TITLE V.

BUILDING AND CONSTRUCTION REGULATIONS

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ARTICLE 1. GENERAL PROVISIONS

Sec. 12-1.1 Purpose.

This ordinance is for the purpose of adopting and incorporation by reference the Uniform Building Code, 1997 Edition of the International Conference of Building Officials; providing amendments thereto, regulating the construction, alteration, equipment, moving or demolition of buildings or structures in the County of Kauai; providing for the issuance of permits and collection of fees therefor and providing penalties for the violation thereof. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord.

No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Sec. 12-1.2 Title.

This Chapter shall be known as the Building Code of the County of Kauai and may be cited as the "Building Code". (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

ARTICLE 2. ADOPTION OF THE UNIFORM BUILDING CODE AND AMENDMENTS THERETO

Sec. 12-2.1 Adoption of the Uniform Building Code.

(a) The "Uniform Building Code, 1997 Edition" as copyrighted and published in 1997 by the International Conference of Building Officials, 5360 Workman Mill Road, Whittier, California 90601-2298, is by reference incorporated herein and made a part hereof, subject to the following amendments. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8, 1988; Ord. No. 613, December 7, 1992; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Sec. 12-2.2 Amendments to Uniform Building Code.

The Uniform Building Code, 1997 Edition, is amended as follows:

(1) Amending Section 101.3. Section 101.3 is amended as follows:

a. By amending the first paragraph to read:

Sec. 101.3. The provisions of this code shall apply to the construction, alteration, moving, demolition, repair, and use of any building or structure within the County 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, bridges, hydraulic flood control structures and recreational playground equipments.

b. By adding thereto a fifth paragraph to read:

Wherever in the code reference is made to the Mechanical Code, the provisions of the Mechanical Code shall be deemed only guidelines and not mandatory.

(2) Amending Section 102. Section 102 is amended to read:

SECTION 102 - - UNSAFE BUILDINGS

102.1 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 are, for the purpose of this section, unsafe buildings. All such unsafe buildings are hereby declared to be public nuisances and shall be abated by repair, rehabilitation, demolition, or removal in accordance with this section.

102.2 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 60 days to secure all required permits, 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 180 days from date of permit issuance, unless otherwise required by the building official. If necessary, such notice also shall 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.

Any building or structure declared to be an unsafe building and constitute an immediate danger to the life, limb, property or safety of the public or occupants of such building, within 48 hours it shall be vacated, secured and maintained against any entry by the owner or person in charge of such building, structure or premises.

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 or certified mail, the designated period within which said owner or person in charge is required to comply with the order of the building official shall begin as of the date he receives such notice.

102.3 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. BUILDING DIVISION, DEPARTMENT OF PUBLIC WORKS, COUNTY OF KAUAI. Such notice shall remain posted until the required repairs, demolition, or removal are 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.

102.4 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 portion thereof, the building official may order the owner of the building prosecuted as a violator of the provisions of this code.

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

(3) Amending Section 103. Section 103 is amended to read:

SECTION 103 - - VIOLATIONS AND PENALTIES

103.1 Violations. Whenever any building is being used or constructed contrary to the provisions of this code, the building official shall serve a notice to the party responsible for the violation to make the structure or portion thereof comply with the requirements of this code.

103.2 Penalties. (a) General. It shall be unlawful for any person, firm or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert or demolish, equip, use, occupy, or maintain any building or structure or cause or permit the same to be done in violation of this code.

(b) Notice of Violation. Whenever any person, firm or corporation violates any provision of this code, the Building Official shall serve a notice of violation to the party responsible for the violation to make the building or structure or portion thereof comply with the requirements of this code. Such notice of violation shall include:

(1) The date of the notice:

(2) The name and address of the person noticed, and the location of the violation;

(3) The section number of the ordinance, code or rule which has been violated;

(4) The nature of the violation; and

(5) The deadline for compliance with the notice.

The notice of violation may be served in person or by registered or certified mail or in any other manner provided by law.

(c) Criminal Prosecution. (1) Any person, firm, or corporation violating any of the provisions of this code shall be deemed guilty of a misdemeanor, and each such person shall be deemed guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this code is committed, continued, or permitted, and upon conviction of any such violation such person shall be punishable by a fine of not more than $2,000.00, or by imprisonment for not more than one year, or by both such fine and imprisonment.

It shall be a misdemeanor for any person, firm or corporation as defined herein to knowingly allow or knowingly fail to prevent a violation of this code.

(2) Any officer, or authorized representative designated by the Building Official, may issue a summons or citation in accordance with the procedure specified in this section. Nothing in this section shall be construed as barring such authorized representative from initiating prosecution by warrant or such other judicial process as is permitted by statute or rule of court.

(3) Any authorized representative designated by the Building Official, upon making an arrest for a violation of the Building Code may take the name and address of the alleged violator and shall issue to the violator in writing a summons or citation hereinafter described, requiring the violator to answer the complaint at a place and at a time provided in said summons or citation.

(4) There shall be provided for use by authorized representative, a form of summons or citation for use in citing violators of the Building Code which does not mandate the physical arrest of such violators. The form and content of such summons or citation shall be as adopted or prescribed by the administrative judge of the district court and shall be printed on a form commensurate with the form of other summonses or citations used in modern methods of criminal prosecution, so designed to include all necessary information to make the same valid within the laws

and regulations of the State of Hawaii and the County of Kauai.

(5) In every case when a citation is issued, the original of the same shall be given to the violator; provided that the administrative judge of the district court may prescribe that the violator be given a carbon copy of the citation and provide for the disposition of the original and any other copies.

(d) Administrative Enforcement. In lieu of or in addition to, pursuant to Section 103.2 (c), if the Building Official determines that any person, firm, or corporation is not complying with a notice of violation, the Building Official may have the party responsible for the violation served, by mail or delivery, with an order pursuant to this section.

(1) Contents of the Order.

(A) The order may require the party responsible for the violation to do any or all of the following:

(i) Correcting the violation within the time specified in the order;

(ii) Pay a civil fine not to exceed $1,000 in the manner, at the place and before the date specified in the order;

(iii) Pay a civil fine not to exceed $1,000 per day for each day in which the violation persists, in the manner and at the time and place specified in the order.

(iv) The fine for each order shall be set forth in Table 1-B.

(B) The order shall advise the party responsible for the violation that the order shall become final 30 days after the date of its delivery. The order shall also advise that the Building Official's action may be appealed to the Board of Appeals.

(2) Effect of Order; Right to Appeal. The provisions of the order issued by the Building Official under this section shall become final 30 calendar days after the date of the delivery of the order. The party responsible for the violation may appeal the order to the Board of Appeals as provided by Section 105 of this code. The appeal must be received in writing on or before the date the order becomes final. However, an appeal to the Board of Appeals shall not stay any provision of the order.

(3) Judicial Enforcement of Order. The Building Official may institute a civil action in any court of competent jurisdiction for the enforcement of any order issued pursuant to this section. Where the civil action has been

instituted to enforce the civil fine imposed by said order, the Building Official need only show that the notice of violation and order were served, that a civil fine was imposed; the amount of the civil fine imposed has not been paid; that either the order has not been appealed or that, if appealed, the order was sustained by the Board of Appeals, and that the order or the Board of Appeals decision, as the case may be, was not clearly erroneous.

(4) Amending Section 104.2.2. Section 104.2.2 is amended by adding a second paragraph to the end thereof to read:

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

(5) Amending Section 104.2.5. Section 104.2.5 is amended to read:

104.2.5 Occupancy Violations. See Section 103.

(6) Adding Section 104.2.11. Section 104.2.11 is added to read:

104.2.11 Other Codes and Ordinances. Any provisions of this code to the contrary notwithstanding, the following shall be at all times in full force and effect, and in case of conflicting requirements, the stricter shall be complied with:

Hawaii Revised Statutes;

Ordinances of the County of Kauai;

Rules and Regulations of the Land Use Commission, State of Hawaii;

Subdivision Rules and Regulations adopted pursuant to the subdivision ordinance;

Rules and Regulations of the Department of Water, County of Kauai;

Public Health Regulations of the Department of Health, State of Hawaii;

Rules and Regulations of the Department of Labor and Industrial Relations, State of Hawaii;

Fire Code of the County of Kauai;

Airport Zoning Regulations of the Director of Transportation, State of Hawaii;

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

SECTION 105 - - BOARD OF APPEALS

105.1 Creation. There shall be and is hereby created a Board of Appeals, hereinafter called the

Board, consisting of seven 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 County Council. One member shall be currently registered as an engineer or architect with the State of Hawaii Board of Registration of Professional Engineers, Architects, Land Surveyors and Landscape Architects. Two members shall be qualified by experience or training to pass upon matters pertaining to fire safety.

One member shall be qualified by experience and training to pass upon matters pertaining to electrical work. One member shall be qualified by experience and training to pass upon matters pertaining to plumbing work. One member shall be qualified by experience and training to pass upon matters pertaining to building construction work. One member shall be from the public at large. The Board shall select a chairman and vice chairman annually.

105.2 Term of Office. The members of the Board of Appeals shall serve for staggered terms of three years and until their successors are appointed. However, no holdover term shall extend beyond ninety days.

105.3 Limitation On Number of Terms. No member of the Board of Appeals shall serve for more than two consecutive terms. Any partial term of more than two years shall be considered a term as used herein.

105.4 Quorum. A majority of the entire membership shall constitute a quorum and the affirmative vote of a majority of the entire membership shall be necessary to take any action.

105.5 Powers and Duties. The Board shall:

(a) Hear and determine appeals from the decisions of the Building Official in the administration of the County of Kauai Building Code, Electrical Code, Sign Ordinance and Plumbing Code, involving any denial of the use of new or alternate materials, types of construction, equipment, devices or appliances.

In the case of any denial of the use of new or alternate materials, types of construction, equipment, devices, or appliances, an appeal may be sustained if the record shows (I) that such new or alternate materials, types of construction, equipment, devices or appliances meet the required standards established by the Codes being appealed from, (II) that permitting the use thereof will not jeopardize life, limb or property, and (III) that such use will not be contrary to the intent and purpose of the Code being appealed from. In such appeals the appellant shall pay all expenses

necessary for tests which may be ordered by the Board.

The Board may reverse, affirm or modify, wholly or partly, the decision appealed from.

(b) Hear and determine appeals from the decision of the Fire Official in the administration of the County of Kauai Fire Code; and any denial in 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 appliances shall be the same as for (a) above.

(c) Hear and determine petitions for varying the application of the Building Code, Electrical Code, Sign Ordinance and Plumbing Code. A variance may be granted if the Board finds (I) that the strict application, operation or enforcement of the Code being appealed from would result in practical difficulty or unnecessary hardship, (II) that safety to life, limb and property will not be jeopardized, and (III) that the granting of variance would not be injurious to any adjoining lot and any building thereon, would not create additional fire hazards, and would not be contrary to the purpose of the Code and the public interest. In making its determination, the Board shall take into account the character, use and type of occupancy and construction of an adjoining lot and any building involved.

105.6 Procedure. The Proceeding of the Board shall be subject to the provisions of Chapter 91, Hawaii Revised Statutes, as amended. The Board shall adopt rules and regulations for conducting its meeting, hearings, and investigations in conformity therewith and may impose fees to cover the costs of such proceedings.

(8) Amending Section 106. Section 106 is amended to read:

SECTION 106 - - PERMITS

106.1 Permits Required. No person, firm or corporation shall erect, construct, enlarge, repair, move, improve, remove, convert, or demolish any building or structure in the County of Kauai, or cause the same to be done, without first obtaining a separate building permit for each such building or structure from the Building Official, provided that one permit may be obtained for a dwelling and its accessories, such as a pool, and a garage without living quarters.

106.2 Work Exempt from Permit. A building permit shall not be required for the following; however, all other government agency codes and laws shall be complied with:

1. Work excepted under Section 101.3

2. One-story detached accessory buildings used as tool and storage sheds, playhouses, animal shelters, green houses and similar uses, provided the floor area does not exceed 100 square feet and complies to Chapter 8, Comprehensive Zoning Ordinance; Chapter 15, Article 15 Flood Plain Management, Kaua'i County Code, 1987 as amended and the Administrative Laws and Rules of the Department of Health, State of Hawai'i.

3. Moveable cases, counters, and partitions not over 5 feet 9 inches high.

4. Temporary construction buildings, sheds, platforms and fences used during a construction project or for use as props for motion picture, filming, television, theater stage sets, scenery and live play performances.

5. Reroofing work for Groups R-3 and U Occupancies. Roofing shall be of similar type of material or application.

6. Temporary tents or other coverings used for private family parties or for camping.

7. Structures such as architectural barriers, fences and planter boxes up to 6 feet in height; and curbs and retaining walls not over 36 inches in height measured from the finish grade to the top of the structure and constructed in accordance with the Chapter 8, Comprehensive Zoning Ordinance; Chapter 15, Article 15, Flood Plain Management and Chapter 16, Traffic Code, Kaua'i County Code, 1987, as amended.

8. Home television and radio antennas.

9. Awnings projecting 54 inches or less and attached to the exterior walls of building of Group R-3 of U Occupancy.

10. Standard electroliers not over 35 feet and flagpoles not over 30 feet in height above finish grade.

11. Repairs which involve only the replacement of component parts or existing work with similar materials for the purpose of maintenance, and which do not aggregate over $5,000 in valuation in any 12 -month period, and do not affect any electrical or mechanical installations. Repairs exempt from permit requirements shall not include any additions, change or modification in construction, exit facilities, or permanent fixtures or equipment. Specifically exempted from permit requirements without limit to valuation are:

A. Painting and decorating.

B. Installation of floor covering.

C. Cabinet work.

D. Outside paving.

E. Siding installation over existing exterior walls of buildings of Group R-3 or U Occupancy.

12. Work on building or premises owned by or under the direct control of the United States or the State of Hawai'i, except where permits are specifically requested by said governmental agency.

13. Temporary tents or other covering erected for commercial, ceremonial or religious purposes, such as rallies, festivals, amusement and side shows provided no person, firm or corporation shall erect any tent or similar structure which is to be used as a dwelling. Approval for such temporary tent or other covering must be obtained from the Chief of the Fire Department.

14. Architectural barriers, curbs, retaining walls, fences and structures approved and constructed in conjunction with roadway or highway construction, subdivision of lands and in accordance with plans approved by the County under subdivision rules and regulations or under a grading permit.

15. Prefabricated swimming pools accessory to a Group R, Division 3 Occupancy in which the pool walls are entirely above the adjacent grade and the capacity of water does not exceed 5,000 gallons.

16. Structures such as decorative water features, lagoons, fishponds or aquatic ponds not used for human occupancy and constructed in accordance with Chapter 8, Comprehensive Zoning Ordinance; Chapter 15 Flood Plain Management, Kaua'i County Code, 1987, as amended and the Administrative Rules of the Department of Water, County of Kaua'i.

(9) Amending Section 106.3.1 item number 6. Section 106.3.1 item number 6 is amended to read:

6. Be signed by permittee, his authorized agent, or his successor in interest, which agent or successor may be required to prove such agency or succession.

(10) Amending Section 106.3.2. Section 106.3.2 is amended to read:

106.3.2 Plans and Specifications. With each application for a building permit, five sets of plans shall be submitted and specifications as required by the Building Official. One of which shall be left with the Planning Department. One will be retained by the Building Official. One approved set will be returned as a job site copy to the applicant and one approved set will be submitted to the Department of Finance, Real Property Tax Division. An additional plan and specification shall be submitted for public, hotel and commercial buildings.

All plans and specifications relating to work which affects the public safety or health and for which a building permit is required shall be prepared, designed, approved and stamped by a duly registered professional licensed structural engineer or architect as required by Chapter 464 of the Hawaii Revised Statutes, as amended.

All plans for retaining walls 5 feet or more in height shall be prepared, designed, approved and stamped by a duly registered licensed architect or engineer in the structural or civil branches.

Plans and specifications need not be submitted when authorized by the Building Official.

(11) Amending Section 106.3.4.1. Section 106.3.4.1 is amended to read:

106.3.4.1 General. When it is required that plans, specifications and documents be prepared, designed, stamped and approved by an architect or engineer and act as the duly registered professional of record, they shall comply and perform their duties accordingly to the following:

a. Chapter 464 Hawaii Revised Statutes, Professional Engineers, Architects, Surveyors and Landscape Architects, as amended.

b. Title 16, Chapter 115, Department of Commerce and Consumer Affairs, Hawaii Administrative Rules Professional Engineers, Architects, Surveyors, and Landscape Architects, State of Hawaii, as amended.

If the circumstance require, the owner may designate a substitute architect or engineer of record who shall perform all portion of the duties of the original architect or engineer of record.

The building official shall be notified in writing by the owner or the architect or engineer of record if the duly registered professional of record is changed or is unable to continue to perform the duties.

(12) Deleting Sections 106.3.4.2 and 106.3.5. Sections 106.3.4.2 and 106.3.5 are deleted.

(13) Amending Section 106.4.1. Section 106.4.1 is amended to read:

106.4.1 Issuance. The application, plans and specifications filed by an applicant for a permit shall be checked by the Building Official. Such plans shall be reviewed by other departments of the County to check for compliance with laws and ordinances under their jurisdiction. If the work described in an application for permit, and the plans filed therewith, conform to the requirements of this Code and other pertinent laws and ordinances, and the fee specified in Section 107 has been paid, the Building Official shall issue a permit therefor to the owner, payment for any permit fee shall be paid upon the issuance of such permit; provided, however, that no permit shall be granted for the moving of any building or structure or portion thereof which has deteriorated or been damaged to an extent greater that 50 per cent of the cost of replacement (new) of such building or structure.

When the Building Official issues the permit, he shall affix an official stamp of approval to the

specifications and each sheet of the Job Site Copy of the plans. Such approved plans and specifications shall not be changed, modified, or altered without authorization from the Building Official and other agencies granting approval, and all work shall be done in accordance with the approved plans. The building permit shall be posted in a conspicuous place on the site during the progress of work.

A fee of $10.00 (ten dollars) shall be imposed and collected for the reproduction of any building, electrical, plumbing or sign permit cards, for which a permit was issued by the Building Official.

(14) Amending Section 106.4.2. Section 106.4.2 is amended to read:

106.4.2 Retention of Plans. One set of approved plans, specifications and computations shall be retained by the Building Official for a period of not less than 180 days from date of completion of the work covered therein; and one set of approved plans and specifications shall be returned to the applicant, as the approved Job Site Copy, and said set shall be kept on the site of the building or work at all times during which the work authorized thereby is in progress.

(15) Amending Section 106.4.4. Section 106.4.4 is amended to read:

106.4.4 Expiration. Every permit issued by the Building Official under the provisions of this Code shall expire by limitation and become null and void, if the building or work authorized by such permit is not commenced within 180 days from the date of such permit, or if the construction or work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period of 180 days.

Where a permit has expired, been suspended or abandoned, a new permit shall be first obtained by the permittee, his agent, or his successor in interest, and a new permit fee equal to one-half the amount established from Table No. 1-A of this Code rounded off to the nearest dollar, based on the original valuation of such permit shall be paid, provided no changes have been made or will be made to the original plans and specifications for such work; and provided, further, that such permit has not exceeded a period of one year from the date of permit issuance or the date of suspension or abandonment of work authorized, whichever is later.

Any permittee, his agent or his successor in interest holding an unexpired permit, who is unable to commence work, may apply for an extension. Upon written request by the permittee, the Building Official

may, in writing, extend the permit for a period of 180 days, however, in the event of strikes or other causes beyond the control of the building contractor or permittee, the Building Official may extend the permit for the duration of the event. No permit shall be extended more than once.

For building permits issued prior to July 1, 1984 the Building official shall not activate and reissue a permit. If a permittee, his agent, or his successor in interest, desires to have the permitted building certified that it was done in compliance with all County of Kauai or State of Hawaii laws, codes and ordinances at the time the original permit was issued, and that the building does not violate any laws, codes and ordinances, he may hire a duly registered licensed structural engineer or architect as required by Chapter 464, Hawaii Revised Statutes, as amended, to provide such certification.

EXCEPTION: The Building Official may activate and reissue an expired permit for the purpose of continuing the work on an incomplete building or to secure all inspections required by this Code, the Electrical or Plumbing Codes, when the permittee complies with the following conditions:

(1) For permit issued after July 1, 1984, the permittee, his agent, or his successor in interest, shall submit a minimum of three (3) copies of the original approved building plans. In the event the approved building plans are not available, the permittee shall submit a minimum of three (3) copies of plans prepared, approved and stamped by a duly registered licensed structural engineer or architect as required by Chapter 464, Hawaii Revised Statutes, as amended, certifying to the Building Official that the plans are the same as the original approved building plans and complies to all County of Kauai or State of Hawaii laws, codes, and ordinances at the time the permit was issued.

