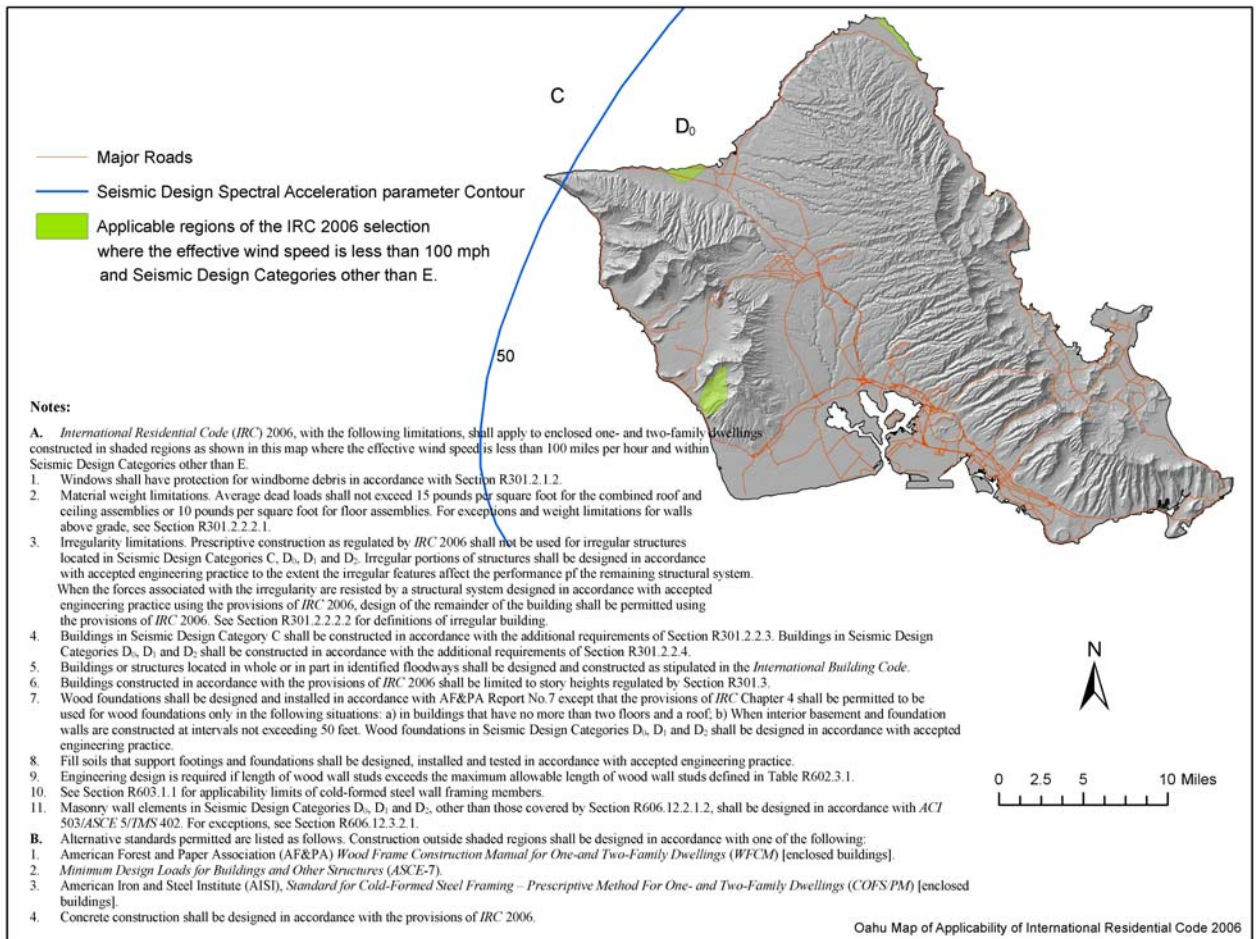


**Figure R301.2 (8a) County of Hawaii Map showing where the IRC is applicable without an engineered structural design using the International Building Code or the referenced wind and seismic standards**

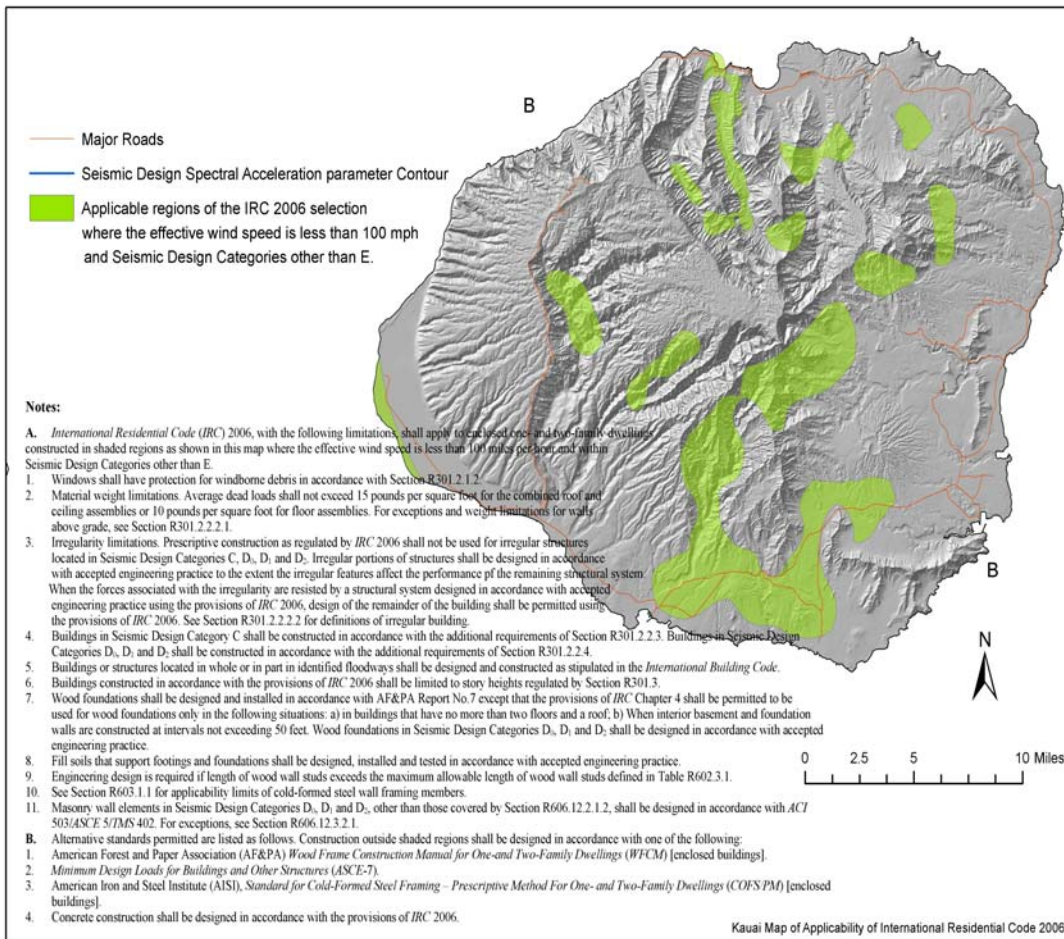


**Figure R301.2 (8b) County of Maui Map showing where the IRC is applicable without an engineered structural design using the International Building Code or the referenced wind and seismic standards**

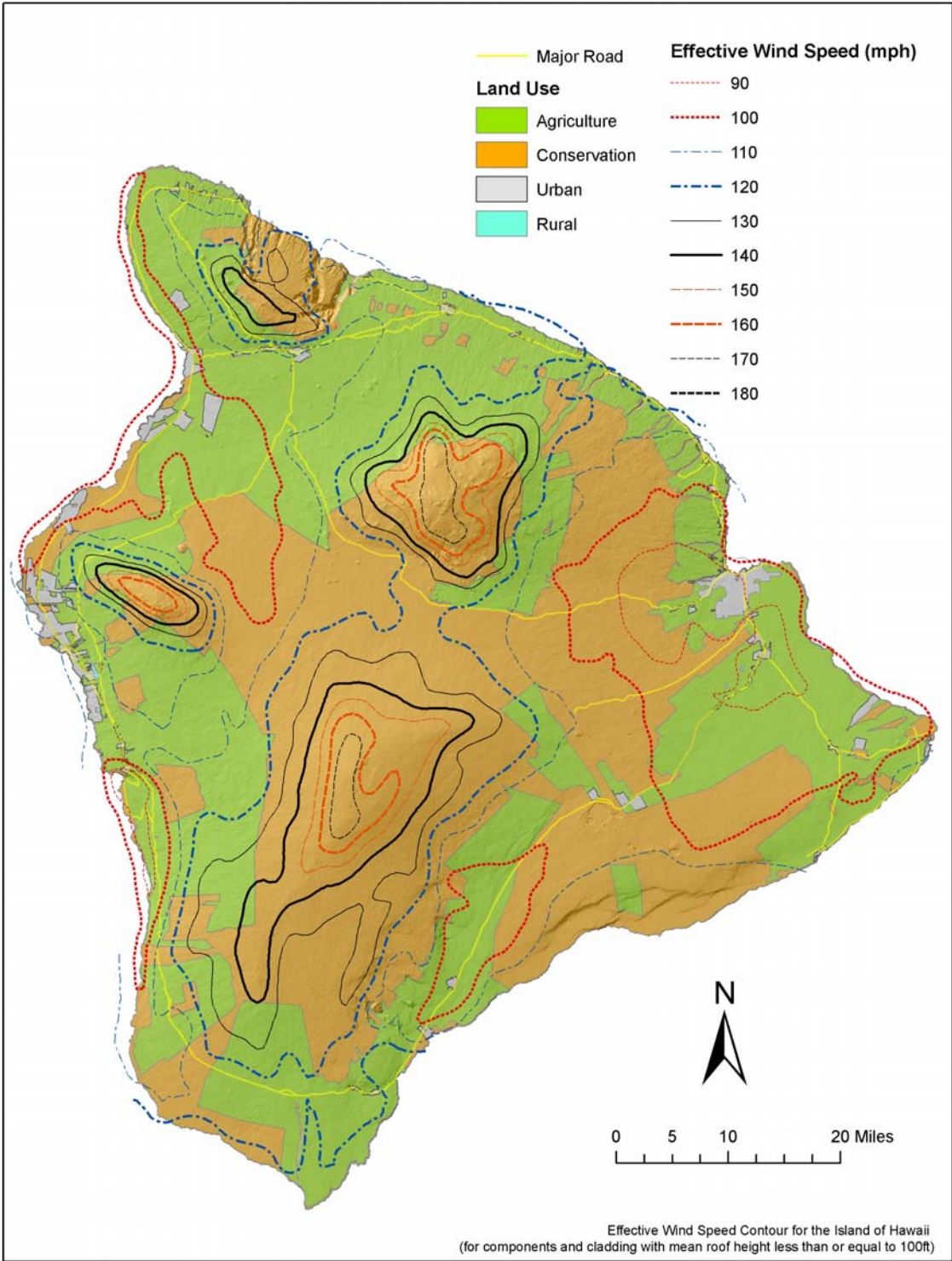




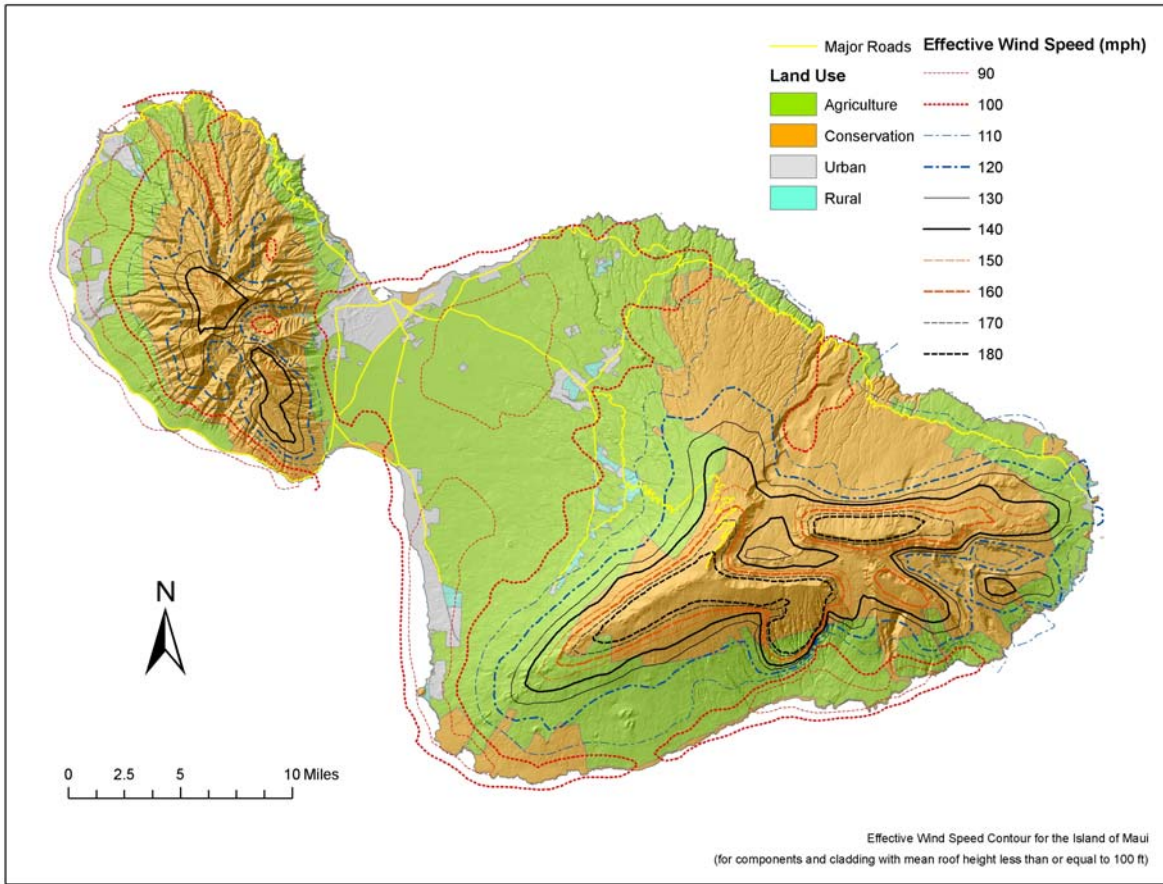
**Figure R301.2 (8c) City and County of Honolulu Map showing where the IRC is applicable without an engineered structural design using the International Building Code or the referenced wind and seismic standards**



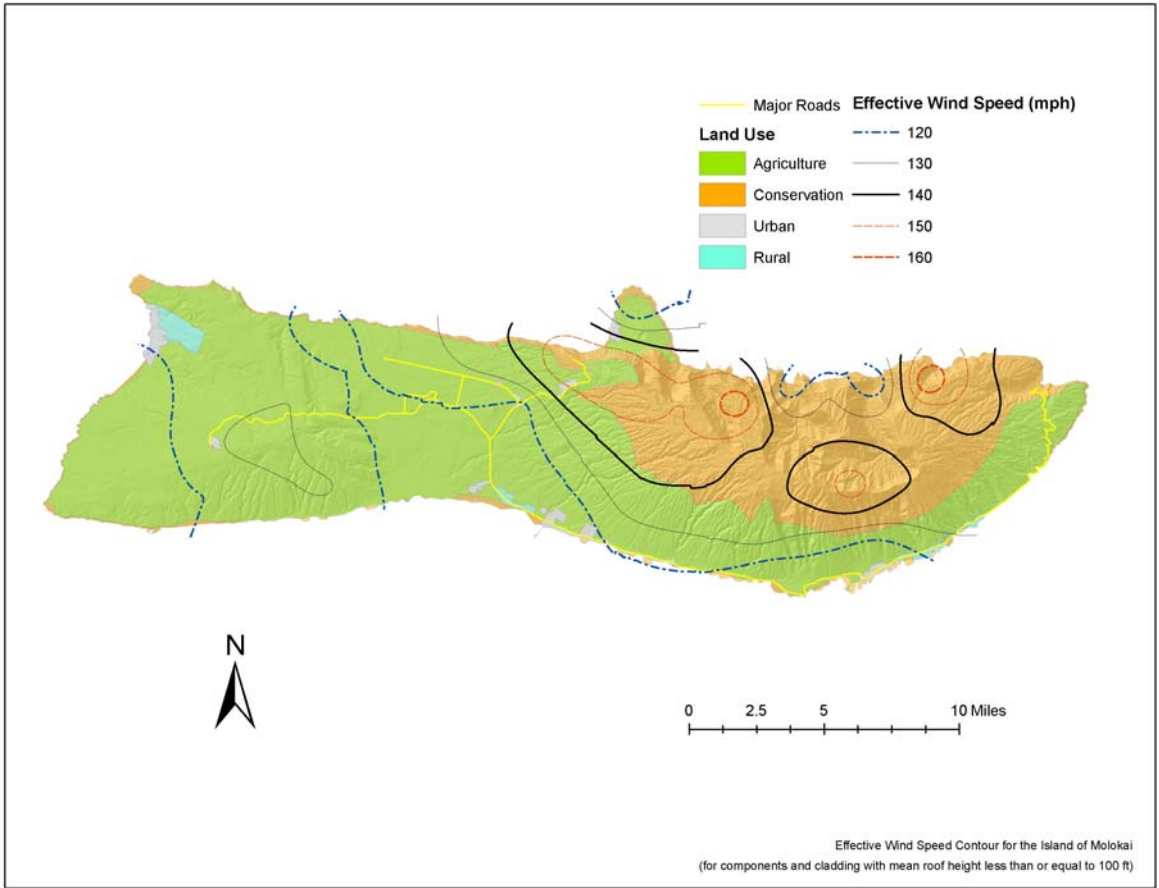
**Figure R301.2 (8d) County of Kauai Map showing where the IRC is applicable without an engineered structural design using the International Building Code or the referenced wind and seismic standards**