(2) All work that was started on an expired building permit and completed according to the approved building plans prior to the reissuance of such permit shall remain valid under the Building Code it was issued. Any new work shall conform to the current Building Code. The Building Official may waive the requirement for submitting building plans if the original are on file.

When a building permit is activated and reissued, a permit fee therefor shall be required as provided in this section.

(16) Adding Section 106.4.6. Section 106.4.6 is added to read:

106.4.6 Transferability of Building Permit. Any assignment and/or transfer of any substantial interest in any building permit shall be subject to the approval and consent of the Department of Public Works. Such approval and consent shall not be unreasonably withheld provided that the assignee and/or transferee agrees in writing to the following:

(1) To comply with the plans and specifications upon which the building permit was issued in the absence of any subsequent amendments to any applicable existing laws and ordinances as indicated in (2) below; or

(2) To comply with the terms and provisions of any subsequent amendments to the Comprehensive Zoning Code, Building Code, as well as all relevant laws, ordinances, and rules and regulations which would affect either the development's height, floor area, lot coverage, fire safety and/or land use.

(3) The stricter requirements prescribed in subsection (2) hereinabove shall not be applicable in situations where the permit holder can offer documented evidence to the Building Official that he has made, in good faith, a substantial and material change in position in reliance upon the issuance of the building permit.

Upon approval by the building official he shall issue a transferability permit and receive payment of the required non-refundable transfer fee of fifty dollars ($50.00).

(17) Amending Section 107.1. Section 107.1 is amended by adding an exception to the first paragraph.

EXCEPTION: The County, all agencies thereof and contractors therewith shall be exempt from the requirement of paying permit fees.

(18) Amending Section 107.3. Section 107.3 is amended to read:

107.3 Plan Review Fees. When a plan or other data is required to be submitted by Section 106.3 a plan review fee shall be paid at the time of submitting plans and specifications for review. Said plan review fee shall be fifteen (15) percent of the building fees established from Table No. 1-A rounded off to the nearest dollar, based upon a preliminary estimated valuation of work.

When the plan review is completed or when after the issuance of the building permit, new plans, revisions or other documents are submitted so as to require a new plan review, an additional plan review fee for each additional review shall be charged. The

new plan review fee shall be equal to the original fee paid for the proposed project.

Exception: (1) The County of Kauai, and its agencies and contractors thereof shall be exempt from the requirement of paying plan review fees.

(2) Where a plan review fee has been paid, the plan review fee payment shall be deposited to the Plan Review, Permit Processing and Inspection Revolving Fund. Plan review fees are non-refundable.

(A) There is hereby established and created a fund to be known as the "Plan Review, Permit Processing and Inspection Revolving Fund." The fees collected pursuant to this subsection are hereby deemed appropriated upon receipt and may be expended for the hiring of persons employed on a fee, contract or piecework basis, or independent contractors to assist in plan checking, permit processing and inspections. The maximum number of persons that may be hired with these fees shall be determined by the Budget Ordinance. The fee may also be expended for training, materials, supplies, and equipment that facilitate plan review and code enforcement and for payment of overtime for plan checking, permit processing and inspections. Any fees collected when the fund has an excess of $100,000 in uncommitted funds shall be transferred and deposited into the General Fund.

(19) Amending Section 107.4. Section 107.4 is amended to read:

107.4 Expiration of Plan Review. Applications for which plan review fees have been paid and for which no permit is issued within 365 days following the date of application shall expire by limitation, and plans and other data submitted for review may thereafter be returned to the applicant or destroyed by the Building Official. In order to renew action on an application after expiration, the applicant shall resubmit plans and pay a new plan review fee.

(20) Amending Section 107.5.2. Section 107.5.2 is amended to read:

107.5.2 Fee. An investigation fee, in addition to the permit fee, shall be collected whether or not a permit is then subsequently issued. The investigation fee shall be equal to the amount of the permit fee fixed by Table No. 1-A for such work. However, in all such cases, there shall be a minimum combined amount

for investigation and permit fees of two hundred dollars ($200.00) for any such work commenced without a permit.

In the event it is discovered by the Building Official that a required investigation fee was not collected, the Building Official shall not perform any additional inspection of the work until the required investigation fee have been paid.

The payment of such investigation fee shall not exempt any person from compliance with all other provisions of this Code, nor from any penalty prescribed by law.

(21) Amending Section 107.6. Section 107.6 is amended to read:

107.6 Fee Refunds. (1) Building Official shall refund an amount equal to 50 percent of the permit fee paid under the provisions of Section 107 where a permittee, due to a material change in circumstances or financial difficulties, is unable to commence work authorized by the permit issued therefor; provided that written application for refund shall be made on forms furnished by the Building Official no later than 15 days after the expiration date of such permit; and provided further that where the Building Official has extended the expiration date of the original permit pursuant to Section 106.4.4, application for refund shall be made not later than 15 days after the new expiration date.

Notwithstanding the foregoing provisions, no refund shall be made in any case where a new permit has been obtained under the provisions of Section 106.4.4, for the purpose of recommencing the same work, or where the amount to be refunded is less than Twenty Dollars ($20.00).

All permits upon which refunds have been made in accordance with the foregoing shall thereafter be null and void.

(2) Where more than one permit has been erroneously procured by the permittee and/or his agent for the same construction of work, the Building Official shall approve one permit and refund the total amount of fees paid for the other permits upon the surrender thereof; provided that no refund shall be made on any permit which has been surrendered after 180 days from the date of issuance of such permit, or where the amount to be refunded is less that Twenty Dollars ($20.00).

(22) Amending Section 108.1. Section 108.1 is amended by adding a second paragraph to read:

Any inspections required of the building official shall be solely for the purpose of ascertaining compliance with the plans, specifications and code requirement as they relate to the structural integrity of the building and as they relate to health and safety. The inspections shall not be for the purpose of validating the workmanship of the building; such validating, if desired, shall be the responsibility of the building's owner and shall be done by a special inspector, hired and paid for by the builder, owner or respective party.

(23) Amending Section 108.2. Section 108.1 is amended to read:

108.2 Posting Building Permit Card. Work requiring a permit shall not commence until the building permit card is conspicuously posted on the building or structure where the work is to be done to allow the building official to conveniently make the required entries regarding inspection of the work. This building permit card shall be posted, maintained and made available by the permit holder until final inspection has been completed by the building official.

(24) Adding Section 108.5.3.1. Section 108.5.3.1 is added to read:

108.5.3.1 Complete Load Path and Uplift Ties Inspection. To be made after tie straps, approved framing anchors or mechanical fasteners are installed and prior to any concealment of sheathing.

(25) Amending Section 108.5.5.1. Section 108.5.5.1 is amended to read:

Section 108.5.5.1 Flood Hazard District. In hazardous area subject to flooding, a certification of finish floor elevation shall be submitted to the Engineering Division, Department of Public Works, in accordance to Chapter 15, Article 1, Flood Plain Management, Kauai County Code 1987, as amended.

Prior to granting or upon receiving any inspectional approvals for inspections described in Sec. 108.5.3 and 108.5.4, the certification of finish floor elevation shall be submitted. The certification will assure the County, that the finish floor elevation is in compliance.

(26) Amending Section 108.8. Section 108.8 is amended by amending the fourth paragraph to read:

To obtain reinspection, the applicant shall file an application thereof in writing on a form furnished

by the Building Official and pay the reinspection fee of twenty-five dollars ($25.00) for each additional inspection.

(27) Amending Section 109.1. Section 109.1 "EXCEPTION" is amended to read:

EXCEPTION: Group U Occupancies.

(28) Amending Table 1-A. Table 1-A is amended to read:

TABLE 1-A. BUILDING PERMIT FEES. The fees for the issuance of building permits shall be computed in accordance with the following schedule:

Total Estimated Valuation of Work	Fee to be Charged
$1 to $500	$10.00
$501 to $2,000	$10.00 for the first $500.00 plus $1.00 for each additional $100.00 or fraction thereof, to and including $2,000.00.
$2,001 to $25,000	$30.00 for the first $2,000.00 plus $7.00 for each additional $1,000.00 or fraction thereof, to and including $25,000.00.
$25,001 to $50,000	$191.00 for the first $25,000.00 plus $5.00 for each additional $1,000.00 or fraction thereof, to and including $50,000.00.
$50,001 to $100,000	$316.00 for the first $50,000.00 plus $4.00 for each additional $1,000.00 or fraction thereof, to and including $100,000.00.
$100,001 to $1,000,000	$516.00 for the first $100,000.00 plus $3.00 for each additional $1,000.00 or fraction thereof, to and including $1,000,000.00.
$1,000,001 and up	$3,216.00 for the first $1,000,000.00 plus $2.00 for each additional $1,000.00 or fraction thereof.

(29) Adding Table 1-B. Table 1-B is added to read:

TABLE 1-B VIOLATIONS AND PENALTIES

VIOLATION	NO. OF DAYS TO CORRECT VIOLATION	AMOUNT OF INITIAL FINE	NO. OF DAYS AFTER NOTICE OR ORDER BEFORE DAILY FINES ARE TO BE ASSESSED	AMOUNT OF DAILY FINES
1. a. Building w/o a building permit.	30	Footnote 1	30	Footnote 1
b. Occupying the building w/o a certificate of occupancy.	30	Footnote 1	0	Footnote 1
c. Demolition w/o a building permit.	30	Footnote 1	30	Footnote 1
d. Relocation of a building w/o a relocation permit.	30	Footnote 1	30	Footnote 1
2. Not complying with stop work order.	Immediately	Footnote 1	0	Footnote 1
3. Change in use of the building or space w/o a building permit and/or certificate or occupancy.	30	100	30	100
4. Construction not following approved plans.	30	100	30	100
5. Safety hazards, Examples: Exits, hazardous occupancies, fire alarm, fire sprinkler, standpipe system, protection of pedestrians during construction or	Immediately	100	0	100

VIOLATION	NO. OF DAYS TO CORRECT VIOLATION	AMOUNT OF INITIAL FINE	NO. OF DAYS AFTER NOTICE OR ORDER BEFORE DAILY FINES ARE TO BE ASSESSED	AMOUNT OF DAILY FINES
Demolition, safety glazing, barb wire, swimming pool enclosure, etc.				
6. Unsafe buildings. UBC Section 102				
a. Repairs, demolition	30	50	30	50
b. Hazardous conditions	10	100	30	100
7. Building code violations with a building permit.				
a. Minor violation	30	100		100
b. Major violation	30	200		200
8. Recurring violation	3	Double of Previous fees up to $2,000	30	Double of Previous Fees up to $2,000
Footnote: 1. Base on total estimated valuation Rounded to the nearest dollar:				
Up to $ 99,999		100		100
100,000 - 499,999		200		200
500,000 - 999,999		300		300
1,000,000- 9,999,999		500		500
10,000,000-24,999,999		700		700
25,000,000-49,999,999		1000		1000
50,000,000-99,999,999		1500		1500
100,000,000-and over		2000		2000

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

The following paragraph is added before the definition of "ASTM:"

ASSISTANTS. When the term "assistants" is used in this code, it shall be construed to mean the authorized representatives of the Building Official.

The following paragraph is added before the definition of "AUTOMATIC:"

AUTHORIZED REPRESENTATIVES. When the term "Authorized Representatives" is used in this code, it shall be construed to mean all building plan examiners, building inspectors and their supervisors designated as subordinate officers to the Building Official in enforcement of this code.

(31) Amending Section 203. Section 203 is amended as follows:

The definition of "BUILDING" is amended 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 purposes; provided however that the term shall not include a push cart or push wagon which is readily movable and which does not exceed 25 square feet in area, nor shall the term include a recreational trailer or trailer or 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.

The definition of "BUILDING, EXISTING" is amended 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.

The definition of "BUILDING OFFICIAL" is amended to read:

BUILDING OFFICIAL shall mean the County Engineer or his authorized representative.

(32) Amending Section 204. Section 204 is amended as follows:

The following paragraphs are added 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.

The following paragraphs are added after the definition of "CONDOMINIUM, RESIDENTIAL":

COUNTY shall mean the County of Kauai.

COUNTY COUNCIL shall mean the Council of the County of Kauai.

(33) Amending Section 207. Section 207 is amended as follows:

The definition of "FAMILY" is amended to read:

FAMILY shall be as defined in the Comprehensive Zoning Ordinance of the County except that an adult residential care home, a special treatment facility, or other similar facility shall be limited to five persons in order to be considered under this Code.

The following paragraph is added before the definition of "FIRE CODE":

FIRE CHIEF and FIRE OFFICIAL may be used synonymously and shall mean the Chief of the Fire Department of this County or his regularly authorized representative.

The definition of "FIRE CODE" is amended to read:

FIRE CODE is the Fire Code of the County of Kauai.

(34) Amending Section 209. Section 209 is amended as follows:

The following paragraph is added before the definition of "HORIZONTAL EXIT".

HISTORICAL BUILDINGS are buildings that were officially listed on the State of Hawaii or National Register of Historic Places.

(35) Amending Section 217. Section 217 is amended as follows:

The definition of "PERSON" is amended to read:

PERSON. Any "individual, firm, partnership, association, corporation or utility company" shall include each and every owner of any whole or fractional interest in the property concerned, whether in fee, any lesser freehold or tenancy at will.

(36) Amending Section 220. Section 220 is amended as follows:

The following paragraph is added before the definition of "STORY":

STATE shall mean the State of Hawaii.

(37) Amending Exception 3 of Section 302.1. Exception 3 of Section 302.1 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.

(38) Amending Section 304.6. Section 304.6 is amended by amending the third paragraph to read:

For protection of openings for escalators and vehicular ramps, see Section 711.3.

(39) Adding Section 304.9. A new Section 304.9 is added to read:

304.9 Fire Alarm Systems. Fire alarm systems shall comply with the Fire Code.

(40) Amending Section 305.2.3. Section 305.2.3 is amended by adding Exception 4 to read.

4. In a building of Type I, II-F.R., III one-Hour, IV-Heavy Timber, II One-Hour or V One-Hour construction, rooms for second grade pupils may be permitted on the second story above grade.

(41) Amending Section 305.2.4. Section 305.2.4 is amended by adding an "EXCEPTION" immediately following the first paragraph to read:

EXCEPTION: Laboratories, woodworking and metal-working shops, machine shops, paint shops, and similar areas need not be separated from classrooms where visual communication is required between such areas and classrooms.

(42) Amending Section 305.9. Section 305.9 is amended to read:

305.9 Fire Alarm Systems. Fire alarm systems shall comply with the Fire Code.

(43) Adding Section 306.9. A new Section 306.9 is added to read:

306.9 Fire Alarm Systems. Fire alarm systems shall comply to with the Fire Code.

(44) Amending Section 307.1.1. Section 307.1.1 is amended by adding two exceptions to item 10, Division 3:

EXCEPTIONS: 1. Temporary storage in a room with one-hour fire-resistive occupancy separation or a room equipped with an automatic sprinkler system is exempt from the provisions of Section 503.4.5, 904.2.6.1 and 1007.4. 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 Section 503.4.5, 904.2.6.1 and 1007.4. The provisions of Section 503.4.6 are not applicable and wall and opening protection shall be in accordance with Table 5-A.

(45) Amending Section 307.9. Section 307.9 is amended to read:

307.9 Fire Alarm Systems. Fire alarm systems shall comply with the Fire Code.

(46) Amending Section 307.11.5.4. Section 307.11.5.4 is amended to read:

307.11.5.4 Ventilation. Ventilation shall be provided in storage rooms as specified in Chapter 12.

(47) Amending Section 307.11.6.2. Section 307.11.6.2 is amended by amending Item 2 of the second paragraph to read:

2. Ventilation shall be provided as specified in Chapter 12.

(48) Amending Section 308.9. Section 308.9 is amended to read:

308.9 Fire Alarm Systems. Fire alarm system shall comply with the Fire Code.

(49) Adding Section 309.9. A new Section 309.9 is added to read:

309.9 Fire Alarm Systems. Fire alarm systems shall comply with the Fire Code.

(50) Amending Section 310.2.2. The fourth paragraph of Section 310.2.2 is amended to read:

For Group R, Division 1 Occupancies with a Group S, Division 3 or Division 4 parking garage in the basement or first floor, see Section 311.2.2.1.

(51) Amending Section 310.4. Section 310.4 is amended to by adding an EXCEPTION immediately following the fourth paragraph to read:

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

(52) Amending Section 310.6.2. Section 310.6.2 is amended to read:

310.6.2 Floor Area: Dwelling units and congregated residences shall have at least one (1) habitable room used for sleeping purposes with a floor superficial area, exclusive of the floor area of any closet, of not less than one hundred twenty (120) square feet.

Other habitable rooms used for sleeping purposes shall have a floor superficial area, exclusive of the floor area of any closet, of not less than eighty (80) square feet, but in no case less than fifty (50) square feet per occupant.

Every dwelling units and congregated residences shall have a living room, of not less than one hundred twenty (120) square feet of floor superficial area.

Superficial floor area means the net occupied area within the enclosed walls of the room in which the ceiling height is not less than five (5) feet, excluding built-in equipment such as cabinets, closets, kitchen units or wardrobes.

Efficiency dwelling units shall comply with the requirements of Section 310.7.

(53) Amending Section 310.10. Section 310.10 is amended to read:

310.10 Fire Alarm Systems. Fire alarm system shall comply with the Fire Code.

(54) Deleting Section 310.11. Section 310.11 is deleted.

(55) Adding Section 310.13. A new Section 310.13 is added to read:

Section 310.13 Separation between Group R-3 and U-1 Occupancies. Where a carport is separated from a dwelling by walls only, a fire separation is not required between the carport and the dwelling.

Where a garage or carport is constructed over any portion of a dwelling, the floor assembly of the garage or carport shall be of noncombustible one-hour fire-resistive construction.

Where any portion of a dwelling is constructed over a garage or carport, the ceiling assembly and structural supports of the garage or carport shall be of one-hour fire-resistive construction.

(56) Adding Section 310.14. A new Section 310.14 is added to read:

Section 310.14 Existing Buildings.

310.14.1 Purpose. The purpose of this section is to provide a reasonable degree of safety to persons occupying existing Group R, Division 1 buildings that do not conform with the minimum requirements of this code by requiring alterations to such existing buildings.

310.14.2 Scope. The provisions of this section shall apply exclusively to existing nonconforming Group R, Division 1 Occupancies more than 2 stories in height.

310.14.3 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 exclusive 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.

Exterior stairs shall be of noncombustible construction or of wood of not less than two-inch nominal thickness with solid treads and risers.

310.14.4 Doors and Openings. Exit doors shall meet the requirements of Sections 1003.3.1.5, 1003.3.1.8, 1003.3.1.10, and 1004.3.4.3.2.1. 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 ¾-inch plywood or ½-inch gypsum wallboard or equivalent material on the room side.

EXCEPTIONS: 1. Existing solid-bonded wood core doors 1-3/8 inches thick or their equivalent may be continued in use.

2. Where the existing frame will not accommodate a door complying with Section 1004.3.4.3.2.1, a 1-3/8-inch-thick solid-bonded wood core door may be used.

310.14.5 Separation of Occupancies. Occupancy separations shall be provided as specified in Section 302 of this code. When approved by the building official, existing wood lath and plaster in good condition or 1/2-inch gypsum wallboard may be acceptable where one-hour occupancy separations are required.

(57) Amending Section 311.2.2.1. Section 311.2.2.1 is amended as follows:

a. By amending the title of the section to read:

311.2.2.1 Group S, Division 3 or Group S, Division 4 with Group A, Division 3; Group B; Group M or Group R, Division 1 Occupancy above.

b. By amending condition 3 by adding the words "or Group S, Division 4" after the words "Group S, Division 3."

(58) Amending Section 311.5. Section 311.5 is amended to read:

311.5 Light, Ventilation and Sanitation. In Group S Occupancies, light, ventilation and sanitation shall be as specified in Chapter 12 and 29.

(59) Delete Sections 311.5.1 and 311.5.2. Section 311.5.1 and 311.5.2 are deleted.

(60) Amending Section 311.9.2.1. Section 311.9.2.1 is amended by amending the EXCEPTION to read:

EXCEPTIONS: 1. The grade-level tier may contain an office, waiting and toilet rooms having a total area of not more than 1,000 square feet and such area need not be separated from the open parking garage.

2. In buildings housing Groups A, Division 2, 2.1, 3, 4, Group B, Group F, Group R, Division 1, or Group S Occupancies, open parking garages are permitted when all of the following conditions are met:

2.1. The garage portion of the building is of Type I construction: and

2.2. There is a two-hour occupancy separation between the open parking garage and all portions of Groups A, Division 2, 2.1, 3, 4, Group B, Group F, Group M, Group R, Division 1, or Group S Occupancies.

(61) Adding Section 311.11. A new Section 311.11 is added to read:

311.11 Fire Alarm Systems. Fire alarm systems shall comply with the Fire Code.

(62) Amending Section 312.1. Section 312.1 is amended to read:

312.1. Group U Occupancies Defined. Group U Occupancies shall be:

Division 1. Private garages, carports, sheds, agricultural buildings, greenhouses, and lath houses used as accessories only when not over 1,000 square feet in area.

Division 2. Fences, retaining walls, swimming pools, tanks, and towers.

Division 3. See Appendix Chapter 3, Section 326.

Appendix Chapter 3, Division II-- Agricultural Buildings is by reference incorporated herein and made a part of this code.

For occupancy separations, see Table 3-B.

(63) Amending Section 312.2.1. Section 312.2.1 is amended by adding an "EXCEPTION" immediately following the existing paragraph, and by adding a second paragraph immediately thereafter to read:

EXCEPTION: A carport or garage constructed on a hillside may exceed one story in height, provided the space below the carport or garage floor is unused or used for Group U Occupancy only.

Buildings and structures of Group U, Divisions 1 and 3 Occupancies 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, 34 and 35 of this code when located in areas zoned for agricultural use and not part of any other structure.

(64) Amending Section 312.4. Section 312.4 is amended by adding an "EXCEPTION" immediately following the second paragraph to read:

EXCEPTION: Where a fire separation is not required, a one-story carport may have an opening into a room used for sleeping purposes provided such opening is not a required window.

(65) Amending Section 312.5. Section 312.5 is amended by adding an "EXCEPTION" to the end thereof to read:

EXCEPTION: A carport on a hillside lot may have wood floor planking at least 2 inches in nominal thickness laid with at least ¼-inch spacing between the planks.

(66) Amending Section 312.6. Section 312.6 is amended to read:

312.6 Fences. Fences within required yard space shall be constructed in accordance with the Chapter 8, Comprehensive Zoning Ordinance; Chapter 15, Article 15 Flood Plain Management and Chapter 16, Traffic Code, Kauai County Code, 1987, as amended. In areas where fence height is not regulated by the Comprehensive Zoning Ordinance, fences over 6 feet in height will be subject to approval of the Fire Department as to access.

Barbed wire shall not be used for the construction of any fence.

EXCEPTIONS: 1. Barbed wire may be used in fences enclosing the following premises, provided that barbed 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 section 269-1, Hawaii Revised Statutes.

1.2. Premises zoned industrial and used for storage or handling of hazardous materials.

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

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. For premises located in open and agriculture zoned districts, as defined by the Comprehensive Zoning Ordinance, barbed wire may be

used in fences enclosing premises used for pasturing cattle or raising swine.

For fences allowed during construction or demolition, see Chapter 3303.

Installation of electrically charged wire fences shall conform to Chapter 142, Part III, Section 142-61 of the Hawaii Revised Statutes, as amended.

(67) Adding Section 312.7. Section 312.7 is added to read:

312.7 Light, Ventilation and Sanitation in Group U Occupancies.

312.7.1 Light. Workshops, sheds, storage rooms or similar type occupancies shall be provided with natural light by means of exterior glazed openings with an area not less than five percent of the floor area of such rooms.

312.7.2 Ventilation. Natural ventilation shall be provided by means of openable exterior openings. One-half of the required exterior glazed openings in such rooms shall be openable.

In lieu of required exterior openings for natural ventilation, a mechanical ventilation system connected directly to the outside capable of providing five air changes per hour shall be provided.

312.7.3 Sanitation. Any plumbing systems installed in Group U Occupancies shall comply to the provisions set forth in this Code and Chapter 13, Plumbing Code, Kauai County Code 1987, as amended.

(68) Amending Section 403. Section 403 is amended as follows:

a. Section 403.2.1 is amended by amending Item 2 to read:

2. Fire pumps shall be approved or listed for fire service by a nationally recognized independent testing agency.

b. Section 403.2.2 is amended by adding the following sentence to the end of Item 2: "Corridor walls and ceiling within office spaces need not be of fire-resistive construction when smoke detectors are installed within the corridor in accordance with their listing."

c. Section 403.3 is amended by adding Item 5 and a new paragraph to the end thereof to read:

5. In every storage room, laundry room, furnace room and similar common areas in Group R, Division 1 Occupancies.

Smoke detection systems conforming to the provisions of Chapter 4 of NFPA standard 90A will be accepted in lieu of Items 2 and 3 above.

d. Section 403.5, 403.6, 403.7, 403.8 and 403.9 are amended to read:

403.5 Fire Alarm and Communication Systems. The fire alarm and communications system shall comply with the Fire Code and be approved by the Fire Chief.

403.6 Central Control Station. The central control station for use by the Fire Department shall comply with the Fire Code and be approved by the Fire Chief.

403.7 Elevator Lobbies. Elevator lobbies shall comply with the following:

Elevators on all floors shall open into elevator lobbies which are separated from the remainder of the building, including corridors and other means of egress, by walls extending from the floor to the underside of the fire resistive floor or roof above. Such wall shall be of not less than one-hour fire-resistive construction.

Openings through such walls shall conform to Section 1004.3.4.3.2.

EXCEPTIONS: 1. The main entrance level elevator lobby in office buildings.

2. Elevator lobbies located within an atrium complying with the provisions of Section 402.

3. In fully sprinklered office building, corridors may lead through enclosed elevator lobbies if all areas of the building have access to at least one required exit without passing through the elevator lobby.

403.8 Standby Power and Light Systems. A permanently installed standby power-generating set shall be provided. 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-premise fuel supply sufficient for not less than 8 hours full demand operation of the set shall be provided. Should the standby power 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-generating set.

All power, lighting and signal facilities provided under the requirements of this section shall be transferable to the standby power system. The power requirement shall be determined so as to provide service to the following, including but not limited to:

1. Fire alarm system.
2. Exit and other emergency lighting.
3. Fire protection equipment.
4. Mechanical ventilation required by this section and/or Section 1005.3.3.

5. Elevator designated for fire service as required by the State Elevator Code.

6. Electrically operated exit locks.

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-generating system shall be tested regularly as required by the Fire Chief.

403.9 Exits. All stairway doors which 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 central control station.

(69) Adding Section 404.6. A new Section 404.6 is added to read:

404.6 Fire Alarm Systems. Fire alarm systems shall comply with the Fire Code.

(70) Amending Section 405.2. Section 405.2 is amended by amending the second sentence of the paragraph 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.

(71) Amending Section 406.5. Section 406.5 is amended to read:

Section 406.5. Ventilation. Ventilation shall be provided as specified in the Laws and Administrative Rules of the Department of Health, State of Hawaii.

(72) Deleting Section 406.5.1 through 406.5.3.3. Section 406.5.1 through 406.5.3.3 are deleted.

(73) Adding Section 408.6. A new Section 408.6 is added to read:

408.6 Fire Alarm System. Fire alarm system shall comply with the Fire Code.

(74) Adding Section 419. A new Section 419 is added to read:

SECTION 419 - - ASBESTOS

No materials specified in this code shall contain asbestos.

(75) Amending Section 502. Section 502 is amended to read:

SECTION 502 - - PREMISES IDENTIFICATION

Numbers shall be provided for all new buildings as specified in Chapter 15, Article 4, KCC 1987, Numbering of Houses in portions of the County of Kauai.

(76) Amending Section 503.1. Section 503.1 is amended to read:

503.1 General. Building shall adjoin or have access to a public way or yard on not less than one side. Required yards shall be permanently maintained.

For the purpose of this section, the center line of an adjoining public way shall be considered an adjacent property line, and the center line of an adjoining private right-of-way not less than 10 feet in width shall be considered an adjacent property line if the owner of the premises for which the building permit application is filed owns a portion thereof. With the exception of an arcade, bridge, or ramp used for thoroughfare purposes only, such private right-of-way shall be unobstructed from the ground to the sky and permanently maintained as such.

No building or structure or any portion thereof shall be located on or over a property line except an arcade, bridge, or ramp used for thoroughfare purposes only, or as otherwise permitted in this code and in the Comprehensive Zoning Ordinance.

(77) Amending Section 503.2.1. Section 503.2.1 is amended as follows:

a. By adding an exception after the first paragraph to read:

EXCEPTION: Lot lines established within a joint, cluster, or similar development under the Comprehensive Zoning Ordinance, and boundary lines established for condominium ownership purposes only shall not be considered as property lines for the purpose of this section.

b. By deleting the semicolon appearing in item 1 of the second paragraph, and amending item 2 of the second paragraph to read:

2. A point one-third the distance to the property line from an exterior wall, whichever is the least restrictive; or

c. By adding a new item 3 to the second paragraph to read:

3. Twelve inches into areas where openings are prohibited.

(78) Amending Section 503.4.2. Section 503.4.2 is amended as follows:

a. By amending the title to read:

Groups B, F, M and S Occupancies.

b. By adding a second paragraph immediately following the first paragraph to read:

In group B, F-1, M and S-1 Occupancies, a fire resistive time period will not be required for an exterior wall of a one-story or two-story building, provided the floor area of the building does not exceed 2,500 square feet and such wall is located not less than 10 feet from a property line.

(79) Amending Section 503.4.8. Section 503.4.8 is amended by deleting the second paragraph.

(80) Amending Section 504.6.4. Section 504.6.4 is amended by adding exception 4 to read:

4. Area separation walls for Type I or II-F.R. building spinklered throughout in Group R, Division 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.

(81) Amending Section 507. Section 507 is amended by adding an exception immediately after item 1 to read:

EXCEPTION: In buildings of Type II-N construction, mezzanine floors, including supporting beams, girders, and columns, may be of Type V One-hour fire resistive construction.

(82) Amending Section 509.3. Section 509.3 is amended as follows:

a. Amending EXCEPTION 2. EXCEPTION 2 is amended by replacing the words "6 inches (152 mm)" with the words "6-1/2 inches."

b. By adding a third paragraph immediately following the second paragraph to read:

Any openings or portions of openings which are less than 30 inches above a floor shall be provided with at least one guardrail between 30 inches and 36 inches above the floor when such openings are located on floors more than 30 inches above the adjacent grade or a finished floor. Other equal or better barriers may be used to prevent a person from falling through such openings.

(83) Adding Section 510. A new Section is added to read:

SECTION 510 - - COOKING UNIT CLEARANCE

510.1Minimum 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 1/4 inch thick covered with sheet metal of not less than 0.021 inch (No. 28 U.S. gauge) or a metal ventilating hood, the distance shall be not less than 24 inches.

510.2Minimum Horizontal Clearance. The minimum horizontal clearance from the burner head(s) of a top (or surface) cooking unit to combustible walls extending above the cooking surface shall be not less than 12 inches.

EXCEPTION: Walls of combustible materials to be installed within 12 inches of a cooking unit shall be provided with protection equivalent to 1/2-inch gypsum wallboard covered with laminated plastic on wood backing.

510.3Surface Finish. Where alternate materials other than as specified in Section 510.1 and the exception to Section 510.2 are used as approved by the building official, the surface of such material shall have a smooth, nonabsorbent finish.

(84) Adding Section 511. Section 511 is added to read:

SECTION 511 - - CEILING HEIGHT

Unless otherwise specified, the ceiling height shall be not less than 7 feet and projections below the ceiling may be permitted provided the clearance is not less than 6 feet 6 inches.

(85) Amending Section 606.3. Section 606.3 is amended by adding an "EXCEPTION" immediately following the first paragraph:

EXCEPTION: Nonbearing walls of Type V one-hour buildings fronting on public ways or yards having a width of at least 40 feet may be of unprotected noncombustible construction or of wood studs with 5/8-inch exterior-type plywood or similar material having a 15-minute finish rating on the exterior surface and with interior surface treatment as required for one-hour resistive construction.

(86) Amending Section 705. Section 705 is amended by adding two paragraph immediately after the third paragraph to read:

Projections from walls using flame retardant membrane conforming to UBC Standard No. 31-1 and projecting not more than 6 feet may be used at the first floor fronting on public ways or extending into yard spaces not closer than 20 feet from an adjacent property line.

Projections from walls of Type V-N construction may have flame retardant membrane conforming to UBC Standard

No. 31-1 when projecting not more than 6 feet and not located where openings are not permitted or must be protected.

(87) Amending Section 707.1. Section 707.1 is amended to read:

707.1 General. Thermal and acoustical insulation located on or within floor-ceiling and roof-ceiling assemblies, crawl spaces, ducts, plenums, walls, and partitions, and insulation on pipes and tubing shall comply with this section.

EXCEPTION: Roof insulation shall comply with Section 1510.

(88) Adding Section 707.4. A new Section 707.4 is added to read:

707.4 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 No. 181. Duct liners shall conform to ASTM Standard No. 1071 and installation shall conform to Sheet Metal and Air Conditioning Contractors National Association Duct Construction Standards, Metal and Flexible.

Insulation applied to the exterior surface of ducts located in buildings shall have a flame spread of not more than 25 and a smoke-developed rating 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.

(89) Amending Section 709.6.1. Section 709.6.1 is amended by adding the phrase "requiring protected openings" after the word "walls" in the first paragraph.

(90) Amending Section 709.7. Section 709.7 is amended by adding the phrase "requiring protected openings" after the word "walls" in the first paragraph.

(91) Amending Section 710.5. Section 710.5 is amended to read:

710.5 Wiring in Plenums. Wiring in plenums shall comply with the NFPA 70, National Electrical Code, currently adopted by the County and the current NFPA 90A, Standard for the Insulation of Air Conditioning and Ventilation Systems.

(92) Amending Section 711.3. Section 711.3 is amended by adding a seventh paragraph to the end thereof to read:

In buildings housing a Group A, Divisions 2, 2.1, 3, 4, Group B, Group F, Group M, Group R, Division 1 or Group S Occupancy, enclosures shall not be required for escalators or for ramps used solely for vehicular passage, provided the following conditions are met:

1. The top of the escalator or ramp opening at each story is provided with a draft curtain and automatic fire sprinklers are installed around the perimeter of the opening within 2 feet of the draft curtain. The draft curtain shall enclose the perimeter of the unenclosed opening and extend from the ceiling downward at least 12 inches on all sides. The spacing between sprinklers shall not exceed 6 feet.

2. All floors with escalator or ramp openings shall be equipped with automatic sprinkler systems.

3. There is provided a three-hour fire-resistive separation from floor not equipped with automatic sprinkler systems.

4. In mixed occupancies housing a Group A, Divisions 2, 2.1, 3, 4, or Group R, Division 1 Occupancy, the entire building is of Type I construction.

(93) Amending Section 904.1.1. Section 904.1.1 is amended by adding a fifth paragraph to the end thereof 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.

(94) Amending Section 904.2.2. Section 904.2.2 is amended by amending the first paragraph of subdivision 1 to read:

1. In every story or basement of all buildings when floor area exceeds 1,500 square feet and there is not provided at least 20 square feet of opening entirely above the adjoining ground level in each 50 lineal feet

or fraction thereof of exterior wall in the story or basement on at least one side of the building. Each of the required 20 square feet of opening shall have at least one opening with minimum dimensions of 3 feet by 4 feet. The 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.

(95) Amending Section 904.2.9. Section 904.2.9 is amended to read:

904.2.9 Group R, Division 1 Occupancies. An automatic sprinkler system shall be installed throughout every apartment house over one story and containing 16 or more dwelling units, every congregate residence over one story and having an occupant load of 50 or more, and every hotel over one story and containing 20 or more guest rooms. Residential or quick-response standard sprinkler head shall be used in the dwelling unit and guest room portions of the building.

(96) Amending Section 904.4. Section 904.4 is amended by adding item 6 to read:

6. Where permitted by the current NFPA 13, Standard for Installation of Sprinkler Systems.

(97) Amending Section 904.5.3. Section 904.5.3 is amended by amending the third paragraph to read:

There shall be at least one two-way, 2-1/2-inch outlet above the roof line when the roof has a slope of less than 4 units vertical in 12 units horizontal.

(98) Amending Section 904.6. Section 904.6 is amended to read:

904.6 Building Under Construction. During the construction of a building and until the permanent fire-extinguishing system has been installed and is in service, fire protection shall be provided in accordance with the Fire Code.

(99) Amending Section 4-3.5.1 of the U.B.C. Standard 9-2. Section 4.3.5.1 of U.B.C. Standard 9-2 is amended by adding the phrase "and shall be protected against mechanical injury and shall be visible and accessible" at the end of the sentence.

(100) Amending Section 4-3.5.4 of the U.B.C. Standard 9-2. Section 4-3.5.4 of U.B.C. Standard 9-2 is amended by adding the phrase "and within 20 feet of the fire apparatus access road" at the end of the sentence.

(101) Adding Section 4-8 to U.B.C. Standard 9-2. A new Section 4-8 is added to U.B.C. Standard 9-2 to read:

4-8 Piping. All horizontal runs of Class I systems shall be sloped to drain. Where pipe traps occur in such systems they shall be provided with listed automatic drip valves.

(102) Amending Section 5-3.1 of U.B.C. Standard 9-2. Section 5.3.1 of the U.B.C. Standard 9-2 is amended by adding the following sentence at the end thereof: "All 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."

(103) Amending Table 9-A. Table 9-A is amended to read:

TABLE 9 - STANDPIPE REQUIREMENTS

Occupancy[5]	NONSPRINKLERED BUILDING[1]		SPRINKLERED BUILDING[2,3]	
	Stand-Pipe Class	Hose Require-Ment	Stand-Pipe Class	Hose Require-Ment
1. Occupancies 4 Stories or more In height, except Group R, Div.3	I and II (or III)	No Yes X[4]	I (or III)	No X[4]
Group A Occupancies with Occupant load Exceeding 1000	II	Yes	No Require-ment	No
2. Group A, Div. 2.1 Occupancies over 5,000 square feet in area used for exhibition	II	Yes	II	Yes
3. Group I; H; B; S; M; F; Div. 1, Occupancies less than 4 stories in Height but Greater than 20,000 square feet per floor[6]	II	Yes	No Require-ment	No
4. Stages more than 1,000 square feet in area	II	Yes	II	No

[1] Class II standpipes need not be provided in basements having an automatic fire-extinguishing system throughout such basements.

[2] The standpipe system may be combined with the automatic sprinkler system.
[3] Portions of otherwise sprinklered buildings which are not protected by automatic sprinklers shall have Class II standpipes installed as required for the unsprinklered portions.
[4] Hose is required for Class II outlets.
[5] Class II standpipes need not be provided in assembly areas used solely for worship.
[6] For the purposes of this table, occupied roofs of parking structures shall be considered an additional story. In parking structures, a tier is a story.

(104) Adding Section 1003.2.9.3. A new Section 1003.2.9.3 is added to read:

1003.2.9.3 Stairway Enclosure Illumination. Enclosed stairways of building more than 2 stories in height shall be provided with emergency illumination systems which shall conform with the provisions of Section 1003.2.9.1 and be supplied from storage batteries or an on-site generator set in accordance with the provisions of Section 1003.2.9.2.

(105) Amending Section 1003.3.1.2. Section 1003.3.1.2 is amended by adding item number 3 to the EXCEPTIONS to read:

3. In occupancies housing drinking and dining establishments, wholesale and retail stores serving an occupant load of less than 50, complying with the following conditions:

3-1. Special doors may be used as required exits only in cases where such exits are located such that they must remain open in order for the establishment or store to operate.

3-2. Exits permitted may be grille-type metal doors or grates and shall be overhead, folding, sliding, or sliding glass doors.

3-3. Such exits shall be locked in an open position during business hours and provided with a readily visible, durable sign, on or adjacent to the door, stating "THIS DOOR TO BE LOCKED IN THE OPEN POSITION DURING BUSINESS HOURS". This sign shall be in letters not less than one inch high on a contrasting background.

(106) Amending Section 1003.3.1.5. Section 1003.3.1.5 is amended by adding an EXCEPTION immediately following the second paragraph to read:

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

(107) Amending Section 1003.3.3.2. Section 1003.3.3.2 is amended the first paragraph to read:

1003.3.2 Width. Width of stairways shall be determined in accordance with Section 1003.2.3, but shall be not less than 44 inches in width. Stairways serving an occupant load of 49 or less shall be not less than 36 inches in width, provided that stairways having Class I or III standpipes installed therein shall be not less than 44 inches in width. Interior private stairways serving an occupant load of less than 10 shall be not less than 30 inches in width.

(108) Amending Section 1003.3.3.6. Section 1003.3.3.6 is amended by amending the second sentence of the second paragraph to read:

Handrails shall be continuous for the full length of the stairs and, except for interior private stairways, at least one handrail shall extend in the direction of the stair run not less than six (6) inches beyond the top and bottom risers.