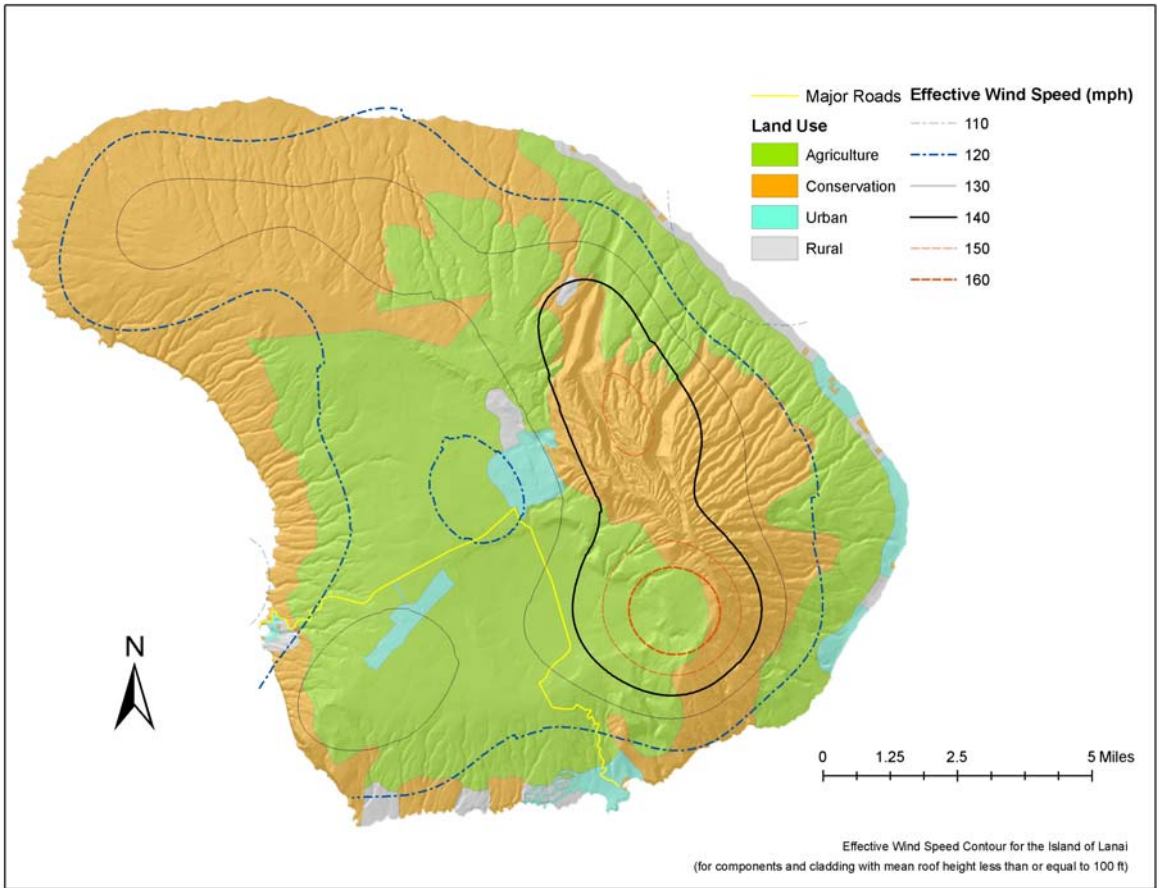
**Figure R301.2 (9a)** County of Hawaii Effective Basic Wind Speed,  $V_{eff}$ , for Components and Cladding for Buildings less than 100 ft. Tall



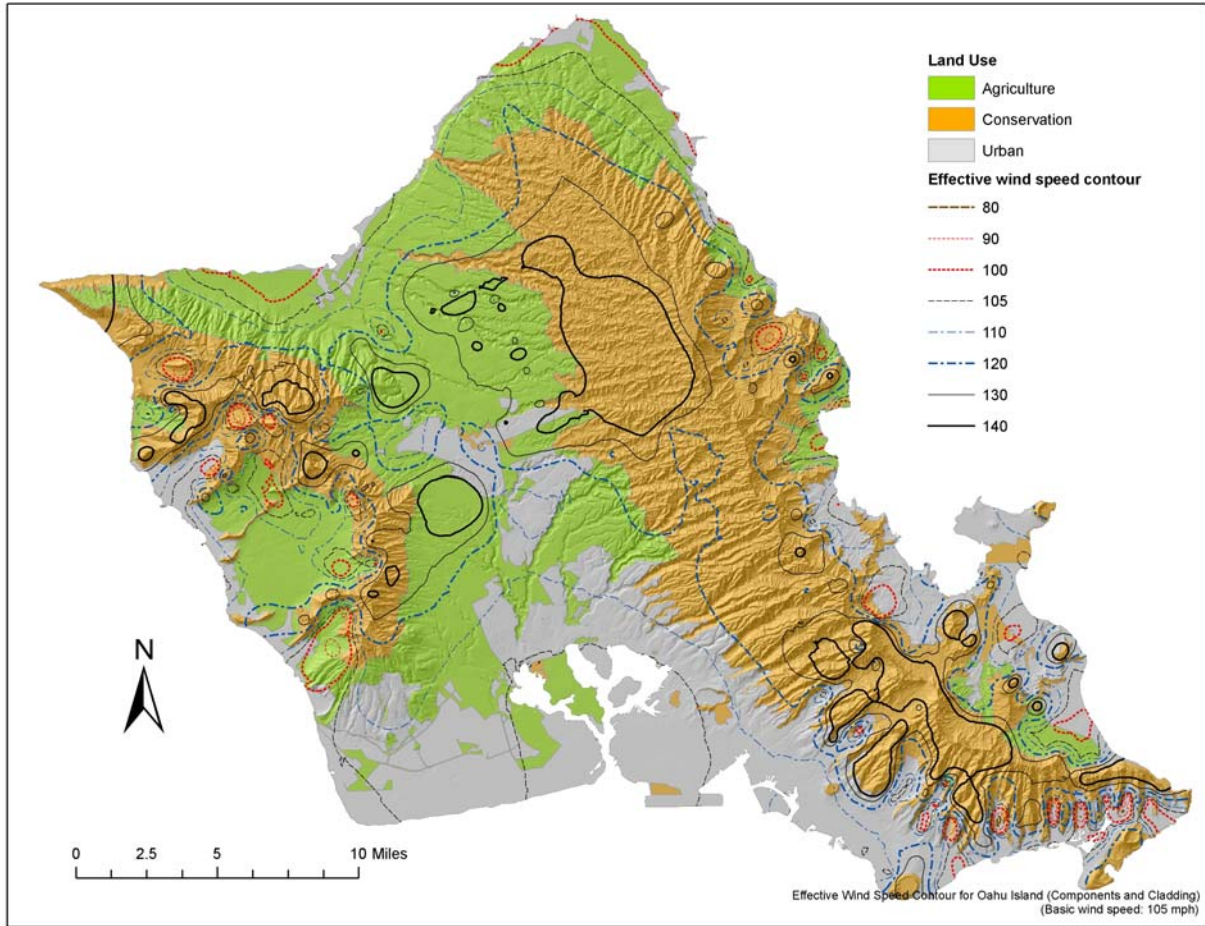
**Figure R301.2 (9b) County of Maui, Island of Maui Effective Basic Wind Speed,  $V_{eff}$ , for Components and Cladding for Buildings less than 100 ft. Tall**