(109) Amending Section 1003.3.3.9. Section 1003.3.3.9 is amended by amending the last paragraph to read:

Stairway exiting directly to the exterior of a building shall be provided with means for emergency entry for fire department access as required by the Fire Code.

(110) Amending Section 1004.2.3.2. Section 1004.2.3.2 is amended by adding exceptions 7 and 8 to the EXCEPTIONS following the second paragraph to read:

7. Type I or II-F.R. buildings sprinklered throughout in Group R, Division 1 apartment house occupancies with not more than two dwelling units on any floor may have a single exit that is immediately accessible to all dwelling units served thereby when all of the following conditions are met:

7.1. The stairway is either an exterior stairway or a pressurized enclosure by natural ventilation and exits to the exterior directly or through an exit passageway.

7.2. The stairway is limited to the exiting of the Group R-1 apartment house occupancy.

8. Building of Group R, Division 1 Occupancies of at least one-hour fire-resistive construction, not exceeding three stories in height, may have a single exit serving not more than two units per floor, provided that such exit is an enclosed stairway or an exterior stairway, and provided further that such exit is immediately accessible to all units served.

(111) Amending Section 1004.2.6. Section 1004.2.6 is amended by adding an exception to read:

EXCEPTION: Foyer, lobbies, or reception areas which are constructed as required for corridors may have dead ends exceeding 20 feet, provided that the

ratio of length of dead end to width does not exceed 2:1.

(112) Amending Section 1006.3.3.2. Section 1006.3.3.2 is amended by adding a third paragraph to read:

Stairways exiting directly to the exterior of a building shall be provided with means for emergency entry for the fire department access as required by the Fire Code.

(113) Amending Section 1007.3.11. Section 1007.3.11 is amended by adding an EXCEPTION to the end thereof to read:

EXCEPTION: 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.

(114) Amending Chapter 11. Entire Chapter 11 is amended to read as follows:

Chapter 11 - - ACCESSIBILITY

SECTION 1101 - SCOPE

1101.1 General. Buildings or portions of buildings shall be accessible to persons with disabilities in accordance with the following regulations. These regulations will be administered and enforced by said agencies.

1. Construction of buildings or facilities of the State or County Governments, Architectural Access Committee, HRS 103-50.
2. Americans with Disabilities Act, US Department of Justice.
3. The Fair Housing Act, US Department of Housing and Urban Development.
4. Other pertinent laws relating with disabilities shall be administered and enforced by said agencies responsible for its enforcement.

(115) Amending Section 1202. Section 1202 is amended to read as follows:

SECTION 1202 - LIGHT, VENTILATION AND SANITATION IN GROUPS A, B, E, F, H, I, M and S OCCUPANCIES.

1202.1 Light. All enclosed portions of Group A, B, E, F, H, I, M and S Occupancies customarily occupied by human beings shall be provided with natural light by means of exterior glazed openings or shall be provided with artificial light. Such exterior openings shall open directly onto a public way or a yard or court as

set forth in Chapter 8, Comprehensive Zoning Ordinance, Kauai County Code 1987, as amended and the Laws and Administrative Rules of the Department of Health, State of Hawaii.

1202.2 Ventilation.

1202.2.1 General. All enclosed portion of Group A, B, E, F, H, I, M and S Occupancies customarily occupied by human beings shall be provided with natural ventilation by means of exterior openings which can be opened or shall be provided with a mechanically operated ventilation system as specified in the Laws and Administrative Rules of the Department of Health, State of Hawaii.

1202.2.1.1 Sanitation.

1202.2.1.2 Every building in which plumbing fixtures are installed shall have a connection to a sewage system as specified in Chapter 25, relating to sewer of the Kauai County Code 1987, as amended and the Laws and Administrative Rules of the Department of Health, State of Hawaii.

1202.2.2 Group B, F, M and S Occupancies. In buildings classified as Group B, F, M, S, and U Occupancies or portion thereof where Class I, II or III-A liquids are used, a mechanically operated exhaust system as specified in the Laws and Administrative Rules of the Department of Health, State of Hawaii.

1202.2.3 Group H Occupancies. Rooms, area or spaces of Group H Occupancies 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 ventilated as specified in the Laws and Administrative Rules of the Department of Health, State of Hawaii and as required by the Fire Code.

1202.2.4 Group H, Division 4 Occupancies. In all buildings classified as Group H, Division 4 Occupancies used for the repair of handling of motor vehicles operation under their own power, ventilation as specified in the Laws and Administration Rules of the Department of Health, State of Hawaii and as required by the Fire Code.

1202.2.5 Group H, Division 6 Occupancies. In Group H, Division 6 Occupancies, ventilation as specified in the Laws and Administrative Rules of the Department of Health, State of Hawaii and as required in the Fire Code.

1202.2.6 Group S Repair and Storage Garages and Aircraft Hangers. In Group S, Division 3 repair garages, storage garages, and in Division 5 aircraft hangars, the ventilation system as specified in the Laws and Administrative Rules of the Department of Health, State of Hawaii.

1202.2.7 Group S Parking Garages. In Group S, Division 3 parking garages, other than open parking garages, used for storing or handling automobiles operating under their own power and on loading

platforms in bus terminals, ventilation shall be provided as specified in the Laws and Administrative Rules of the Department of Health, State Of Hawaii.

(116) Amending Sections 1203.4. Section 1203.4 is amended to read:

1203.4 Yards or Courts.

1203.4.1 General. This section shall apply to yards and courts adjacent to all buildings with exterior openings that provide required natural light and ventilation. Such yards or courts shall be on the same property as the buildings.

1203.4.2 Yards or Courts. Requirement for yards and courts for all buildings shall be specified in Chapter 8, Comprehensive Zoning Ordinance, Kauai County Code 1987, as amended and in the Laws and Administrative Rules of the Department of Health, State of Hawaii.

(117) Amending Section 1607.3.5. Section 1607.3.5 is amended to read:

1607.3.5 Live Loads Posted. The uniform floor live load of industrial buildings, storage areas, and portions of structures with uniform live load over 100 psf shall have such designed live loads conspicuously posted by the owner in that part of each story in which they apply, using durable metal signs. It shall be unlawful to remove or deface such notices. The occupant of the building shall be responsible for keeping the actual load below the allowable limits.

(118) Amending Section 1612.2.1. Section 1612.2.1 is amended by deleting EXCEPTION 2.

(119) Amending Section 1629.3. Section 1629.3 is amended by adding the following sentence to the end of the paragraph:

Where site specific data are not available to a depth of 100 feet, appropriate soil properties are permitted to be estimated by the licensed design professional preparing the soils report based on known geologic conditions.

(120) Amending Section 1629.8.2. Section 1629.8.2 is amended by deleting item 2.

(121) Amending Table 16-C. Table 16-C is amended by amending Item 5 in the left hand column to read:

Greenhouses and agricultural buildings, not including lath houses[5].

(122) Amending Section 1701.1. Section 1701.1 is amended by designated EXCEPTION as item 1 and adding item 2 to the EXCEPTION to read:

2. The employment of a special inspector shall not be required for construction work for any government agency that provides for its own inspections.

(123) Amending Section 1701.2. Section 1701.2 is amended by adding the following EXCEPTIONS to read:

EXCEPTIONS: With the approval of the Building Official, the following may qualify and perform as special inspectors:

1. An architect or engineer licensed and registered in the State of Hawaii and performing inspection in the branches of engineering in which he is registered.

2. A person certified by the International Conference of Building Official in the branches of special inspection in which he is registered.

3. A person certified by the Special Inspection Program administered by the City and County of Honolulu, may perform special inspection in the branches of inspection in which he is registered.

(124) Amending Section 1701.3. Section 1701.3 is amended by amending the second paragraph to read:

The special inspector shall furnish inspection reports to the owner, the engineer or architect of record, and other owner-designated persons. 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.

(125) Amending Section 1701.5. Section 1701.5 is amended as follows:

a. By amending Item 14 to read:

14.	Fire-protection system.
14.1	Smoke-control system.
14.1.1	During erection of ductwork and prior to concealment for the purposes of leakage testing and recording device location.
14.1.2	Prior to occupancy and after sufficient completion for the purposes of pressure difference testing, flow measurements, and detection and control verification.
14.2	Fire-extinguishing systems.
14.2.1	During installation of sprinkler and standpipe systems. EXCEPTION: The special inspector need not be resent continuously during the installation of the sprinkler and standpipe systems, provided that the special inspector has inspected for

conformance with the approved plans prior to concealment.

14.2.2 During acceptance tests as required by U.B.C. Standards 9-1, 9-2 and 9-3.

b. By adding Item 16 to read:

16. Sheathed shear walls and diaphragms.

16.1 Where sheathing edge nail spacing is less than 4 inches on center or in buildings having an Importance Factor (I) greater than 1.

16.2 The following items in connection with such diaphragms and shear walls shall be inspected:

16.2.1 Anchor bolts.

16.2.2 Tie-downs.

16.2.3 Concrete or masonry to diaphragm ties.

16.2.4 Drag strut connections, including diaphragm nailing thereto.

16.2.5 Nailing (size, spacing, nail heads flush with sheathing surfaces).

(126) Amending Section 1701.7 Section 1701.7 is amended to read:

1701.7 Approved Fabricators. Special inspections required by this section and elsewhere in this code shall not be required where the work is done on the premises of a fabricator approved by the building official to perform such work without special inspection. The approval shall be subject to revocation by the building official if it is found that any work done pursuant to the approval is in violation of this code.

(127) Deleting Section 1704. Section 1704 is deleted.

(128) Amending Section 1801.1. Section 1801.1 is amended by amending the second paragraph to read:

All requirements for excavation, grading and earthwork construction including fills and embankment shall comply to Article 7, Chapter 22, Kauai County Code-1987, as amended, an Article regulating and controlling grading, grubbing, stock piling, and soil erosion and sedimentation within the County of Kauai.

(129) Deleting Section 1803. Section 1803 is deleted.

(130) Deleting Sections 1815 - 1819. Section 1815 - 1819 are deleted.

(131) Amending Section 2104.6.1. Section 2104.6.1 is amended by amending the seventh paragraph to read:

Cleanouts are required for all grout pours over 5 feet 4 inches in height.

EXCEPTION: Cleanouts shall not be required for grout pours 8 feet or less in height where 8-inch nominal width and greater blocks are used, the design value for f'm is less than or equal to 1500 psi., and design stresses have been adjusted as specified in Chapter 21 to permit non-continuous inspection.

(132) Amending Section 2106.1.1. Section 2106.1.1 is amended to read:

2106.1.1 Scope. The design of masonry structures shall comply with the working stress design provisions of Section 2107, or the strength design provisions of Section 2108, or the prescriptive masonry construction provisions of Appendix Chapter 21, Section 2112, and with the provisions of this section. Unless otherwise stated, all calculations shall be made using or based on specified dimensions.

(133) Amending Section 2109.1. Section 2109.1 is amended by adding a second paragraph to the end thereof to read:

Appendix Chapter 21 is by reference incorporated herein and made a part of this code.

(134) Amending Section 2109.10.3. Section 2109.10.3 is amended to read:

2109.10.3 Minimum Thickness. The thickness of stone masonry bearing walls shall not be less than 16 inches. Other stone masonry walls shall in no case have a minimum thickness of less than 14 inches.

(135) Amending Appendix Table A-21-D, Part II. Appendix Table A-21-D, Part II, is amended to read:

EXPOSURE[1]	BASIC WIND SPEED (mph)			
	80	90	100	110
B	3-8d	4-8d	5-10d	6-10d
C	5-10d	4-10d 24 inches	5-10d 16 inches	6-10d 16 inches
D	5-10d 24 inches	5-10d 24 inches	6-10d 16 inches	6-10d 12 inches

[1] Tie straps are at 48 inches on center unless otherwise stated. See Figure A-21-7 for illustration of tie straps. All intermediate rafters without tie straps shall be tied to the exterior plate with an approved galvanized steel connector and each connector shall be installed accordingly to manufacture specifications.

[2] Bond beam to be at least 8 inches deep nominal and shall be reinforce as shown in Table A-21-E for lintels, or Table A-21-C-1 through A-21-C-5 for walls in general where they are more restrictive.

[3] See Chapter 21, Part II, for definitions.

(136) Amending Section 2306. Section 2306 is amended as follows:

a. Sections 2306.2 through 2306.13 are redesignated as Sections 2306.3 through 2306.14, respectively, and a new Section 2306.2 is added to read:

2306.2 Soil Treatment and Termite Barriers. Where the plates, sill and structural lumber of wood frame buildings or structures are supported directly on the ground by concrete blocks, a concrete slab or masonry foundation, either the soil beneath the building or structure may be chemically treated at the recommended level rates by a licensed operator to control ground termites, or anti-termite sand or other termite barriers approved by the Building Official may be installed.

All soil treatment, decay and termite protection measures shall be installed according to manufacturer's recommendations.

b. Section 2306.3 is amended to read:

2306.3 Wood Embedded in Ground. Wood embedded in the ground or in direct contact with the earth shall be treated wood. Round or rectangular posts, poles and sawn timber columns supporting permanent structures which are embedded in concrete or masonry in direct contact with earth or embedded in concrete or masonry exposed to the weather shall be treated wood. The wood shall be treated for ground contact.

c. Section 2306.4 is amended to read:

2306.4 Under-floor Clearance. Minimum clearance between bottom of floor joists or bottom of floors without joists and the ground beneath shall be 24 inches; between bottom of girders and the ground 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.

d. Section 2306.5 is amended to read:

2306.5 Structural Lumber. (a) All structural lumber including posts, beams, rafters, joists, trusses, studs, plates, sills, sleepers, roof and floor sheathing, flooring and headers of buildings, structures and additions shall be by one of the following:

1. Treated in accordance with American Wood-Preservers Association (AWPA) Standard C1, C2 and C9 for ACZA, ACQ or CCA, and labeled by an approving agency; or

2. Treated with inorganic boron or other preservative as approved by the building official, and labeled by an approving agency; or

3. Treated in accordance with the former American Wood Preservers Bureau (AWPB) Approved Hawaii Local Area Standard, and labeled by an approved agency; or

4. For structural glued laminated members made up of dimensional lumber or other engineered wood products, shall be protected by chemical treatment applied at the recommended label rates by an operator licensed to control ground termites, or in accordance with AWPA Standards C-28 and C-33 or other approved preservative systems.

(b) Treatment shall include the following:

1. A quality control and inspection program which meets or exceeds the current requirements of AWPA Standards M2 and M3;

2. Inspection and testing are for the treatment standards as adopted by this Code, and shall be by an approved independent agency 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 the manufacturer's instructions; and

4. Labeling of all structural lumber 2 inches or greater nominal thickness. All other lumber less than 2 inches in nominal thickness shall be identified per bundle by means of a label no less than 6 inches by 8 inches shall be placed on the lower left corner of the strapped bundle.

e. A new Section 2306.15 is added to read:

2306.15 Pipe penetrations. Insulation around plumbing pipes shall not pass through ground floor slab. Opening around pipes or similar penetration in 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.

(137) Amending Section 2320.1. Section 2320.1 is amended by adding the following paragraph immediately after the first paragraph.

Conventional construction provisions in this section and Section 2338 may be used for repairs and additions to existing conventionally constructed structures, provided that those repairs and additions requiring the seal of a duly licensed professional registered structural engineer or architect as required by Chapter 464 of the Hawaii Revised Statutes as amended, shall be designed to comply with other provisions of this code.

(138) Amending Section 2320.4.1. Section 2320.4.1 is amended by replacing the words "not greater" in the first sentence with the word "less".

(139) Amending Section 2320.4.2. Section 2320.4.2 is amended by replacing the word "exceeds" in the first sentence with the word "is" and adding the words "or greater" after the words "80 mph (129 km/h)."

(140) Adding Appendix Chapter 23, Section 2337. Appendix Chapter 23, Section 2337 (General) is by reference incorporated herein and made a part of this Code.

(141) Amending Section 2337.5.8. Section 2337.5.8 is amended by adding a new sentence at the end of the first paragraph to read:

> All intermediate rafters shall be tied to the exterior plate with an approved galvanized steel connector and each connector shall be installed accordingly to manufacture's specifications.

(142) Adding a new Section 2338. A new Section 2338 is added to read:

SECTION 2338 - - WALLS WITHOUT STUDS

2338.1 Type V Buildings. For Type V buildings, single wall construction without studs may be used in accordance with the section and Section 2320.1 for repairs or additions to existing buildings of single wall construction.

2338.2 Walls Without Studs. One-story wood frame type V-N residential buildings or structures may be of single wall construction with boards of thickness specified in this section, without studs, when requirements of this section are met. Floor to ceiling height shall not exceed 8 feet.

Any provisions of this code to the contrary notwithstanding, studding of not less than 2 inches by 3 inches may be used on one-story buildings of double wall construction. Studding shall not be spaced more than 16 inches on center.

When wood frame dwellings are supported by posts, 2-inch by 4-inch foundation bracing shall be provided.

For one-story conventional residential buildings or structures the local practice of using foundation blocks with termite shields will be acceptable in interior areas except in flood hazard districts and developments. Design shall be in compliance with the requirements of the Flood Plain Management Ordinance, County of Kauai.

2338.3 Boards for Single Wall Construction.

2338.3.1. One and One-Eighth Inch Boards. Single wall construction with boards of 1 1/8 inch net thickness are not required to have girts.

2338.3.2. One-Inch Boards. Where single wall construction is with boards of one-inch net thickness, no girt is required provided approved stiffeners for any section of such wall is spaced not more than 10 feet along the wall.

2338.3.3. Three-Fourths-Inch Boards. Single wall construction with boards of 3/4-inch net thickness shall have girts and cross partitions at least every 30 feet.

2338.3.4. Eleven-Sixteenths-Inch Boards. Single wall construction with boards of 11/16-inch net thickness shall be limited to the following conditions: (A) the span between load bearing walls shall not exceed 24 feet; (B) the dead load on such walls shall not exceed 150 pounds per lineal foot; (C) girts shall be provided; (D) there shall be approved stiffeners at least every 10 feet along such wall; and (E) any openings in such walls for windows and doors shall have full-height jambs or studs where the girt is not continuous.

2338.4 Approved Stiffeners. Approved stiffeners shall be studs of at least 2 inches by 4 inches, full-height window or door jambs, posts, walls or partitions at right angle to the section of wall under construction.

2338.5 Girts. Girts for single wall construction shall be not less than 2-inch by 6-inch belt course or other approved strengthening about mid height between the floor and the ceiling on all exterior walls.

(143) Amending Appendix Table A-23-B. Appendix Table A-23-B is amended by adding immediately following superscript "[1]" a "," followed by a superscript "[3]", and by adding the following Footnote 3:

[3] All intermediate rafters not tied directly to a stud (rafters between primary wind hold-down straps) shall be tied to the exterior plate with an approved connector and each connector shall be installed accordingly to manufacture specifications.

(144) Amending Section 2405. Section 2405 is amended to read:

Regular plate, sheet or patterned glass in jalousies and louvered windows 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.

(145) Amending Section 2604.2.

(1) Section 2604.2 is amended to read:

Section 2602.4 Thermal Barrier.

(2) Section 2602.4 is amended by amending EXCEPTION 2 to read:

2. For walk-in coolers and freezer units having an aggregate floor area less than 800 square feet.

(146) Amending Section 2903. Section 2903 is amended to read:

As an alternate to the minimum number of plumbing fixtures required by this chapter. Appendix Chapter 29, Minimum Plumbing Fixtures is by reference incorporated herein and made a part of this Code.

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

(148) Adding Appendix Chapter 31 Division III.

Appendix Chapter 31, Division III ("PATIO COVERS") is reference incorporated herein and made a part of this Code.

(149) Amending Section 3301.2. Section 3301.2 is amended by adding a fourth paragraph to the end thereof 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.

(150) Amending Section 3303.1. Section 3303.1 is amended by amending the paragraph immediately preceding the last paragraph to read:

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.

(151) Amending Section 3303.3. Section 3303.3 is amended to read:

3303.3 Storage On Public Property. Material and equipment necessary for work to be done under a permit shall not be placed or stored on public property so as to obstruct free and convenient approach to and use of any fire hydrant, fire or police alarm box, utility box, catch basin or manhole, or so as to interfere with the free flow of water in any street or alley gutter without permission from the agency having jurisdiction.

(152) Amending Section 3303.5. Section 3303.5 is amended to read:

3303.5. Protection of Utilities. An adequate protective frame and boarding shall be built about every

street lamp, utility box, fire or police alarm box, fire hydrant, catch basin, and manhole that may be damaged by any work being done under the permit. This protection shall be maintained while such work is being done and shall not obstruct the normal functioning of the device.

(153) Amending Section 3303.6. Section 3303.6 is amended to read:

3303.6. Walkway. A walkway not less than 4 feet wide or width of existing sidewalk is less than 4 feet wide, not less than the width of the existing sidewalk, shall be maintained on the sidewalk in front of the building site during construction, alteration or demolition unless the public agency having jurisdiction authorizes the sidewalk to be fenced and closed. Adequate signs and railings shall be provided to direct pedestrian traffic. Railings shall be provided when required by Section 3303.7.

The walkway shall be capable of supporting a uniform live load of 150 pounds per square foot.

(154) Amending Section 3303.7. Section 3303.7 is amended to read:

3303.7 Pedestrian Protection.

3303.7.1 Pedestrian Protection. Protection Required. Pedestrian traffic shall be protected by a railing on the street side when the walkway extends into the roadway, by a railing adjacent to excavations, by a fence or barrier to prevent entry of unauthorized persons if there is an exposure to dangerous conditions, and by a sidewalk canopy when the general public is exposed to any foreseen danger from falling objects as set forth in Table No. 33-A. The construction of such protective devices shall be in accordance with the provisions of this chapter. In all cases, proper and reasonable devices shall be provided to eliminate hazards to the public.

3303.7.2 Railings. Railings shall be substantially built and when of wood shall be constructed of new materials having a nominal size of at least 2 inches by 4 inches. Railings shall be at least 3 feet 6 inches in height and when adjacent to excavations shall be provided with a midrail.

3303.7.3 Fences. Fences shall be not less than 6 feet in height above grade, and be placed on the side of the sidewalk nearest to the building site. Fences shall extend the entire length of the building site where practical and each end shall be returned to the building line.

Openings in such fences shall be protected by doors which normally are kept closed.

3303.7.4 Canopies. The protective canopy shall have a clear height of 8 feet above the walkway. The roof shall be tightly sheathed.

If materials are stored or work is done on the roof of the canopy, the street sides and ends of the canopy roof shall be protected by a tight curb board

not less than 1 foot high and a railing not less than 3 feet 6 inches high.

The entire structure shall be designed to carry the loads to be imposed on it.

3303.7.5 Watchman. A watchman shall be employed to warn the general public when intermittent hazardous operations are conducted on the sidewalk.

(155) Amending Table 33-A. Table 33-A is amended by adding a superscript "[1]" at the end of the title thereof and adding a footnote at the end of the table to read:

[1] Not applicable to construction in Preservation, Agricultural and Residential Districts except when required by the building official.

(156) Amending Section 3501. Section 3501 is amended by adding a second paragraph to read:

Wherever the Uniform Building Code Standards are referred to as the standard in this code, compliance with the current codes and standards of the National Fire Protection Association or other approved national standards will be equivalent to meeting the Uniform Building Code Standards. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 173, May 31, 1973; Ord. No. 189, August 22, 1973; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 421, March 16, 1982; Ord. No. 426, May 10, 1982; Ord. No. 444, December 28, 1982; Ord. No. 449, September 6, 1983; Ord. No. 455, January 24, 1984; Ord. No. 463, August 6, 1984; Ord. No. 534, January 21, 1988; Ord. No. 537, March 8, 1988; Ord. No. 554, May 2, 1989; Ord. No. 613, December 7, 1992; Ord. No. 624, May 11, 1993; Ord. No. 651, April 6, 1994; Ord. No. 699, November 21, 1995; Ord. No. 733, April 1, 1999; Ord. No. 773, October 5, 2001; Ord. No. 810, December 1, 2003)

ARTICLE 3. RELOCATION OF BUILDINGS

Sec. 12-3.1 Applicability.

The provisions of Section 106.3.1 and 106.3.2 of the Uniform Building Code, as amended to the contrary notwithstanding, no person shall move or cause to be moved any buildings or structure into or within the County without complying with the provisions of this Article; provided, however, any movement of a building or structure which is confined within the boundaries of a single lot shall not be subject to this Article, but shall be subject to Section 106 and other applicable provisions of the Uniform Building Code, as amended; National Electrical Code, as amended; and Uniform Plumbing Code, as amended. (Ord. No. 95, September 5, 1956;

Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Sec. 12-3.2 Application For A Relocation Permit.

Any person intending to move any building or structure shall apply to the Building Official for a relocation permit in writing upon a form furnished by the Building Official and shall set forth such information as the Building Official may reasonably require in order to carry out the purpose of this Article. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Sec. 12-3.3 Performance Security.

To secure faithful performance of any relocation permit obligations, the applicant or by any person on behalf of the applicant or his authorized agent shall comply to all requirements in Chapter 16, Traffic Code, Kauai County Code 1987, as amended and other requirements mentioned in Section 291-34 and Section 291-35, Hawaii Revised Statutes as amended.

A certificate of an insurance carrier shall be filed with the Police Department, certifying that there is a Comprehensive Automobile Liability Insurance Policy covering any relocation permit obligations as required by Chapter 16, Traffic Code, Kauai County Code 1987 as amended.

Upon the performance of a relocation permit obligations, the applicant or by any person on behalf of the applicant or his authorized agent, shall be responsible for all repairs or pay for any property owned by the County or by others which has been damaged in the process of moving such building or structure. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Sec. 12-3.4 Issuance Of Permit.

If the work described in the application for permit and in the plans and specifications submitted therewith conform to the requirements of said code and other pertinent laws and ordinances, and the permit or permits as required under the provisions of Chapter 16 Kauai Traffic Code has or have been issued by the State Director of Transportation and/or the County Engineer, the Building Official shall issue a relocation permit. The plans and specifications after approval by the Building Official shall not be changed, modified, or altered without authorization from the Building Official and all work shall be done in accordance with the approved plans and specifications. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413,

September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-3.5 Police Escorts.

The applicant shall apply to the Police Department of the County for escort services of a police officer. The applicant shall bear the costs of such services.

In addition to any other requirement which may be provided by law for the submission of reports in the event of any damage to property resulting from the moving of any building or structure, the police officer assigned to provide escort service shall submit a report to the building official of any such damage. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-3.6 Duration And Extension Of Time.

All work for which a relocation permit is issued under the provisions of this Article shall be started within 180 days of the date of issuance of the permit, unless extended for good cause by the Building Official. Any request for extension shall be made not less than 15 days prior to the date of expiration of the permit. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-3.7 Denial Of Permit.

No permit shall be issued to move any building or structure:

1. which does not comply with other pertinent codes and ordinances; or
2. which has deteriorated or been damaged to an extent greater than 50% of the cost of replacement (new) of such building or structure; or
3. which has not been termite treated when so directed by the Building Official. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-3.8 Entry Upon Premises.

The Building Official, the surety and duly authorized representatives of either shall have access to the premises described in the relocation permit for the purpose of inspecting the progress of the work. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2,

1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-3.9 Fees For Permits.

The fees for the issuance of relocation permits shall be computed in accordance with Table No. 2-A under Section 107 of the Uniform Building Code; provided, however, if a permit is issued after the commencement of the relocation of a building or structure for which a permit is required, an investigation and a fee shall be required accordingly to Section 107.5. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-3.10 Violation And Penalties.

For Violations And Penalties. See Section 103, Article 2. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

ARTICLE 4. FACTORY BUILT HOUSING, STRUCTURE AND TRAILER HOME.

Section 12-4.1 Applicability.

These provisions are applicable to the design, construction, installation and transportation of factory-built housing, structure or trailer home within the County of Kauai. Unless otherwise specified this article shall be applicable only to factory-built housing, structure and trailer home which is sold or offered for sale.

All provisions of the Building, Electrical and Plumbing Codes shall be applicable unless indicated otherwise in this article. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-4.2 Definitions.

The following terms are for specialized use within this article.

"CERTIFICATE OF APPROVAL" means a tag, tab, stamp, label, or other device issued or approved by the building official to indicate compliance with the statutes and these rules.

"FACTORY BUILT HOUSING" means any structure or portion thereof which is: designed for use as a building or dwelling; prefabricated or assembled at a place other than the building site; and capable of complying with the

standards and requirements contained in Section 12-4.5 of Chapter 12, Building Code.

"FACTORY BUILT STRUCTURE" means any structure or portion thereof which is: designed for use as a building other than a dwelling; prefabricated or assembled at a place other than the building site.

"INSTALLATION" means the assembly of factory built housing on site and the process of affixing factory built housing 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 factory built housing.

"RECREATIONAL TRAILER" means a portable structure, used or designed for human habitation or occupancy and built on a chassis with wheels, which is capable of being licensed as a motor vehicle, a vehicle or a trailer pursuant to Hawaii Revised Statutes Chapter 249 and transported on a highway, but which is unable, due to its size, design, construction or other attributes, to comply with the minimum standards and requirements applicable to dwellings or buildings, or portions thereof, contained in Section 12-4.5 of Chapter 12, Building Code.

"SITE" is the parcel of land on which factory built housing is installed.

"TRAILER HOMES" means factory built housing which is capable of being licensed as a vehicle or trailer pursuant to Hawaii Revised Statutes Chapter 249 and transported upon a highway. (Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-4.3 Building Permit.

No person shall install or relocate any factory built housing, structure and trailer home on any land within the County, or cause the foregoing to be done, without first obtaining a separate building permit from the Building Official for each such factory built housing, structure and trailer home. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-4.4 Building Permit Fee.

A fee for each building permit shall be paid to the Building Official as provided in this code. The fee will be based on valuation of the factory built house structure and trailer home in place and the value of all additions or alterations to be made, including the value of carports, fences, retaining walls, etc. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-4.5 Building Permit Requirements.

All factory built housing, structure and trailer home for which a building permit is sought shall be subject to the following requirements:

(a) All provisions of Chapter 8 (Comprehensive Zoning Ordinance), Chapter 9 (Subdivision Ordinance), Chapter 12 (Building Code), Chapter 13 (Electrical Code), Chapter 14 (Plumbing Code), Chapter 15 (Building and Construction Regulations) and Chapter 15A (Fire Code) shall apply to the construction, installation and use of factory built housing, structure, and trailer homes unless specifically excluded or amended by this Article.

(b) All factory built housing, structure and trailer home shall be permanently affixed to the ground and shall have their wheels and axles, if any, removed.

(c) All factory built housing, structure and trailer home shall conform to: the applicable standards and requirements of the Department of Health, State of Hawaii, including Chapter 14 (Housing), Title 11, Administrative Rules of the Department of Health, as updated and amended; Chapter 62, Title 11, Administrative Rules of the Department of Health, as updated and amended, relating to individual wastewater systems and wastewater treatment works; the standards and specifications contained in the Uniform Mechanical Code, as updated and amended, published by the International Conference of Building Officials and the International Association of Plumbing and Mechanical Officials; and the requirements of Chapter 464 of the Hawaii Revised Statutes.

(d) All factory built housing, structure and trailer home must have a Certificate of Approval as provided in this Article.

(e) Five (5) sets of plans and specifications for the particular model of factory built housing structure and trailer home must be provided to the Building Official. One of which shall be left with the Planning Department. One will be retained by the Building Official. One approved set will be returned as a job site copy to the applicant and one approved set will be submitted to the Department of Finance, Real Property Tax Division. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-4.6 Certificate Of Approval.

(a) No factory built housing, structure and trailer home shall be used, or shall be sold or offered for sale for the purpose of installation or use, within this County as a dwelling, building or structure, unless; it has received and bears a Certificate of Approval issued or approved by the Building Official.

(b) A Certificate of Approval shall be issued, pursuant to Section 12-4.9 shall be granted, to all factory built housing, structure and trailer home that meet the applicable requirements contained in Section 12-4.5.

(c) No factory built housing, trailer home which has received a Certificate of Approval, pursuant to Section 12-4.10, shall be modified in any way prior to or during installation or relocation unless approval of such modification is first made by the Building Official.

Modifications made during the term of a pending building permit, prior to the final completion of all required construction, shall be subject to the requirements of Sections 106, 107 and 108 of the Uniform Building Code, as amended by this Chapter, including the payment of additional fees. Except as otherwise provided in this Chapter, such modifications shall not of themselves require the issuance of a new Certificate of Approval, pursuant to Section 12-4.10; provided, however, that the Building Official may charge for all costs resulting from the inspection and approval of such modifications.

Modifications made after the expiration of a building permit, or after final completion of all required construction, shall require the issuance of a new building permit subject to the requirements of Sections 106, 107 and 108 of the Uniform Building Code, as amended by this Chapter. Except as otherwise provided in this Chapter, such modifications shall not of themselves require the issuance of a new Certificate of Approval, pursuant to Section 12-4.10; provided, however, that the Building Official may charge for all costs resulting from the inspection and approval of such modifications. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-4.7 Certificate Fees.

A Certificate of Approval fee is required and which will be part of the building permit fee pursuant to Section 12-4.4. Fees shall be paid to the Building Official as follows:

(a) Certificate of Approval fee is required for all models of factory built housing, structure and trailer home constructed in accordance with plans and specifications and complying with the standards and requirements contained in this Article.

(b) In addition to the Certificate of Approval fee, the Building Official shall require, in accordance with Section 12-4.8(b), that the person applying for the Certificate of Approval pay all costs incurred by the Building Official in making the inspection and determination required by Section 12-4.8(a). (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-4.8 Inspection.

(a) The Building Official shall issue no Certificate of Approval, pursuant to Section 12-4.10, unless the factory built housing, structure and trailer home has first been inspected and determined to be in compliance with the requirements of Section 12-4.6(b). The Building Official may make such a determination by any of the following means:

(1) By making an actual inspection of the individual unit or trailer home;

(2) By accepting a similar inspection and determination from another jurisdiction. In such a case, the Building Official must first find that the standards for construction and inspection of factory built housing, structure and trailer homes prescribed by the statutes, rules, regulations or ordinances of another jurisdiction are at least equal to the standards and requirements prescribed in this Article and that such standards and requirements are actually enforced by such other jurisdiction;

(3) By accepting a similar inspection and determination by the International Conference of Building Officials or any other such professional organization approved by the Building Official. In such a case, the Building Official must first find that the standards for construction and inspection of the factory built housing and trailer homes followed by the professional organization are at least equal to the standards and requirements prescribed in this Article.

(b) All costs incurred by the Building Official in making the inspection and determination required by subsection (a) shall be paid by the person applying for the Certificate of Approval. Such payment shall be made to the Building Official prior to the issuance of any Certificate of Approval. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-4.9 Transportation.

(a) No factory built housing, structure and trailer home which exceeds the weight, width, height or length restrictions contained in Chapter 16 Kauai Traffic Code or Hawaii Revised Statutes Sections 291-34 and 291-35 shall be transported on any street or highway within this County unless permits have been obtained in accordance with Article 3 (Relocation of Buildings), Chapter 16 Kauai Traffic Code and Hawaii Revised Statutes Section 291-36.

(b) No trailer home shall be transported on its wheels on any street or highway within this County unless it is licensed in accordance with Hawaii Revised Statutes Chapter 249 and complies with all applicable provisions of Article 2, Chapter 5 (Motor Vehicle Weight Tax) Taxation and Financial Administration, Chapter 16 Kauai Traffic Code, Hawaii Revised Statutes Chapters 286, 291, 291C, and all other applicable County or State laws regulating the

operation and licensing of vehicles and trailers. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-4.10 Relocation

(a) No factory built housing, structure and trailer home which has been initially located on a lot in accordance with the provisions of this Article shall be relocated to another lot unless permits have been obtained in accordance with Section 12-4.3, Section 12-4.9 and Article 3 (Relocation of Buildings).

(b) No factory built housing, structure and trailer home shall be relocated pursuant to subsection (a) unless found by the Building Official to be in conformance with the standards and requirements of Section 12-4.6 existing at the time of the requested relocation. If the factory built housing, structure and trailer home no longer conforms to the then existing standards and requirements, then it shall not be relocated unless it is modified to meet, such new standards and requirements. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-4.11 Violations And Penalties.

For Violations And Penalties. See Section 103, Article 2. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

ARTICLE 5. THATCHED MATERIAL ON EXTERIOR OF BUILDING: PROTECTION AGAINST EXPOSURE FIRES.

Section 12-5.1 Applicability.

Thatched material on the exterior of buildings, including the roof, shall be permitted only for buildings used primarily for assembly, demonstration, exhibit, mercantile or non-residential purposes.

Thatched material shall not be permitted on any buildings or structures housing Group R, Division 3 Occupancies or any accessory buildings or structures of Group U Occupancies relating to Group R, Division 3 Occupancies.

The thatched material permitted in this article shall be used for decorative purposes on the roof or wall of buildings. The entire building, except for the thatched material, shall comply all applicable provisions of the Building Code.

When thatched material is used as permitted in this article, an automatic sprinkler system shall be installed.

Automatic sprinkler systems and standpipes shall be provided pursuant to the Fire Code. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-5.2 Violations and Penalties.

For violations and penalties, see Section 103, Article 2. (Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

ARTICLE 6. ENERGY CONSERVATION.

Section 12-6.1 Purposes.

The purposes of this Article are to:

(a) Set minimum requirements for the energy-efficient design of new buildings so that they may be constructed, operated, and maintained in a manner that minimizes the use of energy without constraining the building function or the comfort or productivity of the occupants; and

(b) Provide criteria for energy-efficient design and provide methods for determining compliance with these criteria. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-6.2 Conflict with other laws.

Where this Article is found to conflict with health, safety or environmental codes, including the building code, the health, safety and environmental codes shall prevail. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-6.3 Applicability of code; Scope.

This Article sets forth design requirements for the efficient use of energy in new buildings and new construction in existing buildings as further defined in this Article. This Article applies to buildings or portions of buildings that provide facilities or shelter for human occupancy. The requirements apply to building envelope; distribution of energy; and systems and equipment for ventilating, air-conditioning, service water heating, lighting, and energy managing. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-6.4 When Article not applicable.

This Article does not apply to:

(a) Area of buildings intended primarily for manufacturing or for commercial or industrial processing;

(b) Buildings or separately-enclosed identifiable areas having any combination of dedicated space heating, service water heating, ventilating, air-conditioning and lighting systems whose combined peak design rate of non-renewable energy usage for these purposes is less than 1.0 watt/ft^2 or 3.413 Btu/h-ft^2 of gross floor area. Site generated wind, hydro or solar electric power are exempt; and

(c) Buildings of fewer than 100 ft^2 of gross floor area. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-6.5 Other exemptions.

Buildings housing occupancies of Group R Division 1 apartment houses, congregate residence (each accommodating 10 persons or less); Group R Division 3 which are one or two family dwelling, congregate residence (each accommodating 10 persons or less) of three or less stories above grade. However, these occupancies when equipped with central air conditioning system shall be subject to this Article.

Group U Division 1 and 3 Occupancies as classified in the Uniform Building Code and Group U Division 2 residential swimming pools, hot tubs and spas shall be exempt from this Article. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-6.6 Historic buildings.

A historic building on either the state or national register of historic places may be exempt from portions of the Article if the Department of Land and Natural Resources, Historic Preservation Division determines that the historic nature of the building will be harmed through application of reasonable compliance measures. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-6.7 Definitions.

Unless otherwise expressly stated, whenever used in this Article, the following terms shall have the following meanings:

accessible (as applied to equipment): admitting close approach; not guarded by locked doors, elevation, or other effective means. (See also readily accessible.)

adjusted lighting power: lighting power, ascribed to a luminaire(s), that has been reduced by deducting a lighting power control credit based on use of an automatic control device(s).

air conditioning, comfort: treating air to control its temperature, relative humidity, cleanliness, and distribution to meet the comfort requirements of the occupants of the conditioned space. Some air conditioners may not accomplish all of these controls.

ambient lighting: lighting that produces general illumination throughout an area.

area factor, AF: a multiplying factor which adjusts the base unit power density (UPD) for spaces of various sizes to account for the impact of room configuration on lighting power utilization.

article: the building energy efficiency standards of the County.

automatic: self-acting, operating by its own mechanism when actuated by some impersonal influence, such as a change in current strength, pressure, temperature or mechanical configuration. (See also manual.)

ballast efficacy factor - fluorescent: the ratio of the ballast factor expressed as a percent to the power input in watts, at specified test conditions.

ballast factor: the ratio of a commercial ballast lamp lumens to a reference ballast lamp lumens, used to correct the lamp lumen output from rated to actual.

ballast losses: the power (watts) consumed internally by the ballast components.

ballast: a device used with an electric-discharge lamp to obtain the necessary circuit conditions (voltage, current, and wave form) for starting and operating.

base unit power density, (P_b): the maximum allowed power density, in W/ft^2, for the listed areas/activities of an ideal space prior to area factor adjustment.

boiler capacity: the rated heat output in Btu/h of the boiler, at the design inlet and outlet conditions and rated fuel/energy input.