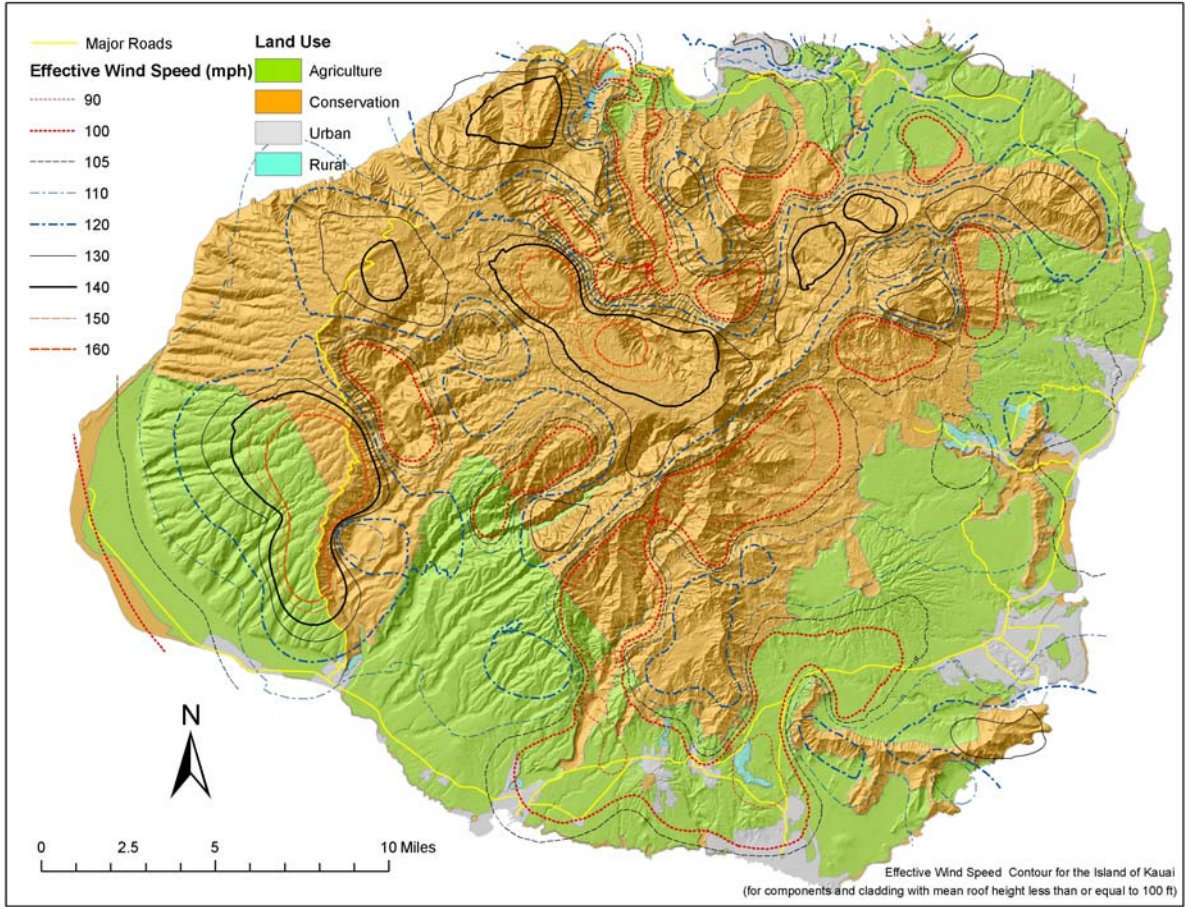
**Figure R301.2 (9c) County of Maui, Island of Molokai Effective Basic Wind Speed,  $V_{eff}$ , for Components and Cladding for Buildings less than 100 ft. Tall**



**Figure R301.2 (9d) County of Maui, Island of Lanai Effective Basic Wind Speed,  $V_{eff}$ , for Components and Cladding for Buildings less than 100 ft. Tall**



**Figure R301.2 (9e) City and County of Honolulu Effective Basic Wind Speed,  $V_{eff}$ , for Components and Cladding for Buildings less than 60 ft. Tall**



**Figure R301.2 (9f)**

Effective Basic Wind Speed, Island of Kauai,  $V_{eff}$ , for Components and Cladding for Buildings less than 100 ft. tall



**§3-185-20 Design Criteria.** Section R301.2.1.1 is amended by revising to read as follows:

**“R301.2.1.1 Design criteria.** Construction in regions where the effective wind speed,  $V_{eff}$ , from Figure R301.2(9), equal or exceed 100 miles per hour (45 m/s) 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) for enclosed buildings; or
2. Southern Building Code Congress International Standard for Hurricane Resistant Residential Construction (SSTD 10); or
3. Minimum Design Loads for Buildings and Other Structures (ASCE-7); or
4. American Iron and Steel Institute (AISI), Standard for Cold-Formed Steel Framing-Prescriptive Method for One- and Two-family Dwellings (COFS/PM) with Supplement to Standard for Cold-Formed Steel Framing – Prescriptive Method for One- and Two-Family Dwellings, for enclosed buildings.
5. Concrete construction shall be designed in accordance with the provisions of this code.”

**§3-185-21 Protection of openings.** Section 301.2.1.2 is amended to read as follows:

**“R301.2.1.2 Protection of openings.** Windows in buildings located in windborne debris regions shall have glazed openings protected from windborne debris. Glazed opening protection for windborne debris shall meet the requirements of the Large Missile Test of an approved impact resisting standard or ASTM E 1996 and ASTM E 1886 referenced therein.

**Exceptions:**

1. Wood structural panels with a minimum thickness of 7/16 inch (11.1 mm) and a maximum panel span of 8 feet (2438 mm) shall be permitted for opening protection in one- and two-story buildings. Panels shall be precut so that they shall be attached to the framing surrounding the opening containing the product with the glazed opening. Panels shall be secured with the attachment hardware provided. Attachments shall be designed to resist the component and cladding loads determined in accordance with either Table R301.2(2) or Section 1609.6.5 of the International Building Code. Attachment in accordance with Table R301.2.1.2 is permitted for buildings with a mean roof height of 33 feet (10 058 mm) or less where the effective wind speeds do not exceed 130 miles per hour (58 m/s).
2. Occupancy R-3 Buildings (including their components and cladding) designed as a partially enclosed structure in accordance with the International Building Code and with a residential safe room in accordance with Section R325.

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

FASTENER TYPE	FASTENER SPACING		
	Panel span ≤ 4 feet	4 feet <Panel span ≤ 6 feet	6 feet <Panel span ≤ 8 feet
No. 6 Wood screws	16"	12"	9"
No. 8 Wood screws	16"	16"	12"

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.

- This table is based on 130 mph wind speeds and a 33-foot mean roof height.
- Fasteners shall be installed at opposing ends of the wood structural panel. Fasteners shall be located a minimum of 1 inch from the edge of the panel.
- Fasteners shall be long enough to penetrate through the exterior wall covering and a minimum of 1-1/4 inches into wood wall framing and a minimum of 1-1/4 inches into concrete block or concrete, and into steel framing a minimum of 3 exposed threads. Fasteners shall be located a minimum of 2-1/2 inches from the edge of concrete block or concrete.
- Where screws are attached to masonry or masonry/stucco, they shall be attached using vibration-resistant anchors having a minimum ultimate withdrawal capacity of 490 pounds."

**§3-185-22 Wind speed conversion** Section R301.2.1.3 is amended to read as follows:

**“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**

$V_{eff}$	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

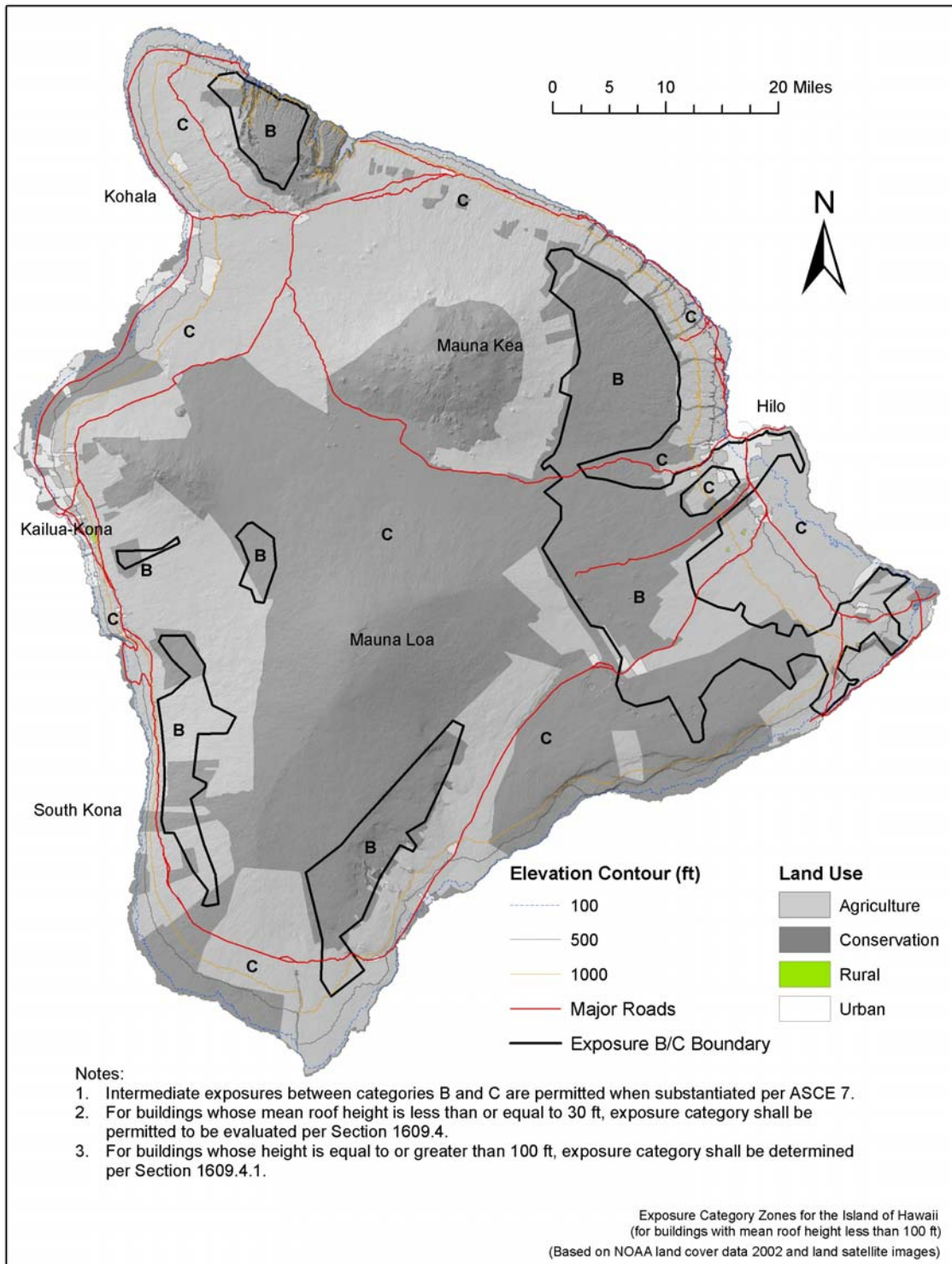
**§3-185-23 Exposure category.** Section R301.2.1.4 is amended to read as follows:

**“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:

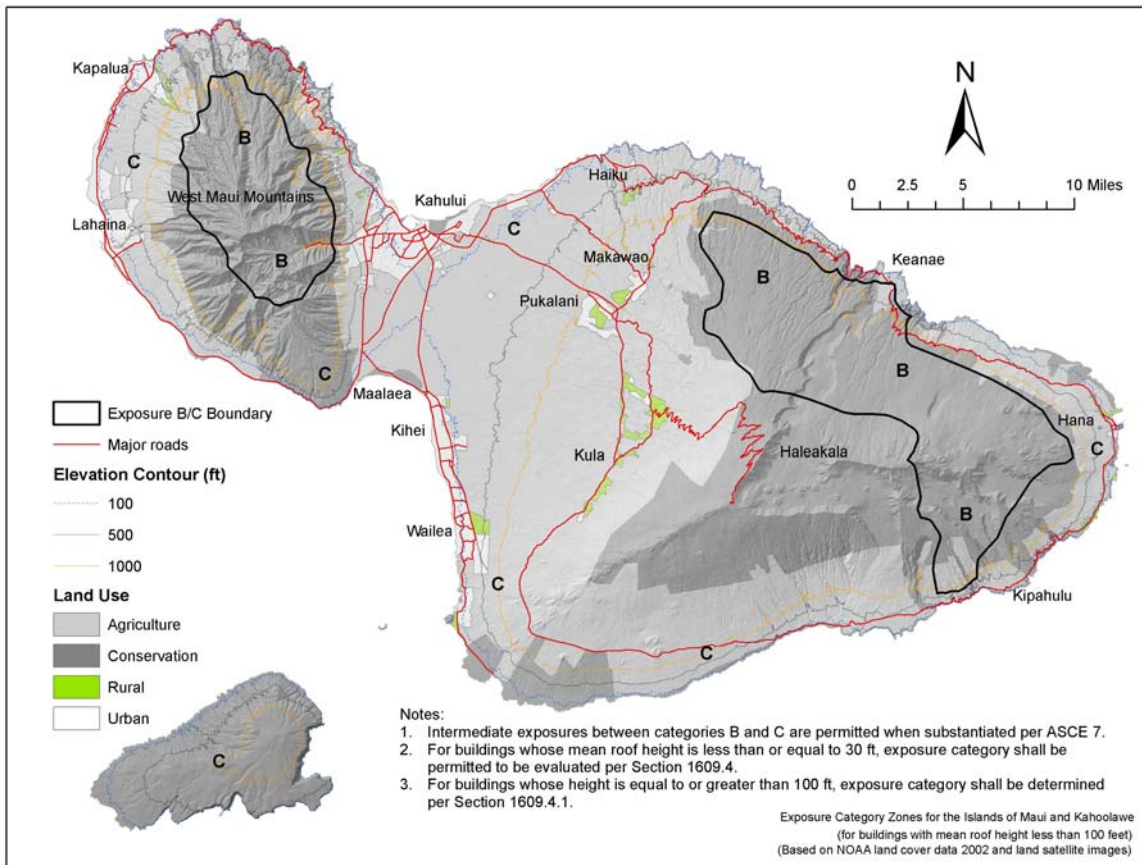
1. Exposure B. Urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single- family dwellings

or larger, or within the areas shown in Figure R 301.2(10) . ~~Exposure B shall be assumed unless the site meets the definition of another type exposure~~

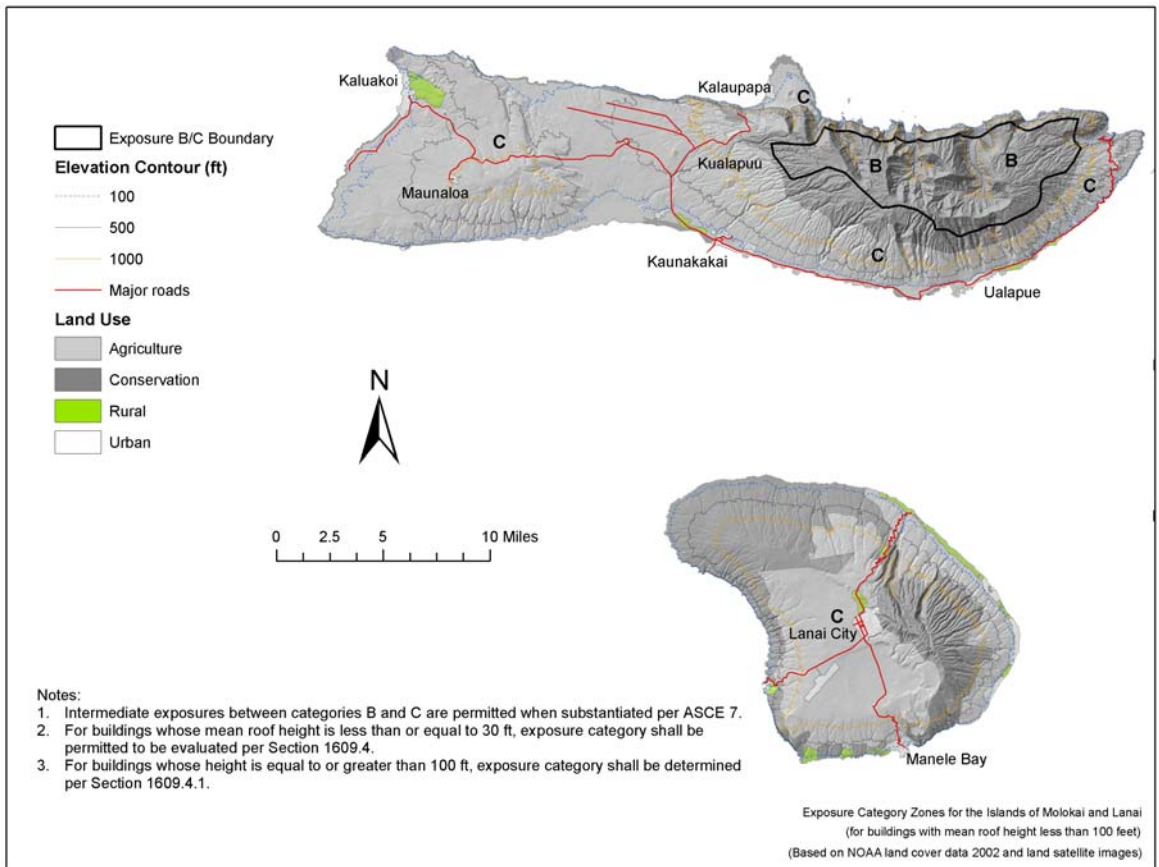
2. Exposure C. Open terrain with scattered obstructions, including surface undulations or other irregularities, having heights generally less than 30 feet (9144 mm) extending more than 1,500 feet (457m) from the building site in any quadrant. This category includes flat open country, grasslands, shorelines, 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 (183 m). This category includes flat open country, grasslands and shorelines in hurricane prone regions, and the areas shown in Figure R 301.2(10) .”