British thermal unit, Btu: approximately the amount of heat required to raise the temperature of one pound of water from 59°F to 60°F.

building energy cost: the computed annual energy cost of all purchased energy for the building, calculated using the methods of Section 12-6.16 of this Article.

building envelope: the elements of a building that enclose conditioned spaces or spaces intended primarily for human occupancy, through which thermal energy may be transferred to or from the exterior or to or from unconditioned spaces.

building type: the classification of a building by usage, as follows:

(a) assembly: a building or structure for the gathering together of persons, such as auditoriums, churches, dance halls, gymnasiums, theaters, museums,

passenger depots, sports facilities and public assembly halls.

(b) congregate residence: is any building which contains facilities for living, sleeping and sanitation, and may include facilities for eating and cooking, for occupancy by other than a family. A congregate residence may be a shelter, convent, monastery, dormitory, fraternity or sorority house but does not include jails, hospitals, nursing homes, hotels or lodging houses.

(c) health and institutional: a building or structure for the purpose of providing medical treatment, confinement or care, and sleeping facilities such as hospitals, sanitariums, clinics, orphanages, nursing homes, mental institutions, reformatories, jails, and prisons.

(d) hotel/motel: a building or structure for transient occupancy, such as resorts, hotels, motels, barracks, dormitories.

(e) multi-family: a building or structure containing three or more dwelling units. See dwelling units.

(f) office (business): a building or structure for office, professional, or service type transactions, such as medical offices, banks, libraries and governmental office buildings.

(g) restaurant: a building or a structure for the consumption of food or drink, including fast food, coffee shops, cafeterias, bars, and restaurants.

(h) retail (mercantile): a building or structure for the display and sale (wholesale or retail) of merchandise, such as shopping malls, food markets, auto dealerships, department stores, and specialty shops. (See also retail establishments.)

(i) school (educational): a building or structure for the purpose of instruction, such as schools, colleges, universities and academies.

(j) warehouse (storage): a building or structure for storage, such as aircraft hangers, garages, warehouses, storage buildings and freight depots.

(k) light manufacturing: a facility where products are assembled with minimal use of process energy and where conditioning for human comfort is provided throughout the majority of the facility.

central air conditioning system: an air conditioning system other than window-mounted, portable or other non-permanent air conditioner.

check-metering: measurement instrumentation for the supplementary monitoring of energy consumption (electric, gas, oil, etc.) to isolate the various categories or energy use to permit conservation and control, in addition to the revenue metering furnished by the utility.

code: Chapter 12, Building Code, Kauai County Code, 1987 as amended.

coefficient of performance (COP) -- cooling: the ratio of the rate of heat removal to the rate of energy input in consistent units, for a complete cooling system or factory

assembled equipment, as tested under a nationally recognized standard or designated operating conditions.

coefficient of performance (COP), heat pump -- heating: the ratio of the rate of heat delivered to the rate of energy input, in consistent units, for a complete heat pump system under designated operating conditions.

coefficient of utilization (CU): the ratio of the luminous flux (lumens) from a luminaire calculated as received on the work plane to the luminous flux emitted by the luminaire's lamps alone.

combined thermal transmittance values (U_o): see thermal transmittance, overall.

conditioned floor area: the area of the conditioned space measured at floor level from the interior surfaces of the walls.

conditioned perimeter: the building perimeter at each floor or building level that is conditioned or capable of being conditioned.

conditioned space: a space within the building which, by introduction of conditioned air, by cooled surfaces, or by air or heat transfer from directly conditioned spaces, is maintained at temperatures less than or equal to 5°F below design conditions at summer outside design conditions.

connected lighting power (CLP): the power required to energize luminaires and lamps connected to the building electrical service, in watts.

control loop, local: a control system consisting of a sensor, a controller, and a controlled device.

cooled space: an enclosed space within a building which is cooled by a cooling system whose sensible capacity:

(a) exceeds 5 Btu/h-ft^2, or

(b) is capable of maintaining space dry bulb temperature of 5°F below design conditions or less at design cooling conditions.

daylight sensing control (DS): a device that automatically regulates the power input to electric lighting near the fenestration to maintain the desired workplace illumination, thus taking advantage of direct or indirect sunlight.

daylighted perimeter: the building perimeter at each floor or building level at windows or within three feet of windows.

daylighted space: the space bounded by vertical planes rising from the boundaries of the daylighted area on the floor to the floor or roof above.

daylighted zone

(a) at vertical glazing: the area adjacent to vertical glazing which receives daylighting from the glazing. Unless more detailed daylighting analysis is provided for purposes of this definition, the daylighting zone depth is assumed to extend into the space a distance of 15 feet or to the nearest opaque partition, whichever is less. The daylighting zone width is assumed to be the width of the window plus either three feet on each side, or the distance to an opaque partition, or one-half the distance to an adjacent skylight or vertical glazing, whichever is least.

(b) under skylights: the area under each skylight whose horizontal dimension in each direction is equal to the skylight dimension in that direction plus either the floor to ceiling height or the dimension to an opaque partition, or one-half the distance to an adjacent skylight or vertical glazing, whichever is least.

dead band (dead zone): the range of values within which an input variable can be varied without initiating any noticeable change in the output variable.

default assumption: the value of an input used in a calculation procedure when a value is not entered by the designer.

degree day, cooling: a unit, based upon temperature difference and time, used in estimating cooling energy consumption. For any one day, when the mean temperature is more than a reference temperature, typically 65°F, there are as many degree days as degrees Fahrenheit temperature difference between the mean temperature for the day and the reference temperature. Annual cooling degree days (CDD) are the sum of the degree days over a calendar year.

degree day, heating: a unit, based upon temperature difference and time, used in estimating heating energy consumption. For any one day, when the mean temperature is less than a reference temperature, typically 65°, there are as many degree days as degrees Fahrenheit temperature difference between the mean temperature for the day and the reference temperature. Annual heating degree days (HDD) are the sum of the degree days over a calendar year.

demand (electric): the rate at which electric energy is delivered to or by a system, part of a system, or a piece of equipment; expressed in kilowatts, kilovoltamperes, or other suitable units at a given instant or averaged over any designated period.

design conditions: the exterior and interior environmental parameters specified for air conditioning and electrical design for a facility.

design energy consumption (DECON): the computed annual energy consumption of a proposed building design.

design energy costs (DECOS): the computed annual energy cost of a proposed building design.

directly conditioned space: a space within the building that is deliberately cooled, dehumidified, or humidified by the introduction of conditioned air or by cooled surfaces so as to maintain conditions for an acceptable thermal environment within the space as set forth in ANSI/ASHRAE Standard 55-1981.

dwelling unit: a single housekeeping unit comprised of one or more rooms providing complete, independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking, and sanitation.

east: surfaces that face within 45° from true east.

efficiency, HVAC system: the ratio of the useful energy output (at the point of use) to the energy input in consistent units for a designated time period, expressed in percent.

emergency system (back up system): a system that exists for the purpose of operating in the event of failure of a primary system.

enclosed space: a space within a building which is completely separated from the outside or from other spaces within the building by roofs, ceilings, floors, walls, doors and/or windows. A space not meeting these criteria is considered unenclosed space. A space with windows or doors normally open during occupied periods is considered unenclosed.

energy cost budget (ECB): the maximum allowable computed annual energy cost for a proposed building.

energy cost: the annual cost of energy by unit and type of energy.

energy efficiency ratio, (EER): the ratio of net equipment cooling capacity in Btu/h to total rate of electric input in watts under designated operating conditions. When consistent units are used, this ratio becomes equal to COP. (See also coefficient of performance.)

energy management system: a control system designed to monitor the environment and the use of energy in a facility and to adjust the parameters of local control loops to conserve energy while maintaining a suitable environment.

energy, recovered: see recovered energy.

energy: the capability for doing work; having several forms that may be transformed from one to another, such as thermal (heat), mechanical (work), electrical, and chemical.

enthalpy: a thermodynamic property of a substance defined as the sum of its internal energy plus the quantity Pv/J, where P = pressure of the substance, v = its volume, and J = the mechanical equivalent of heat; formerly called total heat and heat content.

exterior envelope: see building envelope.

exterior lighting power allowance (ELPA): the calculated maximum lighting power allowance for exterior area of a building or facility, in watts.

fenestration: the term used for any light-transmitting section in a building wall or roof. The fenestration includes glazing material, which may be glass or plastic; framing, mullions, muntins, and dividers; external shading devices; internal shading devices, and integral (between-glass) shading systems.

fenestration area: the total area of fenestration measured using the rough opening and including the glass or plastic sash and frame.

floodlighting: a lighting system designated to light a broad area.

footcandle, fc: the unit of illuminance when the foot is taken as the unit of length. It is the illuminance on a surface one square foot in area on which there is a uniformly distributed flux of one lumen, or the illuminance produced on a surface all points of which are at a distance of one foot from a directionally uniform point source of one candela.

free area for ventilation: the total area through which air can pass in vents or operable windows. Typical values (as percent of glass area) are 100% for hinged windows and 50% for slider windows.

general lighting: lighting designed to provide illumination throughout an area, exclusive of any provision for special local requirements.

gross exterior wall area: The gross area of exterior walls as measured on the exterior and consisting of the opaque wall including between floor spandrels, peripheral edges of flooring and window areas including sash and door areas but excluding vents, grilles, and pipes.

gross floor area: the sum of the floor areas of spaces within the building including basements, mezzanine and intermediate-floored tiers, and penthouses of headroom height 7.5 ft or greater. It is measured from the exterior faces of exterior walls or from the centerline of walls separating buildings (excluding covered walkways, open roofed-over areas, porches and similar spaces, pipe trenches, exterior terraces or steps, chimneys, roof overhangs, and similar features).

gross lighted area (GLA): the sum of the total lighted areas of a building measured from the inside of the perimeter walls, for each floor of the building.

gross roof area: the gross area of a roof assembly measured from the exterior faces of exterior walls or from the center line of walls separating buildings. The roof assembly shall be considered to include all roof/ceiling components through which heat may flow between indoor and outdoor environments, including skylights but excluding service openings.

habitable space (room): is space in a structure for living, sleeping, eating or cooking. Bathrooms, toilet compartments, closets, halls, storage or utility space, and similar areas, are not considered habitable space. See working space.

heat capacity, Hc: the amount of heat necessary to raise the temperature of a given mass one degree. Numerically, the mass multiplied by the specific heat. (See wall heat capacity).

heat: the form of energy that is transferred by virtue of a temperature difference or of a change in state of a material.

heat trap: A heat trap consists of a bent piece of tubing which forms a loop of 180 degrees, an arrangement of pipe fittings, such as elbows, connected so that the inlet and outlet piping make vertical runs just before turning downward to connect to the water heater's inlet and outlet fittings, a commercially available heat trap, or any other type which effectively restricts the natural tendency of hot water to rise in the vertical pipe during standby periods.

high-rise residential building: see residential building, high-rise.

horizontal glazing: glazing (such as a skylight) which lies within 60° of horizontal. Glazing which stands greater than 60° from horizontal is considered vertical glazing.

humidistat: an automatic control device responsive to changes in humidity.

HVAC system efficiency: see efficiency, HVAC system.

HVAC system: the equipment, distribution network and terminals that provide either collectively or individually

the processes of heating, ventilating, and/or air conditioning to a building.

illuminance: the density of the luminous flux incident on a surface. It is the quotient of the luminous flux multiplied by the area of the surface when the latter is uniformly illuminated.

insolation: the rate of solar energy incident on a unit area with a given orientation.

integrated part-load value (IPLV): a single number figure of merit based on part-load EER or COP expressing part-load efficiency for air-conditioning and heat pump equipment on the basis of a weighted average of efficiencies at operation at various partial-load capacities for the equipment.

interior lighting power allowance (ILPA): the calculated maximum lighting power allowed for an interior space of a building or facility, in watts.

interior unit lighting power allowance - prescriptive: the allotted interior lighting power for each individual building type, in W/ft^2 (see Table 6.5)

interior unit lighting power allowance - system performance: the allotted interior lighting power for each individual, space, area or activity in a building, in W/ft^2. (See Table 6.6)

lamp efficacy: the quotient of the total luminous flux divided by the total lamp power input, expressed in lumens per watt.

lighting power budget, LPB: the lighting power, in watts, allowed for an interior area/activity.

lighting power control credit (LPCC):the amount of interior connected lighting power which may be added to the interior lighting power allowance for lights in a space that are turned off or dimmed by automatic control devices.

listed space area (LS): any interior space with identified area of activities for which a lighting power budget is calculated and listed in the lighting power limit determination.

low-rise residential building: see residential building, low-rise.

lumen, lm: SI unit of luminous flux. Radiometrically, it is determined from the radiant power. Photometrically, it is the luminous flux emitted within a unit solid angle (one steradian) by a point source having a uniform luminous intensity of one candela.

lumen maintenance control: a device that senses the illumination level and causes an increase/decrease of illuminance to maintain a preset illumination level.

luminaire: a complete lighting unit consisting of a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps, and to connect the lamps to the power supply.

luminaire efficiency: the ratio of luminous flux (lumens) emitted by a luminaire to that emitted by the lamp or lamps used therein.

manual (nonautomatic): action requiring personal intervention for its control. As applied to an electric controller, nonautomatic control does not necessarily imply

a manual controller, but only that personal intervention is necessary. (See automatic)

marked rating: the design load operating conditions of a device as shown by the manufacturer on the nameplate or otherwise marked on the device.

motor efficiency, minimum: the minimum efficiency occurring in a population of motors of the same manufacturer and rating.

motor efficiency, nominal: the median efficiency occurring in a population of motors of the same manufacturer and rating.

north: surfaces that face within 45° from true north.

occupancy sensor: a device that detects the presence or absence of people within an area and causes lighting, equipment, and/or appliances to be adjusted accordingly.

opaque areas: all exposed areas of a building envelope except fenestration areas and building service system openings such as vents and grilles.

orientation: the directional placement of a building on a building site with reference to the building's longest horizontal axis, or if there is no longest horizontal axis then with reference to the designated main entrance.

outdoor (outside) **air**: air taken from the outdoors and therefore not previously circulated through the system. (See also ventilation air)

overhang: a fixed, external construction which shades vertical fenestration from direct sunlight. It is positioned above the vertical fenestration system and extends horizontally to both edges of the window. Fixed awnings qualify as overhangs. See projection factor.

ozone depletion factor: a relative measure of the potency of chemicals in depleting stratospheric ozone. The ozone depletion factor potential depends upon the chlorine and the bromine content and atmospheric lifetime of the chemical. The depletion factor potentials are normalized such that the factor for CFC-11 is set equal to unity and the factors for the other chemicals indicate their potential relative to CFC-11.

packaged terminal air-conditioner, PTAC: a factory-selected wall sleeve and separate unencased combination of heating and cooling components, assemblies or sections, intended for mounting through the wall to serve a single room or zone. It includes heating capability by hot water, steam, or electricity.

packaged terminal heat pump: a PTAC capable of using the refrigeration system in a reverse cycle or heat pump mode to provide heat.

piping: a system for conveying fluids, including pipes, valves, strainers, and fittings.

plenum: an enclosure that is part of the air handling system and is distinguished by having a very low air velocity. A plenum often is formed in part or in total by portions of the building.

power adjustment factor (PAF): a modifying factor that adjusts the effective connected lighting power (CLP) of a space to account for the use of energy conserving lighting control devices.

power factor: the ratio of total watts to the root-mean-square (RMS) volt amperes.

power: in connection with machines, power is the time rate of doing work. In connection with the transmission of energy of all types, power refers to the rate at which energy is transmitted. In inch-pound units, it is measured in watts (W) or British thermal units per hour (Btu/h).

prescribed assumption: a fixed value of an input to the standard calculation procedure.

private driveways, walkways, and parking lots: exterior transit areas that are associated with a commercial or residential building and intended for use solely by the employees or tenants and not by the general public.

process energy: energy consumed in support of a manufacturing, industrial, or commercial process, other than the maintenance of comfort and amenities for the occupants of a building.

process load: the calculated or measured time integrated load on a building resulting from the consumption or release of process energy.

projection factor (PF): the ratio of the overhang horizontal projection (from the fenestration surface) to the distance between the bottom of the window and the bottom outer edge of the overhang.

proposed design: a prospective design for a building that is to be evaluated for compliance.

public driveways, walkways, and parking lots: exterior transit areas that are intended for use by the general public.

public facility restroom: a restroom used by the transient public.

qualified person: one familiar with the construction and operation of the equipment and the hazards involved.

radiant barrier: a sheet of material with a low emissivity on at least one side which is used to reduce radiant heat transfer.

readily accessible: capable of being reached quickly for operation, renewal, or inspections, without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, chairs, and so on. (See also accessible.)

recooling: lowering the temperature of air that has been previously heated by a heating system.

recovered energy: energy utilized which would otherwise be wasted (not contributing to a desired end use) from an energy utilization system.

reference building: a specific building design that has the same form, orientation and basic systems as the proposed design and meets all the criteria of the Prescriptive compliance method.

reflectance factor: the ratio of the radiant (or luminous) flux reflected in directions delimited to that reflected in the same directions by perfect reflecting diffusers identically irradiated (or illuminated).

reflectance: the ratio of the light reflected by a surface to the light incident upon it.

reheating: raising the temperature of air that has been previously cooled either by a refrigeration or an economizer system.

reset: adjustment of the controller set point to a higher or lower value automatically or manually.

residential building, high-rise: multifamily dwelling units of four stories or more of habitable space above grade as well as all hotels and motels.

residential building, low-rise: multifamily dwelling units of three stories or fewer of habitable space above grade, but not including, single and two family dwellings and other R-3 occupancy buildings.

residential building, R-1 occupancy: buildings which are hotels and apartment houses.

residential building, R-3 occupancy: buildings which are one or two family dwellings or congregate residences of 10 persons or less.

retail establishments: for the purpose of determining lighting power limit, retail establishments are grouped into the following types:

Type A: Jewelry merchandising, where minute examination of displayed merchandise is critical.

Type B: Fine Merchandising: fine apparel and accessories, china, crystal and silver, art galleries, etc. where the displayed quality and examination of merchandise is important.

Type C: Mass Merchandising: general apparel, variety, stationery, books, sporting goods, hobby, cameras, gifts, luggage, etc. displayed in a warehouse type of building, where focused display and detailed examination of merchandise is important.

Type D: General Merchandising: general apparel, variety, stationery, books, sporting goods, hobby, cameras, gift, luggage, etc. displayed in a department store type of building, where general display and examination of merchandise is adequate.

Type E: Food & Miscellaneous: bakeries, hardware and housewares, grocery, appliances and furniture, etc. where appetizing appearance is important.

Type F: Service Establishments: establishments where functional performance is important.

roof: those portions of the building envelope including all opaque surfaces, fenestration, doors, and hatches which are above enclosed space and which are horizontal or tilted at less than 60° from horizontal. (See also walls.)

room air conditioner: an encased assembly designed as a unit to be mounted in a window or through a wall, or as a console. It is designed primarily to provide free delivery of conditioned air to an enclosed space, room, or zone. It includes a prime source of refrigeration for cooling and dehumidification and means for circulating and cleaning air, and may also include means for ventilating and heating.

room area, Ar: for lighting power determination purpose, the area of a room or space shall be determined from the inside face of the walls or partitions measured at work plane height.

seasonal energy efficiency ratio (SEER): the total cooling output of an air conditioner during its normal annual usage period for cooling, in Btu, divided by the total electric energy input during the same period, in watt-hours, as determined by Code of Federal Regulations 10 CFR, Part 430, U.S. Dept of Energy.

sequence: a consecutive series of operations.

service systems: all energy-using or distributing components in a building that are operated to support the occupant or process functions housed therein, including HVAC, service water heating, illumination, transportation, cooking or food preparation, laundering or similar functions.

service water heating demand: the maximum design rate of water withdrawal from a service water heating system in a designated period of time (usually an hour or a day).

service water heating: the supply of hot water for purposes other than comfort heating and process requirements.

shading coefficient: the ratio of solar heat gain through fenestration to that occurring through unshaded 1/8 in. thick clear double strength glass.

shading coefficient of exterior shading device (SCext): the ratio of solar heat gain through the exterior shading device alone of any fenestration system to that occurring through unshaded 1/8 in. thick clear double strength glass.

shading coefficient of glass alone (SCglz): the ratio of solar heat gain through the glass alone of any fenestration system to that occurring through unshaded 1/8 in. thick clear double strength glass.

shall: where shall is used with a special provision, that provision is mandatory if compliance with the Code is claimed.

shell building: a building for which the envelope is designed and/or constructed prior to knowing the occupancy type. (See also speculative building.)

sidefin: a fixed external construction which shades vertical fenestration from direct sunlight. A sidefin projects outward from the building and runs vertically at least to the top and bottom of the window in order to block entry of sunlight from the side.

solar energy source: source of natural daylighting and of thermal, chemical, or electrical energy derived directly from conversion of incident solar radiation at the building site.

south: surfaces that face within 45° from true south.

speculative building: a building for which the envelope is designed and/or constructed prior to the design of the lighting and/or HVAC systems. A speculative building differs from a shell building in that the occupancy type is known for the speculative building. (See also shell building.)

standard calculation procedure: an energy simulation model and a set of input assumptions that account for the dynamic thermal performance of the building; it produces estimates of annual energy consumption for heating, cooling, ventilation, lighting and other uses.

sunscreen: an exterior shading device, generally located in a plane parallel to the fenestration system, that reduces solar gain through the fenestration.

system: a combination of equipment and/or controls, accessories, interconnecting means, and terminal elements by which energy is transformed so as to perform a specific function, such as HVAC, service water heating, or illumination.

tandem wiring: pairs of luminaires operating with one lamp in each luminaire powered from a single two-lamp ballast contained in the other luminaire.

task lighting: lighting that provides illumination for visual tasks and is directed to a specific surface or area.

task location: an area of the space where significant visual tasks are performed and where lighting is required above and beyond that required for general ambient use.

task-ambient lighting: a combination of task lighting and ambient lighting within an area such that the general level of ambient lighting is lower than the task lighting.

terminal element: the means by which the transformed energy from a system is finally delivered; i.e., registers, diffusers, lighting fixtures, faucets, etc.

thermal conductance, C: the constant time rate of heat flow through unit area of a body induced by a unit temperature difference between the surfaces, Btu/ft^2-h-^{0}F or Btu/h-^{0}F. It is the reciprocal of thermal resistance. (See thermal resistance.)

thermal mass wall insulation position:

(a) exterior insulation position: A wall having all or nearly all of its mass exposed to the room air with the insulation on the exterior of that mass.

(b) integral insulation position: a wall having mass exposed to both room and outside air, with substantially equal amounts of mass on the inside and outside of the insulation layer.

(c) interior insulation position: a wall not meeting either of the above definitions, particularly a wall having most of its mass external to an insulation layer.

thermal mass: materials with mass heat capacity and surface area capable of affecting building loads by storing and releasing heat as the interior and/or exterior temperature and radiant conditions fluctuate. (See also wall heat capacity.)

thermal resistance, R: the reciprocal of thermal conductance; 1/C as well as 1/h, 1/U, h-ft^2-^{0}F/Btu.

thermal transmittance, overall, U_o: the gross overall (area weighted average) coefficient of heat transfer from air to air for a gross area of the building envelope, Btu/h-ft^2-^{0}F. The U_o value applies to the combined effect of the time rate of heat flows through the various parallel paths, such as windows, doors, and opaque construction areas, comprising the gross area of one or more building envelope components, such as walls, floors, or roof/ceiling.

thermal transmittance, U: the overall coefficient of heat transfer from air to air. It is the time rate of heat flow per unit area under steady conditions from the fluid on the warm side of the barrier to the fluid on the cold side,

per unit temperature difference between the two fluids, Btu/h-ft^2-^{0}F.

thermostat: an automatic control device responsive to temperature.

total lighting power allowance: the calculated lighting power allowed for the interior and exterior space areas of a building or facility.

unconditioned space: space within a building that is not a conditioned space. (See conditioned space)

unenclosed space: see enclosed space.

unit lighting power allowance: the allotted lighting power for each individual building type in W/ft^2.

unit power density, UPD: the lighting power density, in W/ft^2, of an area/activity.

unitary cooling equipment: one or more factory-made assemblies which normally include an evaporator or cooling coil, a compressor and condenser combination, and may include a heating function as well.

unitary heat pump: one or more factory-made assemblies which normally include an indoor conditioning coil, compressor(s) and outdoor coil or refrigerant-to-water heat exchanger, including means to provide both heating and cooling functions.

unlisted space: the difference in area between the gross lighted area and the sum of all listed spaces.

variable air volume (VAV) **HVAC system**: HVAC systems that control the dry-bulb temperature within a space by varying the volume of supply air to the space.

ventilation air: that portion of supply air which comes from outside (outdoors) plus any recirculated air that has been treated to maintain the desired quality of air within a designated space. (See also outdoor air.)

ventilation: the process of supplying or removing air by natural or mechanical means to or from any space. Such air may or may not have been conditioned.

vertical glazing: glazing (such as a window) which stands within 30^0 of vertical. Glazing which lies within 60^0 of horizontal is considered horizontal glazing.

visual task: conventionally designates those details and objects that must be seen for the performance of a given activity, and includes the immediate background of the details or objects.

wall heat capacity: the sum of the products of the mass of each individual material in the wall per unit area of wall surface [lb/ft^2] times its individual specific heat, [Btu/lb-^{0}F]. Units [Btu/ft^2-^{0}F]. (See thermal mass.)

walls: those portions of the building envelope including all opaque surfaces, fenestration and doors, which are vertical or tilted at an angle of 60^0 from horizontal or greater. (See also *roof*.)

watt, W: A unit of power. One watt is produced when one ampere, flows at an emf of one volt (unity power factor). (See also power.)

west: surfaces that face within 45^0 from true west.

window-to-wall ratio (WWR): The ratio of fenestration area to gross exterior wall area.

working space: includes offices, assembly rooms, classrooms, showrooms and similar spaces designed for

extended human occupancy. Not included are bathrooms, hallways, storage closets, mechanical rooms, garages and portions of warehouses not used for regular human occupancy. See habitable space.

zone: a space or group of spaces within a building with heating, cooling, and/or lighting requirements sufficiently similar so that desired conditions can be maintained throughout by a single controlling device.

Table 3-1
Abbreviations, Acronyms and Symbols

A_o	Total building floor area
A_{of}	Area of all fenestration including glazed portions, sash, frames, etc.
$A_{wall,roof,etc.}$	Area of a specific building component
ACP	Alternative Component Package
AF	Area Factor
AFUE	Annual Fuel Utilization Efficiency
AHAM	Association of Home Appliance Manufacturers
AIA	American Institute of Architects
ALP	Adjusted Lighting Power
ANSI	American National Standards Institute
ARI	Air-Conditioning and Refrigeration Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
$BECON_{mi}$	Budget energy consumption by month (m) and fuel type (i)
BEF	Ballast Efficacy Factor
BF	Ballast Factor
BLPL	Building Lighting Power Limit
C	Thermal conductance
C_c	Cooling Criteria
C_1	External wall cooling compliance value for orientation
CDD_{XX}	Cooling degree days, to a base temperature XX°F
CDD_{50}	Cooling degree-days base 50 °F
CDD_{65}	Cooling degree-days base 65 °F
CDH_{XX}	Cooling degree hours, to a base temperature XX°F
CDH_{80}	Cooling degree-hours base 80 °F
CEEU	Cost Equivalent Energy Units
CFM	Cubic feet per minute
CLP	Connected Lighting Power
CMC	Mass correction factor for cooling
COP	Coefficient of Performance
CTI ATC	Cooling Tower Institute Acceptance Test Code
CTI STD	Cooling Tower Institute Standard for Certification of Water Cooling tower Thermal Performance
CU	Coefficient of Utilization
db	drybulb (temperature)
$DECON_{mi}$	Design energy consumption by month (m) and fuel type (i)
DECOS	Annual design energy cost

Table 3-1 (continued)
Abbreviations, Acronyms and Symbols

DOE	U. S. Department of Energy
DR	Average daily temperature range for warmest month
DS	Daylighting Sensing Controls
Ep	Equipment power, for envelope calculations
EA	Effective aperture fraction for zone under consideration
ECB	Annual energy cost budget
$ECOS_{mi}$	Energy cost by month (m) and fuel type (i)
EER	Energy Efficiency Ratio
ELPA	Exterior Lighting Power Allowance
fc	footcandles
F_c	Wall area (opaque and glazed) of zone under consideration divided by total wall area (opaque and glazed) of all zones
F_f	Framing adjustment factor for sash, frames, etc. in fenestration assembly
of	Opaque wall area of zone under consideration divided by total wall area (opaque and glazed) of all zones
FLPL	Facility Lighting Power Limit
G	Effective internal gain (W/ft^2) for zone under consideration
GLA	Gross lighted area
H	Height from bottom of window to bottom of external shading projection
Hl	External wall heating compliance value for orientation
HC	Heat Capacity
H.I.	Hydronics Institute.
HID	High Intensity Discharge
HMC	Mass correction factor for heating
HP	Horsepower
HPS	High Pressure Sodium
HSPF	Heating Seasonal Performance Factor
HVAC	Heating, Ventilating and Air Conditioning
IEEE	Institute of Electrical and Electronics Engineers
IEPA	Interior Equipment Power Allowance
IES	Illuminating Engineering Society of North America
ILPA	Interior Lighting Power Allowance
IP	inch-pound units
IPLV	Integrated Part Load Value
IRF	Internal Reflecting Film
ISO	International Standards Organization
ISSC	Internal Shading System Coefficient
K_d	Daylighting adjustment factor
K_h	Daylighting factor
kVA	Kilovolt Amperes
L_p	Interior lighting power, for envelope calculations
LPB	Lighting Power Budget
LPCC	Lighting Power Control Credit
M_c	Mass correction factor
MG	Milligrams

Table 3-1 (continued)
Abbreviations, Acronyms and Symbols

NAECA	National Appliance Energy Conservation Act
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
OH	Overhang Multiplier
OLA	Occupant Load Adjustment
P_b	Base Unit Power Density
P_d	External shading projection depth
PAF	Power Adjustment Factor
PF	External shading projection factor
PTAC	Packaged terminal air-conditioner
r	Thermal resistivity
R	Thermal resistance
R_c	The fraction of total lighting wattage within 15 ft of an exterior wall on a given orientation that is controlled by automatic lighting controls. For example, if all such lights are so controlled, $R_c = 1$
R_e	The equivalent resistance of the element containing the parallel heat flow path
R_h	Thermal resistance of insulation for heated slab on grade
R_i	The resistance of the ith envelope assembly
r_t	Total resistivity of envelope assembly
R_u	Thermal resistance of insulation for unheated slab on grade
RAC	Room air conditioner
RHGF	Roof Heat Gain Factor
RLA	Required lighting adjustment
RLPA	Roads/Grounds Lighting Power Allowance
S_{ec}	External shading projection factor adjustment, cooling
SC	Shading Coefficient
SC_{ext}	Shading coefficient of exterior shading device
SC_{glz}	Shading coefficient of glazing
SC_x	Same as SC, but excludes effect of external shading projections
SCOP	Seasonal Coefficient of Performance
SEER	Seasonal Energy Efficiency Ratio
SI	Systeme International (metric units)
SWH	Service water heating
TEFC	Totally enclosed, fan cooled
U_g	Thermal transmittance of glazed portion of fenestration assembly
U_i	Thermal transmittance of each individual element of the envelope assembly
U_o	Overall thermal transmittance
U_{of}	Overall thermal transmittance of fenestration assembly
U_{ofl}	Overall thermal transmittance of floor assembly
U_{or}	Overall thermal transmittance of roof assembly
U_{ow}	Overall thermal transmittance of opaque wall
ULPA	Unit Lighting Power Allowance

UOC	Area average U-value of wall (opaque and glazed, evaluated under cooling conditions) in zone under consideration
UOH	Area average U-value of wall (opaque and glazed, evaluated under heating conditions) of zone under consideration
UPD	Unit Power Density
VAV	Variable air volume
VS	Annual average daily incident solar energy on facade under consideration, Btu/ft^2/day
VSEW	Annual average daily incident solar energy on east or west orientation, Btu/ft^2/day
VSN	Annual average daily incident solar energy on north orientation, Btu/ft^2/day
VSS	Annual average daily incident solar energy on south orientation, Btu/ft^2/day
VT	Transmittance of glazing material over visible portion of solar spectrum
W	Watts
Wh	Window height
WC	Water column
WC_c	External wall cooling criteria
WWR	Window wall ratio
WWR_c	Window wall ratio, cooling

(Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001; Ord. No. 810, December 1, 2003)

Sec. 12-6.8 Compliance.

(a) Purpose. The purpose of this Section is to prescribe the methods by which compliance with this Article can be demonstrated.

(b) Scope. This Section applies to all buildings for which compliance with this Article is required.

(c) General. This Article provides different paths by which compliance can be determined.

The Prescriptive criteria may be used to determine compliance with the minimum amount of effort. In addition, the Systems Performance criteria are available for the lighting (Sec. 12-6.10) and envelope (Sec. 12-6.11) portions of the Article. These criteria should be used when more innovative design or flexibility is desired.

The Building Energy Cost Budget method (Sec. 12-6.16) should be used when the most innovative design concepts are being considered or when the proposed design meets the basic requirements but fails to meet either the Prescriptive or Systems Performance criteria.

(d) Requirements.

(1) Basic requirements.

All building designs shall meet the requirements of Sections 12-6.9(c), 12-6.10(c), 12-6.11(c), 12-6-12(c),

12-6.13(c) and 12-6.14(c) of this Article.

(2) Prescriptive and/or system performance criteria.

In addition to the basic requirements of subsection (1), either the requirements of this subsection, the Prescriptive and/or System Performance criteria, or of subsection (3), the Cost Budget Method, shall be met.

(A) The lighting design shall meet either the Prescriptive Criteria of Section 12.6-10(d) or the Systems Performance Criteria of Section 12-6.10(e);

(B) The roof of the building envelope shall meet the Prescriptive Criteria of Section 12-6.11(d). Walls may meet either the Prescriptive Criteria of Section 12-6.11(d) or the Systems Performance Criteria of Section 12-6.11(e);

(C) The heating, ventilating and air conditioning systems design shall meet the Prescriptive Criteria of Section 12-6.12(d); and

(D) The service water heating systems and equipment design shall meet the Prescriptive Criteria of Section 12-6.14.

(3) Building energy cost budget method.

The Building Energy Cost Budget Method (Section 12-6.16) may be used instead of the Prescriptive and/or System Performance Criteria of subsection (d)(2).

(4) Plans and specifications.

Plans, specifications and necessary computations shall be submitted to indicate compliance with the Article. Plans, specifications and necessary computations for work to comply with this Article shall be prepared, designed, approved and stamped by a duly registered licensed professional as required by Chapter 464 of the Hawaii Revised Statutes, for the following work:

(A) All electrical power, equipment and lighting requirements shall be done by an electrical engineer.

(B) Heating, ventilating, air conditioning systems and equipment, service water heating systems and equipment shall be done by a mechanical engineer.

(C) For the building envelope, energy management and building energy cost budget method shall be done by an architect or mechanical engineer.

EXCEPTION:A duly registered professional architect may prepare, design, approve and stamp the following plans, specifications and necessary computations when any of the following conditions are complied with.

(1) Lighting and/or electrical plans when the total load of all electrical work shall not exceed 35 kilo-volt amperes.

(2) Mechanical plans when the building or structure is heated, ventilated or equipped and cooled with any air conditioning systems with a total capacity of not note than 60,000 BTU/Hr.

Specifications and necessary computations need not be submitted when authorized by the Building Official.

(5) Information on plans and specifications.

The plans and specifications shall show in sufficient detail all pertinent data and features of the building and the equipment and systems as herein governed including but not limited to: exterior envelope component materials, U-values of the respective elements including insulation, R-values of insulating materials, size and type of apparatus and equipment, equipment and system controls, and other

pertinent data to indicate compliance with the requirements of this Article.

The plan shall include the following certification by the responsible engineer or architect that the design conforms to this Article.

COUNTY OF KAUAI
CHAPTER 12, KAUAI COUNTY BUILDING CODE
KAUAI COUNTY CODE 1987, AS AMENDED

ARTICLE 6 - ENERGY CONSERVATION

I certify that the design is in conformance with the Building Efficiency Standards pertaining to:

Section 12.6-9 Electrical Power
Section 12.6-10 Lighting
Section 12.6-11 Building Envelope
Section 12.6-12 HAVE (Heating, Ventilation and Air Conditioning) System
Section 12.6-14 HAVE (Heating, Ventilation and Air Conditioning) Equipment
Section 12.6-15 Energy Management
Section 12.6-16 Building Energy Cost Budget Method

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

Include only those sections that the signatory is responsible for. This block shall be on the first sheet of the pertinent plan, e.g. architectural, electrical, mechanical. The above may be submitted separately to the Building Official in letter including the identification of the building.

For buildings or structural that complies with the exception set forth in Section 12-6.8(d)(4), the plans shall include the following certification by the responsible architect that the design conforms to this Article.

COUNTY OF KAUAI
CHAPTER 12, BUILDING CODE
KAUAI COUNTY CODE 1987, AS AMENDED

ARTICLE 6 - ENERGY CONSERVATION

I certify that the design is in compliance with the Building Energy Efficiency Standards.

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

This block shall be on the title or first sheet of the project plans. The above may be submitted in letter form to the Building Official with the project adequately identified.

(6) Violations and Penalties. For violations and penalties, see Section 103, Article 2. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001; Ord. No. 810, December 1, 2003)

Sec. 12-6.9 Electric Power.

(a) Purpose. This Division describes requirements for check-metering of electrical distribution systems, efficiency of electric motors, and documentation of electrical distribution systems.

(b) Scope.

(1) This Section applies to all building electrical systems except required emergency systems. Similar requirements for other types of energy are given in Sections 12-6.13 and 12-6.15.

(2) Exception.

This Division shall not apply to low-rise residential buildings.

(c) Basic Requirements.

(1) Electrical distribution system.

The design of building electrical distribution systems whose connected electric load is over 250 kVA shall include provisions for check-metering of electrical energy consumption.

(A) Electrical power feeders.

(i) The electrical power feeders for each facility for which provision for check-metering is required shall be subdivided in accordance with the following categories:

(1) Lighting and receptacle outlets;

(2) HVAC systems and equipment;

(3) SWH, elevators, and special-occupant equipment or systems of more than 20 kW such as computer rooms,

kitchens, printing equipment, and baling presses.

(4) Exception.

Ten percent or less of the loads on a feeder may be from another usage category.

(B) In multiple-tenant buildings, provision to permit check-metering of the tenant load shall be provided for those tenants having a connected load of 100 kVA or more. HVAC or SWH systems shared by tenants in common need not meet this tenant check-metering requirement but shall be separately metered as required.

(C) The feeders for each category in subdivision (A) shall contain provisions for portable or permanent check-metering.

(D) The minimum acceptable arrangement for compliance with subsection (1) shall provide a safe method for access by qualified persons to the enclosures through which feeder conductors pass, and shall provide sufficient space to attach clamp-on or split-core current transformers. These enclosures may be separate compartments or combined spaces with electrical cabinets serving another function. Dedicated enclosures so furnished shall be identified as to measuring function available. A preferred arrangement would include kWh meters and demand registers (conforming to ANSI C 12.1 for mechanical type and ANSI C 12.166-1991 for electronic type) or a means to transmit such information to the building energy management control system. These points of measurement may be centrally located or distributed through the building, as appropriate.

(2) Electrical motors.

(A) Design A & B squirrel cage, foot mounted, T-frame induction motors of 1 hp or more having synchronous speeds of 3600, 1800, 1200 and 900 rpm expected to operate more than 500 hours per year shall have a nominal full-load motor efficiency no less than that shown in Table 5-1 or shall be classified under the National Electric Manufacturers Association's Standard as "energy efficient". Other motor types are exempted from the efficiency requirements of this standard.

(B) Exceptions.

(i) Motors used in systems designed to use more than one speed of a multi-speed motor; and

(ii) Motors used as a component of the equipment meeting the minimum equipment efficiency requirements of Sec. 12-6.13 provided that the motor input is included when determining the equipment efficiency.

(3) Operation and maintenance information.

A manual which provides basic data relating to the design, operation, and maintenance of the building electrical distribution system shall be provided to building owners. The manual shall include:

(A) A single-line diagram of the "as-built" building electrical distribution system;

(B) Schematic diagrams of electrical control systems (other than HVAC, which are covered in Sec. 12-6.12 elsewhere); and

(C) Manufacturer's operational and maintenance information for electrical equipment.

(4) Energy conservation in electrical distribution systems.

Power Factor. The power factor of the overall electrical distribution system in a building shall be not less than 90 percent under rated design installed load of the building, either by utilizing equipment design or by the use of power factor corrective devices. The corrective methods shall be based upon an engineering evaluation of each distribution system.

(5) Distribution transformers.

(A) Low-voltage dry-type distribution transformers shall meet the minimum efficiency requirements listed in Table 5-2. These transformers are air-cooled units.

(B) Transformers exempted from the efficiency requirement of this subsection include any of the following:

(1) Transformers with rated output capacity less than 15 kVA;

(2) Drive transformers;

(3) Rectifier and converter transformers;

(4) Autotransformers;

(5) Sealed and non-ventilated transformers;

(6) Welding transformers;

(7) Transformers with tap ranges greater than 10%;

(8) Testing transformers;

(9) Furnace transformers; and

(10) Instrument transformers.