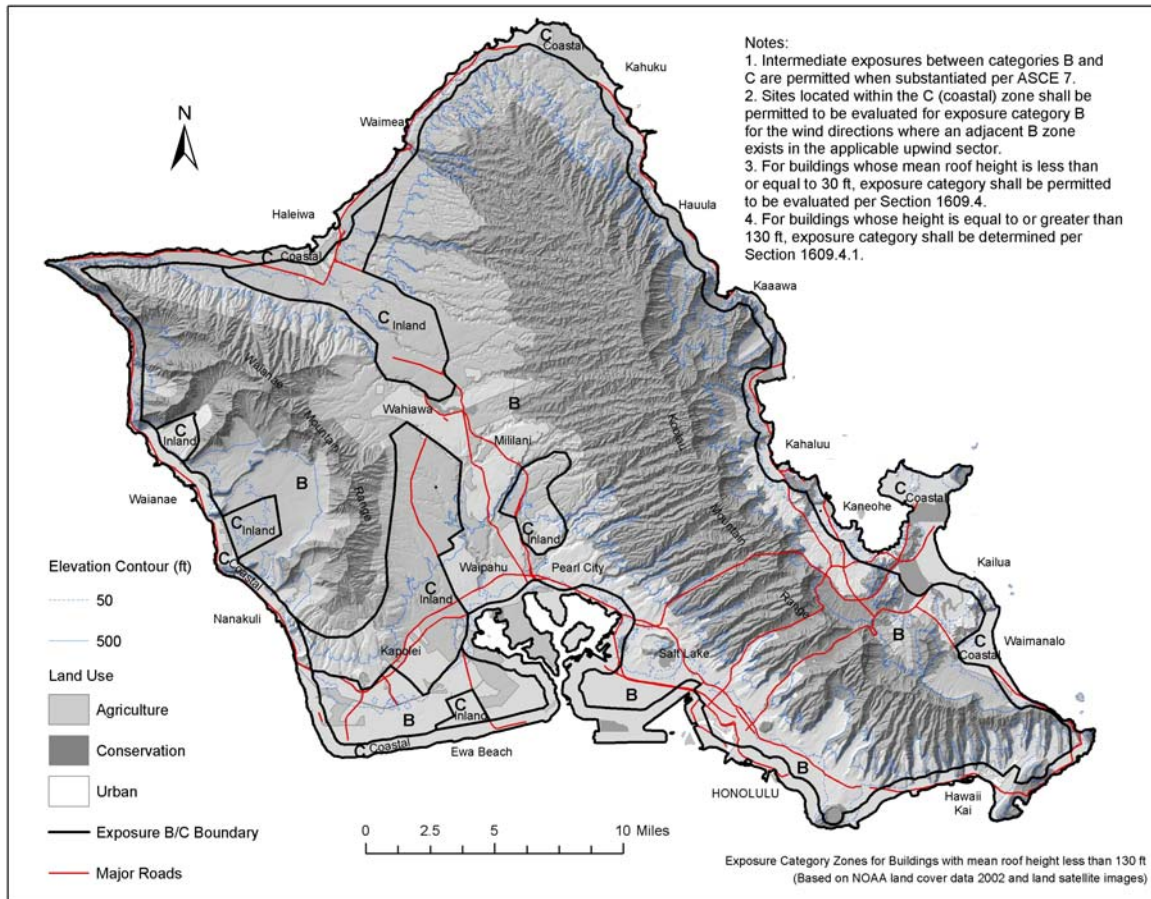
**Figure R301.2(10) (a) Exposure Category Zones for Hawaii County**



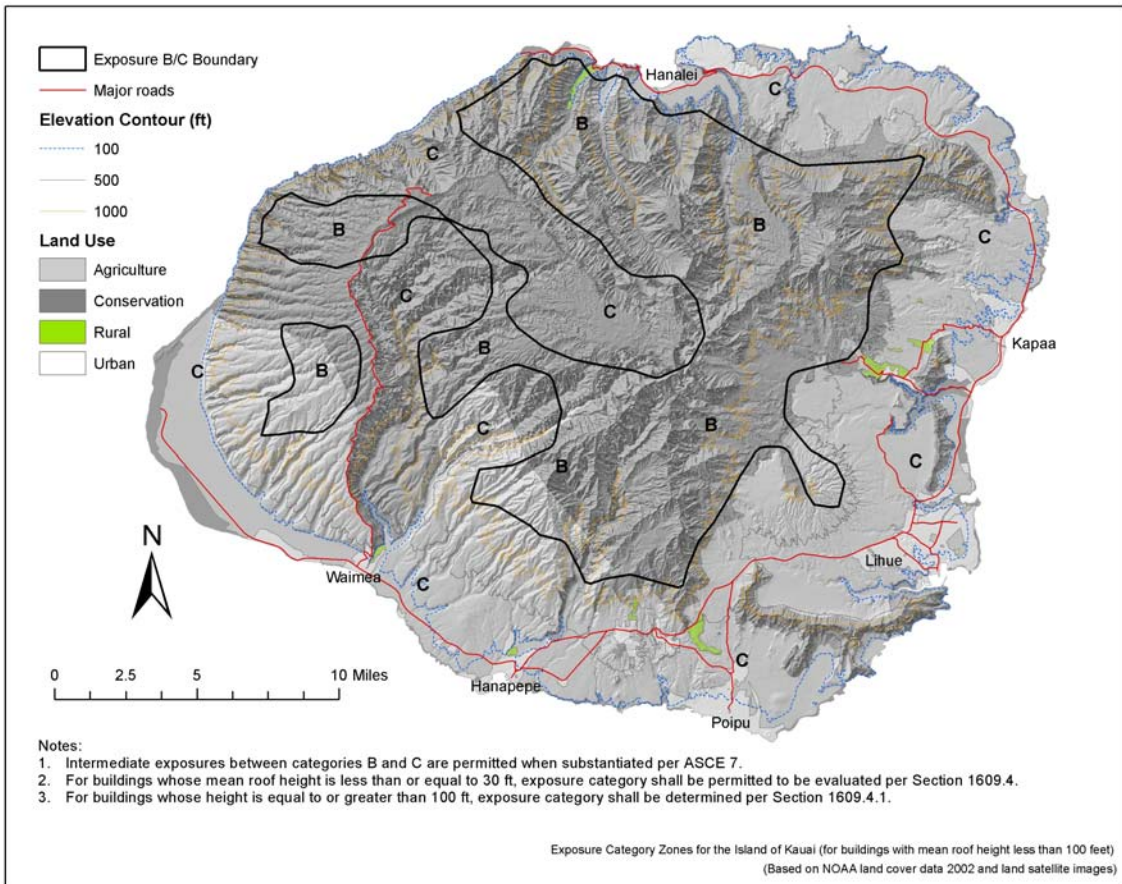
**Figure R301.2(10) (b) Exposure Category Zones for Island of Maui, Maui County**



**Figure R301.2(10) (c) Exposure Category Zones for Islands of Molokai and Lanai, Maui County**



**Figure R301.2(10) (d) Exposure Category Zones for the City and County of Honolulu**



**Figure R301.2(10) (e) Exposure Category Zones for Kauai County**



**§3-185-24 Protection Against Decay.** Section R319 is amended by revising to read as follows:

**“SECTION R319  
PROTECTION AGAINST DECAY**

**R319.1 Location required.** Protection from decay shall be provided in the following locations by the use of naturally durable wood or wood that is preservative treated in accordance with AWWA U1 for the species, product, preservative and end use. Preservatives shall be listed in Section 4 of AWWA U1.

1. Wood joists or the bottom of a wood structural floor when closer than 18 inches (457 mm) or wood girders when closer than 12 inches (305 mm) to the exposed ground in crawl spaces or unexcavated area located within the periphery of the building foundation.
2. All wood framing members that rest on concrete or masonry exterior foundation walls and are less than 8 inches (203 mm) from the exposed ground.
3. Sills and sleepers on a concrete or masonry slab that is in direct contact with the ground unless separated from such slab by an impervious moisture barrier.
4. The ends of wood girders entering exterior masonry or concrete walls having clearances of less than 0.5 inch (12.7 mm) on tops, sides and ends.
5. Wood siding, sheathing and wall framing on the exterior of a building having a clearance of less than 6 inches (152 mm) from the ground.
6. Wood structural members supporting moisture permeable floors or roofs that are exposed to the weather, such as concrete or masonry slabs, unless separated from such floors or roofs by an impervious moisture barrier.
7. Wood furring strips or other wood framing members attached directly to the interior of exterior masonry walls or concrete walls below grade except where an approved vapor retarder is applied between the wall and the furring strips or framing members.

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

1. Treated in accordance with AWWA Standard U1 (UC1 thru UC4B) for AWWA Standardized Preservatives, all marked or branded and monitored by an approving agency. Incising is not required, providing that the retention and penetration requirements of these standards are met.
2. For SBX disodium octaborate tetrahydrate (DOT), retention shall be not less than 0.28 pcf B<sub>2</sub>O<sub>3</sub> (0.42 pcf DOT) for exposure to Formosan termites All such lumber shall be protected from direct weather exposure as directed in AWWA 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 AWWA U1 (UC1 thru UC4B) or by Light Oil Solvent Preservative (LOSP) treatment standard as approved by the building official. Water based treatment processes as listed in paragraphs 1 and 2 are not allowed to be used on these products unless specified by a structural engineer for use with reduced load values and permitted by the product manufacturer.
4. For structural composite wood products, treated by non-pressure processes in accordance with AWWA Standard U1 (UC1, UC2 and UC3A) or approved by the building official.

**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

**R319.1.1 Field treatment.** Field-cut ends, notches and drilled holes of preservative-treated wood shall be treated in the field in accordance with AWWA M4, or in accordance with the approved preservative manufacturer's ICC-Evaluation Services report requirements.

**R319.1.2 Ground contact.** All wood in contact with the ground, embedded in concrete in direct contact with the ground or embedded in concrete exposed to the weather that supports permanent structures intended for human occupancy shall be approved pressure-preservative-treated wood suitable for ground contact use, ~~except untreated wood may be used where entirely below groundwater level or continuously submerged in fresh water.~~

**R319.1.3 Appurtenances. Geographical areas.** ~~In geographical areas where experience has demonstrated a specific need, Approved naturally durable or pressure-preservative-treated wood shall be used for those portions of wood members that form the structural supports of buildings, balconies, porches or similar permanent building appurtenances. When those members are exposed to the weather without adequate protection from a roof, eave, overhang or other covering that would prevent moisture or water accumulation on the surface or at joints between members. Depending on local experience, such members may include:~~

- ~~1. Horizontal members such as girders, joists and decking.~~
- ~~2. Vertical members such as posts, poles and columns.~~
- ~~3. Both horizontal and vertical members.~~

**R319.1.4 Wood columns.** Wood columns shall be approved wood of natural decay resistance or approved pressure-preservative- treated wood.

**Exceptions:**

- ~~1. Columns exposed to the weather or in basements when supported by concrete piers or metal pedestals projecting 1 inch (25.4 mm) above a concrete floor or 6 inches (152 mm) above exposed earth and the earth is covered by an approved impervious moisture barrier.~~
- ~~2. Columns in enclosed crawl spaces or unexcavated areas located within the periphery of the building when supported by a concrete pier or metal pedestal at a height more than 8 inches (203mm) from exposed earth and the earth is covered by an impervious moisture barrier.~~

**R319.1.5 Exposed Glued-laminated timbers.** ~~The portions of Glued-laminated timbers that form the structural supports of a building or other structure and are exposed to weather and not properly protected by a roof, eave or similar covering shall be pressure treated with preservative, or be manufactured from naturally durable or preservative-treated wood.~~

**R319.2 Quality mark.** Lumber and plywood required to be pressure-preservative-treated in accordance with Section R319.1 shall bear the quality mark of an approved inspection

agency that maintains continuing supervision, testing and inspection over the quality of the product and that has been approved by an accreditation body that complies with the requirements of the American Lumber Standard Committee treated wood program. The quality control and inspection program shall meet or exceed the requirements of AWWA Standards M2 and M3.

**R319.2.1 Required information.** The required quality mark on each piece of pressure preservative-treated lumber or plywood shall contain the following information:

1. Identification of the treating plant.
2. Type of preservative.
3. The minimum preservative retention.
4. End use for which the product was treated.
5. Standard to which the product was treated.
6. Identity of the approved inspection agency.
7. The designation "Dry," if applicable.

**Exception:** Quality marks on lumber less than 1 inch (25.4 mm) nominal thickness, or lumber less than nominal 1 inch by 5 inches (25.4 mm by 127 mm) or 2 inches by 4 inches (51 mm by 102 mm) or lumber 36 inches (914 mm) or less in length shall be applied by stamping the faces of exterior pieces or by end labeling not less than 25 percent of the pieces of a bundled unit.

**R319.3 Fasteners in non-borate-preservative-treated and fire-retardant-treated wood.**

Fasteners for pressure-preservative and fire-retardant-treated wood, other than Borate (SBX, ZB) or LSOP treatments as approved in R319 Protection Against Decay, 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 ASTM A 153.

**Exceptions:**

1. One-half-inch (12.7 mm) diameter or larger steel bolts.
2. Fasteners other than nails and 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."

**§3-185-25 Protection Against Subterranean Termites.** Section R320 is amended to read as follows:

**"SECTION R320  
PROTECTION AGAINST  
SUBTERRANEAN TERMITES**

**R320.1 Subterranean termite control methods.** ~~In areas subject to damage from termites as indicated by Table R301.2(1), methods of Protection shall be one of the following methods or a combination of these methods:~~

- ~~1. Chemical termiticide treatment, as provided in Section R320.2.~~
- ~~2. Termite baiting system installed and maintained according to the label.~~
- ~~3. Pressure preservative-treated wood in accordance with the AWPA standards listed in Section R319.1.~~
- ~~4. Naturally termite resistant wood as provided in Section R320.3.~~
5. Physical barriers as provided in Section R320.4. Protection from decay and termites shall be provided by the use of naturally durable or preservative-treated wood.

**1. Wood used above ground.** Structural lumber installed above ground shall be preservative-treated wood in accordance with Section R319.

**2. Soil Treatment and Termite Barriers.** Where structural lumber of wood frame buildings or structures are supported directly on the ground by a concrete slab, or concrete and/or masonry foundation Formosan subterranean termite protection shall be provided by either chemically treating the soil beneath and adjacent to the building or structure by a Hawaii licensed pest control operator, or stainless steel termite barrier, or other termite protection measures approved by the Building Official.

All soil treatment, stainless steel termite barrier, and termite protection measures shall be installed according to manufacturer's recommendations for control of Formosan subterranean termites.

**3. Wood in Ground Contact.** Wood supporting permanent buildings and structures, which is in direct soil contact or is embedded in concrete or masonry in direct contact with earth shall be treated to the appropriate commodity specification of AWPA Standard U1.

Wood in direct soil contact but not supporting any permanent buildings or structures shall be treated to the appropriate commodity specification of AWPA Standard U1 for ground contact.

**4. Retaining Walls.** Wood in retaining or crib wall shall be treated to AWPA Standard U1.

**5. Wood and Earth Separation.** Where wood is used with less than 6-inch vertical separation from earth (finish grade), it shall be treated for ground-contact use.

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.

**R320.1.1 Quality mark.** Lumber and plywood required to be pressure-preservative-treated in accordance with Section R320.1 shall bear the quality mark of an approved inspection agency which maintains continuing supervision, testing and inspection over the quality of the product and which has been approved by an accreditation body which complies with the requirements of the American Lumber Standard Committee treated wood program.

**R320.1.2 Field treatment.** Field-cut ends, notches, and drilled holes of pressure preservative-treated wood shall be retreated in the field in accordance with AWPA M4, or in accordance with the approved preservative manufacturer's ICC-Evaluation Services report requirements.

**R320.2 Chemical termiticide treatment.** Chemical termiticide treatment shall include soil treatment and/or field applied wood treatment. The concentration, rate of application and method of treatment of the chemical termiticide shall be in strict accordance with the termiticide label.

**R320.3 Naturally resistant wood.** Heartwood of redwood and eastern red cedar shall be considered termite resistant.

**R320.4 Barriers.** Approved physical barriers, such as metal or plastic sheeting or collars specifically designed for termite prevention, shall be installed in a manner to prevent termites from entering the structure. Shields placed on top of an exterior foundation wall are permitted to be used only if in combination with another method of protection.

**R320.5 Foam plastic protection.** ~~In areas where the probability of termite infestation is “very heavy” as indicated in Figure R301.2(6),~~ Extruded and expanded polystyrene, polyisocyanurate and other foam plastics shall not be installed on the exterior face or under interior or exterior foundation walls or slab-foundations located below grade. The clearance between foam-plastics installed above grade and exposed earth shall be at least 6 inches (152 mm).

**Exceptions:**

1. Buildings where the structural members of walls, floors, ceilings and roofs are entirely of noncombustible materials or pressure-preservative-treated wood.
2. When in addition to the requirements of Section R320.1, an approved method of protecting the foam plastic and structure from subterranean termite damage is used.
3. On the interior side of basement walls.

**R320.6 Under-Floor Clearance for Access and Inspection.** Minimum clearance between the bottom of floor joists or bottom of floors without joists and the ground beneath shall be 24 inches; the minimum clearance between the bottom of girders and the ground beneath shall be 18 inches.

**Exception:** Open slat wood decks shall have ground clearance of at least 6 inches for any wood member.

Accessible under-floor areas shall be provided with a minimum 18 inch-by 24 inch access opening, effectively screened or covered. Pipes, ducts and other construction shall not interfere with the accessibility to or within under-floor areas. See section M1305.1.4 for access requirements where mechanical equipment is located under floors.

**R320.7 Weather Exposure.** All portions of timbers (over 5-inch nominal width) and glued-laminated timbers that form structural supports of a building or other structure shall be protected by a roof, eave, overhangs, flashings, or similar coverings. All wood or wood composite panels, in weather-exposed applications, shall be of exterior type.

**R320.8 Water Splash.** Where wood-frame walls and partitions are covered on the interior with plaster, tile or similar materials and are subject to water splash, the framing shall be protected with approved waterproof paper.

**R320.9 Pipe and Other Penetrations.** Insulations around plumbing pipes shall not pass through ground floor slabs. 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, or other approved physical barrier.”

**§3-185-26 Accessibility.** Section R322 is deleted in its entirety and replaced to read as follows:

**“R322.1 Scope.** Where there are four or more dwelling units or sleeping units in a single structure the following provisions for Group R-3 shall apply:

1. For construction of buildings or facilities of the State and County Governments, compliance with HRS 103-50, administered by the Disability and Communication Access Board, State of Hawaii.
2. American with Disabilities Act, administered and enforced by the U.S. Department of Justice.
3. Fair Housing Act, administered and enforced by the U.S. Department of Housing and Urban Development.”
4. Other pertinent laws relating with disabilities shall be administered and enforced by agencies responsible for their enforcement.

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

**Accessibility.** Section R323.3 is amended by revising to read as follows:

**“R323.3 Accessibility.** Elevators or platform lifts that are part of an accessible route required by [~~Chapter 11 of the *International Building Code*,~~] section R322 shall comply with ICC A117.1.”

**§3-185-27 Flood Resistant Construction.** Section R324 is deleted in its entirety.

**§3-185-28 Hawaii Residential Safe Room.** Section R325 is added to Chapter 3 to read as follows:

**“R325 Hawaii Residential Safe Room**

**R325.1 Performance-Based Design Criteria.** The Residential Safe Room shall meet the minimum performance specifications of Sections R325.1.1 through R325.9.

**R325.1.1 Intent and Scope.** The intent of the Residential Safe Room is to temporarily provide an enhanced protection area, fully enclosed within a dwelling or within an accessory structure to a residence, which is designed and constructed to withstand the wind pressures, windborne debris impacts, and other requirements of this section.

**R325.1.2 Alternative Standards.**

**1. Manufactured Safe Room Designs Subject to Approval.** A manufactured safe room or safe room kit may be substituted if documentation is submitted and approved by the building official. The safe room shall be engineered, tested, and manufactured to meet or exceed the criteria of this section.

**2. FEMA In-Residence Shelter Designs Permitted.** It shall be permissible to build FEMA In-Residence Shelters of up to 64 square feet of floor area with walls up to 8 feet long that are built in accordance with construction details of FEMA 320.

**R325.2 Site Criteria.** Residential Safe Rooms shall not be constructed within areas subject to stream flooding, coastal flooding or dam failure inundation within any of the following areas:

1. FEMA Special Flood Hazard Areas (SFHA) subject to rainfall runoff flooding or stream or flash flooding;
2. Coastal zones “V” or “A” identified in the Flood Insurance Rate Map (FIRM) issued by FEMA for floodplain management purposes, in which the flood hazard are tides, storm surge, waves, tsunamis, or a combination of these hazards;
3. Areas subject to dam failure inundation as determined by the Department of Land and Natural Resources.

**R325.3 Maximum Occupancy.** The safe room is permitted to be used for a maximum occupancy based on at least 15 square feet per person with a maximum of 8 persons in a room of up to 128 square feet of floor area.

**R325.4 Provisions for Exiting.** The room shall be equipped with an inward-swinging door and an impact-protected operable window suitable for a means of alternative exiting in an emergency.

**R325.5 Design for Dead, Live, Wind, Rain, and Impact Loads.**

**R325.5.1 Structural Integrity Criteria.**

1. The safe room shall be built with a complete structural system and a complete load path for vertical and lateral loads caused by gravity and wind.
2. The building that the safe room is built within shall be assumed to be destroyed by the storm and shall not be taken as offering any protective shielding to the safe room enclosure.
3. The ceiling structure and wall shall be capable of supporting a superimposed debris load of the full weight of any building floors and roof above, but not less than 125 psf.
4. The safe room enclosure shall be capable of simultaneously resisting lateral and uplift wind pressures corresponding to a 160 mph 3-second peak gust, determined in accordance with ASCE Standard 7, Minimum Design Loads for Buildings and Other Structures, calculated using load and importance Factors of 1.0. The site exposure factor shall be based on exposure C. The gust factor and the directionality factor shall be taken as 0.85. Topographic wind amplification caused by mountainous terrain shall be considered in accordance with the building code. Internal pressure shall be determined in accordance with ASCE – 7.

5. The safe room shall be anchored to a foundation system capable of resisting the above loading conditions.

**R325.5.2 Windborne Debris Impact Protection of Building Enclosure Elements.** The entire enclosure of the safe room, including all walls, ceilings, and openings, fixed or operable windows, and all entry doors into the safe room, shall meet or exceed Level D requirements of ASTM E 1996 (Table R325.5-1). Any wall or ceiling penetration greater than 4 square inches shall be considered an opening.

**Exception:** Electrical outlet boxes and interior lighting switches not penetrating more than 2.5-inches into the interior wall surface and a plumbing piping or conduit not greater than 1.5-inch in diameter shall be exempted from this requirement.

**R325.5.3 Cyclic Pressure Loading of Glazing and Protective Systems.** Impact protective systems shall meet the ASTM E 1996 cyclic pressure requirement for the loading given in Table R325.5-1.”

**Table R325.5-1 – Windborne Debris Protection and Cyclic Pressure Criteria for Residential Safe Rooms**

ASTM E 1996 Missile Level Rating	Debris Missile Size	Debris Impact Speed	Enclosure Wall Ceiling, and Floor Cyclic Air Pressure Testing - maximum inward and maximum outward pressures
D	2 x 4 weighing 9.0 lb. +/- 0.25 lb., and with min. length 8 ft. +/- 4-inch	50 ft./sec. or at least 34 mph	35 psf inward 45 psf outward

**§3-185-29 ICF wall to top sill plate (roof) connections.** Section R611.9 is amended to read as follows:

**“R611.9 ICF wall to top sill plate (roof) connections.** Wood sill plates attaching roof framing to ICF walls shall be anchored with minimum 1/2 inch (13 mm) diameter anchor bolt embedded a minimum of 7 inches (178 mm) and placed at 6 feet (1829 mm) on center in accordance with Figure R611.9. Anchor bolts shall be located in the cores of waffle-grid and screen-grid ICF walls. Roof assemblies subject to wind uplift pressure of ~~20 pounds per square foot (1.44 kPa) or greater~~ as established in Table R301.2(2) shall have rafter or truss ties provided in accordance with Table R802.11.”

**§3-185-30 Truss to wall connection.** Section R802.10.5 is amended to read as follows:

**“R802.10.5 Truss to wall connection.** Trusses shall be connected to wall plates by the use of approved connectors having a resistance to uplift of not less than ~~475~~ 400 pounds (~~779 N~~) and shall be installed in accordance with the manufacturer’s specifications. For roof assemblies subject to wind uplift pressures of ~~20 pounds per square foot (960 Pa) or~~



greater, as established in Table R301.2(2), adjusted for height and exposure per Table R301.2(3), see section R802.11.”

**§3-185-31 Uplift Resistance.** Section R802.11.1 is amended to read as follows:

“**R802.11.1 Uplift resistance.** Roof assemblies which are subject to wind uplift pressures of ~~20 pounds per square foot (960 Pa) or greater~~ shall have roof rafters or trusses attached to their supporting wall assemblies by connections capable of providing the resistance required in Table R802.11. Wind uplift pressures shall be determined using an effective wind area of 100 square feet (9.3 m<sup>2</sup>) and Zone 1 in Table R301.2(2), as adjusted for height and exposure per Table R301.2(3). A continuous load path shall be designed to transmit the uplift forces from the rafter or truss ties to the foundation.”

**§3-185-32 Roof tie-down.** Section R804.4 is amended to read as follows:

“**R804.4 Roof tie-down.** Roof assemblies subject to wind uplift pressures of ~~20 pounds per square foot (0.96 kN/m<sup>2</sup>) or greater~~, as established in Table R301.2(2), shall have rafter-to-bearing wall ties provided in accordance with Table R802.11.”

**§3-185-33 Unvented Attic Spaces.** Section R806.5 is added to read as follows:

“**R806.5 Unvented Attic Spaces.** The attic space shall be permitted to be unvented when the design professional determines it would be beneficial to eliminate ventilation openings to reduce salt-laden air and maintain relative humidity 60% or lower to:

1. Avoid corrosion to steel components.
2. Avoid moisture condensation in the attic space, or
3. Minimize energy consumption for air conditioning or ventilation by maintaining satisfactory space conditions in both the attic and occupied spaces below.”

**§3-185-34 Plumbing Administration.** Chapter 25 is deleted in its entirety.

**§3-185-35 General Plumbing Requirements.** Chapter 26 is deleted in its entirety.

**§3-185-36 Plumbing Fixtures.** Chapter 27 is deleted in its entirety.

**§3-185-37 Water Heaters.** Chapter 28 is deleted in its entirety.

**§3-185-38 Water Supply and Distribution.** Chapter 29 is deleted in its entirety.

**§3-185-39 Sanitary Drainage.** Chapter 30 is deleted in its entirety.

**§3-185-40 Vents.** Chapter 31 is deleted in its entirety.

**§3-185-41 Traps.** Chapter 32 is deleted in its entirety.

- §3-185-42 General Requirements.** Chapter 33 is deleted in its entirety.
- §3-185-43 Electrical Definitions.** Chapter 34 is deleted in its entirety.
- §3-185-44 Services.** Chapter 35 is deleted in its entirety.
- §3-185-45 Branch Circuit and Feeder Requirements.** Chapter 36 is deleted in its entirety.
- §3-185-46 Wiring Methods.** Chapter 37 is deleted in its entirety.
- §3-185-47 Power and Lighting Distribution.** Chapter 38 is deleted in its entirety.
- §3-185-48 Devices and Luminaries.** Chapter 39 is deleted in its entirety.
- §3-185-49 Appliance Installation.** Chapter 40 is deleted in its entirety.
- §3-185-50 Swimming Pools.** Chapter 41 is deleted in its entirety.
- §3-185-51 Class 2 Remote-Control, Signaling and Power-Limited Circuits.** Chapter 42 is deleted in its entirety.