Table 5-1
Minimum Acceptable Nominal Full-Load Motor Efficiency
For Single Speed Polyphase Motors

HP	500 - 1000 hrs/yr	More than 1000 hrs/yr			
	(all types)	3600 rpm (2 pole)	1800 rpm (4 pole)	1200 rpm (6 pole)	900 rpm (8 pole)
1	75.5	75.5	82.5	80.0	74.0
1.5-4	78.5	82.5	84.0	84.0	77.0
5-9	84.0	85.5	87.5	87.5	85.5
10-19	85.5	88.5	89.5	89.5	88.5
20-49	88.5	90.2	91.0	90.2	89.5
50-99	90.2	92.4	93.0	93.0	91.7
100-124	91.7	93.0	94.1	94.1	93.0
125 or greater	92.4	93.6	94.5	94.1	93.6

Table 5-2
Standard for Distributions Transformers

Single Phase		Three Phase	
Rated Power Output kVA	Minimum Efficiency %	Rated Power Output kVA	Minimum Efficiency %
15	97.7	15	97.0
25	98.0	30	97.5
37.5	98.2	45	97.7
50	98.3	75	98.0
75	98.5	112.5	98.2
100	98.6	150	98.3
167	98.7	225	98.5
250	98.8	300	98.6
333	98.9	500	98.7
-	-	750	98.8
-	-	1000	98.9

(Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001; Ord. No. 810, December 1, 2003)

Sec. 12-6.10 Lighting.

(a) Purpose. Sec. 12-6.10 sets power limits, control requirements and lamp efficiency requirements for electric lighting.

(b) Scope.

(1) The rooms, spaces and areas covered by the lighting requirements in Sec. 12-6.10 include:

(A) Interior spaces of buildings;

(B) Building exteriors and exterior areas such as entrances, exits, loading docks; and

(C) Roads, grounds, parking, and other exterior areas where lighting is required and is energized through the building electrical service.

(2) Exceptions.

Rooms, spaces, areas, and lighting equipment exempt from the lighting requirements in Sec. 12-6.10 include:

(A) Lighting for dwelling units other than hotels and motels;

(B) Outdoor activities such as manufacturing, commercial greenhouses, and processing facilities;

(C) Lighting power for theatrical productions, television broadcasting, audio-visual presentations, and those portions of entertainment facilities such as stage areas in hotel ballrooms, night clubs, discos, and casinos, where lighting is an essential technical element for the function performed;

(D) Specialized luminaires for medical and dental purposes;

(E) Outdoor athletic facilities;

(F) Display lighting required for art exhibits or displays in galleries, museums and monuments;

(G) Exterior lighting for public monuments;

(H) Special lighting needs for research;

(I) Lighting to be used solely for indoor plant growth during the hours of 10:00 p.m. to 6:00 a.m.;

(J) Emergency lighting that is automatically OFF during normal building operation;

(K) High risk security areas identified by local ordinances or regulations or by security or safety officials as requiring additional lighting;

(L) Spaces specifically designed primarily for use by the visually impaired or hard of hearing (lip-reading) and by senior citizens;

(M) Lighting for signs; and

(N) Store-front, exterior-enclosed display windows in retail facilities.

(3) The lighting requirements in this Article shall apply to new lighting systems installed in existing buildings when such lighting systems are for an entire floor or an otherwise definable area larger than 1,000 ft^2.

(c) Basic Requirements. This section establishes the maximum power allowance and control requirements for interior and exterior illumination systems for new lighting systems.

(1) Lighting power allowance.

A building or facility total lighting allowance consists of the exterior lighting power allowance (ELPA), and the interior lighting power allowance (ILPA).

ELPA shall be calculated using the exterior lighting unit power allowances in Table 6-1. ILPA shall be calculated in accordance with the Prescriptive criteria in Section 12-6.10(d) or the System Performance criteria in Section 12-6.10(e).

(A) Compliance. A building shall be considered in compliance with subsection (a) if the following conditions are met:

(i) The exterior lighting power to be installed is not greater than the ELPA, based on Table 6-1; and

(ii) The interior lighting power to be installed is not greater than the ILPA, based on either the Prescriptive criteria in Section 12-6.10(d) or the System Performance criteria in Section 12-6.10(e).

(B) Tradeoffs between ILPA and ELPA are not allowed. Tradeoffs of the interior lighting power budgets (LPB) among interior spaces (see Section 12-6.10(e)) are allowed as long as the CLP of interior lighting does not exceed the ILPA. Tradeoffs of the exterior lighting power budgets among exterior areas are allowed as long as the CLP of exterior lighting does not exceed the ELPA.

(C) When determining lighting power compliance, the amount of power required for lights automatically controlled using functions such as daylight sensing control, occupancy sensor, lumen maintenance control, and programmable timing control may be reduced by a power adjustment factor (PAF) determined in accordance with subsection (c)(2).

(D) Compliance for a multi-building facility. The total lighting power allowance for each building in a multi-building facility shall be calculated separately. Tradeoffs among the buildings shall be restricted as follows:

(i) Tradeoffs of ELPA are allowed;

(ii) Tradeoffs of ILPA are not allowed; and

(iii) Tradeoffs between ILPA and ELPA are not allowed.

(E) Luminaire Wattage. Luminaire wattage incorporated into the installed interior lighting power shall be determined in accordance with the following criteria:

(i) The wattage of incandescent or tungsten-halogen luminaires with medium screw base sockets and not containing permanently installed ballasts shall be the maximum labeled wattage of the luminaire.

(ii) The wattage of luminaires with permanently installed or remotely installed ballasts shall be the operating input wattage of the specified lamp/ballast combination based on values from manufacturers catalogs of values from independent testing lab reports.

(iii) The wattage of line-voltage lighting track and plug in busway that allow the addition and/or relocation of luminaires

without altering the wiring of the system shall be the specified wattage of the luminaires included in the system with a minimum of 30 W/lin ft (98W/lin m).

(iv) The wattage of low-voltage lighting track, cable conductor, rail conductor, and other flexible lighting systems that allow the addition and/or relocation of luminaires without altering the wiring of the system shall be the specified wattage of the transformer supplying the system.

(v) The wattage of all other miscellaneous lighting equipment shall be the specified wattage of the lighting equipment.

(F) Exterior Building Grounds Lighting. All exterior building grounds luminaires which operate at greater than 100 watts shall contain lamps having a minimum efficacy of 60 lm/W unless the luminaire is controlled by a motion sensor or the application is otherwise exempted from the code.

Table 6-1

Exterior Lighting Unit Power Allowances

Area Description	Allowance
Exit (with or without canopy)	20 W/Lin. Ft of door opening
Entrance (without canopy) Entrance (with canopy)	30 W/Lin. ft of door opening
High Traffic (retail, hotel, Airport, theater, etc.)	10 W/ft^2 of canopied area
Light Traffic (hospital, office, school, etc.)	4 W/ft^2 of canopied area
Loading area	0.40 W/ft^2
Loading door	20 W/Lin. ft. of door opening
Building exterior surfaces/facades of surface to be illuminated	0.25 W/ft^2
Storage and non-manufacturing work areas	0.20 W/ft^2
Other activity areas for casual use, such as picnic Grounds, gardens, parks, and other landscaped areas	0.10 W/ft^2
Private driveways and walkways	0.10 W/ft^2
Public driveways and walkways	0.15 W/ft^2
Private parking lots	0.12 W/ft^2
Public parking lots	0.10 W/ft^2
Outdoor retail (auto sales, etc.)	0.40 W/ft^2
Service station, under canopy	0.60 W/ft^2

(2) Lighting controls.

All lighting systems except those required for emergency or exit lighting shall be provided with manual, automatic or programmable controls.

(A) Controls for enclosed spaces.

(i) Each space enclosed by walls or ceiling-height partitions shall be provided controls which, together or singly, are capable of turning off all lights within that space.

(ii) Exception.

Continuous lighting required for security purposes shall be exempted from this requirement.

(B) Minimum Number of Lighting Control Points. Each space enclosed by walls or ceiling-height partitions shall be provided with a minimum of one ON-OFF lighting control and in addition one control point for each task location or one control point for each group of task locations within an area of 450 ft^2 or less.

(C) Minimum Number of Lighting Controls. Once the number of control points has been determined in accordance with subdivision (B), the minimum number of controls required shall be determined using Table 6-2 which lists the types of lighting controls and the equivalent number of control points they represent. However, the minimum number of controls required shall not be less than one for each 1500 W of connected lighting power (CLP).

Table 6-2
Control Types and Equivalent Control Points

Type of Control	Equivalent Number of Control Points
Manually operated on/off switch	1
Occupancy sensor	2
Timer - Programmable from the space being controlled	2
Three level, including off, step control or pre-set dimming	2
Four level, including off, step control or pre-set dimming	3
Automatic or continuous dimming	3

(D) Controls provided for task areas, if readily accessible, may be mounted as part of the task lighting luminaire.

(E) Controls controlling the same load from more than one location shall not be credited as increasing the number of controls to meet the requirements of subdivision (C).

(F) Exceptions to (A) through (E).

(i) Lighting control requirements for spaces which must be used as a whole may be

controlled by fewer controls, but not fewer than three control points. Examples of such spaces include public lobbies of office buildings, hotels, and hospitals; retail and department stores; warehouses; and storerooms and service corridors under centralized supervision. Lighting in such spaces shall be controlled in accordance with the work activities; and

(ii) The required number of lighting control points may be reduced by lowering the allowable lighting power by 70 watts for each control point reduction.

(G) Control Accessibility.

(i) All lighting controls shall be located so as to be readily accessible to personnel occupying or using the space.

(ii) Exceptions.

The following lighting controls may be centralized in remote locations:

(1) Lighting controls for spaces which must be used as a whole;

(2) Automatic controls;

(3) Programmable controls;

(4) Controls requiring trained operators; and

(5) Controls for safety hazards and security.

(H) Hotel and motel guest rooms, excluding bathrooms, shall have one or more master switches at the main entry door that turn off all permanently wired lighting fixtures and switched receptacles. For multiple-room hotel suites, switches at the entry of each room, in lieu of the switch at the main door, will be acceptable to meet these requirements.

(I) Exterior lighting not intended for 24-hour continuous use shall be automatically switched by timer, photocell or a combination of timer and photocell. Timers shall be of the automatic type or otherwise capable of adjustment for seven days and for seasonal daylight schedule variations. All time-switches shall be equipped with back-up provisions to keep time during power outage of at least four hours.

(J) All luminaires located so that more than half their light output is directed into daylighted zones beneath skylights shall either be controlled by daylight sensing controls or be switched independently of luminaires in non-daylighted zones.

(3) Lighting power control credits

(A) Lighting Power Control Credit (LPCC). When determining compliance of the actual design with the lighting power allowance established by

either Section 12-6.10(d) or 12-6.10(e), the connected lighting power (CLP) for lights automatically controlled by occupancy sensing, daylight sensing control, lumen maintenance control, or programmable timing control, may be reduced by subtracting control credits on a specific area-by-area basis. This credit is termed the lighting power control credit (LPCC) and shall be determined in accordance with Equation 6-1:

Equation 6-1
LPCC = CLP x PAF

where

LPCC = Lighting power control credit [W]

CLP = Connected lighting power for the luminaires controlled by the automatic control device [W]

PAF = Power Adjustment Factor

The adjusted lighting power (ALP) is then equal to CLP X LPCC.

(B) Power Adjustment Factor (PAF). When used, the power adjustment factor shall be applied as specified in Table 6-3 and shall meet the following criteria:

(i) The power adjustment factor shall be limited to the specific area controlled by the automatic control device;

(ii) Only one power adjustment factor may be used for each building space or luminaire, and 50% or more of the controlled luminaire shall be within the applicable space to qualify for the PAF;

(iii) Controls shall be installed in series with the lights and in series with all manual switching devices in order to qualify for the PAF;

(iv) When sufficient daylight is available, daylight sensing controls shall be capable of reducing electrical power consumption for lighting, continuously or in steps, to 50% or less of maximum power consumption;

(v) Daylight sensing controls shall control all luminaires to which the power adjustment factor is applied and that directa minimum of 50% of their light output into the daylight zone;

(vi) Programmable timing controls used for credit in conjunction with Table 6-3 shall be capable of:

(1) Programming different schedules for occupied and non-occupied days;

(2) Ready accessibility for temporary override by occupants of individual zones; and

(3) Keeping time during power outages for a minimum of four hours.

Table 6-3
Power Adjustment Factor (PAF)

Automatic Control Device(s)	PAF
(1) Daylight Sensing controls (DS), continuous dimming	0.30
(2) DS, multiple step dimming	0.20
(3) DS, ON/OFF	0.10
(4) DS continuous dimming and programmable timing	0.35
(5) DS multiple step dimming and programmable timing	0.25
(6) DS ON/OFF and programmable timing	0.15
(7) DS continuous dimming, programmable timing and lumen maintenance	0.40
(8) DS multiple step dimming, programmable timing and lumen maintenance	0.30
(9) DS ON/OFF, programmable timing and lumen maintenance	0.20
(10) Lumen maintenance	0.10
(11) Lumen maintenance and programmable timing control	0.15
(12) Programmable timing control	0.15
(13) Occupancy sensor (storage)	0.30
(14) Occupancy sensor (other spaces)	0.30
(15) Occupancy sensor and DS, continuous dimming	0.40
(16) Occupancy sensor and DS, multiple step dimming	0.35
(17) Occupancy sensor and DS, ON/OFF	0.35
(18) Occupancy sensor, DS continuous dimming and lumen maintenance	0.45
(19) Occupancy sensor, DS multiple step dimming and lumen maintenance	0.40
(20) Occupancy sensor, DS ON/OFF and lumen maintenance	0.35
(21) Occupancy sensor and lumen maintenance	0.35
(22) Occupancy sensor and programmable timing control	0.35

(4) Fluorescent lamp ballasts.

(A) Fluorescent lamp ballasts which have all of the following characteristics shall meet or exceed the minimum ballast efficacy factor (BEF) as shown in Table 6-4:

(i) Operate at nominal input voltages of 120 or 277 volts;

(ii) Input frequency of 60 Hz;

(iii) Maximum lamp operating current less than 1000 milliamperes;

(iv) Used to operate one of the following lamp types:

(1) One or two 4-ft, nominal 40W, rapid start lamps;

(2) Two 8-ft, nominal 75W, slimline lamps;

(3) Two 8-ft, nominal 110W, high-output rapid-start lamps;

(v) Not specifically designed for starting at temperatures below 40°F; and

(vi) Not specifically designed for use with dimming controls.

Table 6-4
Fluorescent Ballast Efficacy Factor (BEF)

Ballast Characteristics	Minimum Ballast Efficacy Factor
One lamp, 4 ft, nominal 40W, rapid start	1.805
Two lamp, 4 ft, nominal 40W, rapid start, 120V	1.060
Two lamp, 4 ft, nominal 40W, rapid start, 277V	1.050
Two lamp, 8 ft, nominal 75W, slimline	0.570
Two lamp, 8 ft, nominal 110W, high output, rapid start	0.390

(B) The ballast efficacy factor (BEF) shall be calculated in accordance with Equation 6-2:

Equation 6-2
BEF = BF / Power Input

where:

BEF = Ballast Efficacy Factor

BF = Ballast Factor, expressed as a percent, such as 95

Power Input = Total wattage of combined lamps and ballasts [W]

(C) Tests for ballast factor and power input shall be in accordance with ANSI Standard C82.2-1984, Method of Measurement for Fluorescent Lamps Ballasts, using "Standard" F40T12 40W, F96T12 75W or F96T12HO 110W lamps.

(D) Ballasts that do not have all of the characteristics listed in subsection (A) are not required to meet the ballast efficacy factors in Table 6-4 and may be used as required.

(E) Tandem wiring.

(i) One-lamp or three-lamp fluorescent luminaires that are recess-mounted within 10 ft center-to-center of each other, or pendant mounted or surface mounted within 1 ft of each other, and within the same room, shall be tandem-wired to eliminate unnecessary use of single-lamp ballasts.

(ii) Exception.

Three-lamp ballasts may be used.

(F) Power factor.

(i) Ballasts shall have a power factor of 90% or greater.

(ii) Exceptions.

(1) Ballasts for circline and compact fluorescent lamps and for low-wattage

high-intensity discharge lamps of 100 watts or less.

(2) Dimming ballasts.

(5) Illuminated Exit Signs. The input power of illuminated exit signs shall be no greater than 5 watts per face.

(d) Prescriptive Criteria.

These Prescriptive criteria shall be used in addition to the basic requirements specified in Section 12-6.10(c). The System Performance criteria listed in Section 12-6.10(e) may be used instead of Section 12-6.10(d).

(1) Purpose.

Section 12-6.10(d) provides a Prescriptive procedure for determining the interior lighting power allowance (ILPA) for illumination systems installed in new buildings.

(2) General.

This method for compliance prescribes a maximum allowable unit lighting power allowance (ULPA) for interior lighting by building type as listed in Table 6-5.

(3) Interior lighting power allowance Calculations.

(A) ILPA calculations shall be based on the primary occupancy for which the building is intended. The total CLP in a building, including both permanently-installed lighting plus supplemental or task-related lighting provided by movable or plug-in luminaires, shall not exceed the value of the ULPA in Table 6-5 for the specified building space use multiplied by the gross lighted area (GLA) provided for that use:

Equation 6-3

$$ILPA = (ULPA \times GLA) - (70 \times CPR)$$

where:

ILPA = interior lighting power allowance [W]

ULPA = unit lighting power allowance [W/ft^2]

GLA = gross lighted area [ft^2]

CPR = control points reduced per Exception in Section 12-6.10(c)(2)(F)(ii).

(B) Exception.

If 10% or more of the gross lighted area of the building is intended for multiple space activities such as parking, storage and retail space in an office building, then the lighting power for each type of space use shall be calculated based on the ULPA shown in the column under the gross lighted area of the total building

(see Table 6-5) and shall be summed to obtain the ILPA.

Table 6-5
Prescriptive Unit Lighting Power Allowance (ULPA), [W/ft^2]

Building Type or Space Activity	Year	0 to 2,000 ft^2	2,001 to 10,000 ft^2	10,001 to 25,000 ft^2	25,001 to 50,000 ft^2	50,001 to 250,000 ft^2	More than 250,000 ft^2
Food Service							
Fast Food, Cafeteria	1991	1.50	1.38	1.34	1.32	1.31	1.30
	1993	0.92	0.85	0.82	0.81	0.81	0.80
Leisure Dining, Bar	1991	2.20	1.91	1.72	1.65	1.57	1.50
	1993	1.60	1.56	1.52	1.48	1.44	1.40
Offices	1991	1.90	1.81	1.72	1.65	1.57	1.50
	1993	1.40	1.34	1.27	1.22	1.16	1.11
Retail[a]	1991	3.30	3.08	2.83	2.50	2.28	2.10
	1993	2.70	2.52	2.32	2.05	1.87	1.72
Mall Concourse							
Multi-store service	1991	1.60	1.58	1.52	1.46	1.43	1.40
	1993	0.69	0.68	0.65	0.63	0.61	0.60
Service Establishment	1991	2.70	2.37	2.08	1.92	1.80	1.70
	1993	2.81	2.03	1.78	1.65	1.54	1.46
Garages	1991	0.30	0.28	0.24	0.22	0.21	0.20
	1993	0.25	0.24	0.23	0.22	0.21	0.20
Schools							
Preschool, elementary	1991	1.80	1.80	1.72	1.65	1.57	1.50
	1993	1.33	1.33	1.27	1.22	1.16	1.11
Jr. High, High School	1991	1.90	1.90	1.88	1.83	1.76	1.70
	1993	1.40	1.40	1.39	1.35	1.30	1.26
Technical, Vocational	1991	2.40	2.33	2.17	2.01	1.84	1.70
	1993	1.77	1.72	1.60	1.49	1.36	1.26
Warehouse, Storage	1991	0.80	0.66	0.56	0.48	0.43	0.40
	1993	0.60	0.50	0.42	0.36	0.32	0.30

Notes
a. Includes general, merchandising and display lighting.

(e) System Performance Criteria.

These lighting System Performance criteria shall be used in addition to the basic requirements specified in Section 12-6.10(c). The Prescriptive criteria listed in Section 12-6.10(d) may be used instead of Section 12-6.10(e).

(1) Purpose.

Section 12-6.10(e) provides a System Performance procedure for determining the interior lighting power allowance (ILPA) for each space within the building.

or which may increase flood hazards in other areas. (Ord. No. 155, January 7, 1972; Sec. 15-1.1, R.C.O. 1976; Ord. No. 416, October 28, 1981; Ord. No. 630, July 16, 1993)

Sec. 15-1.2 General Provisions.

(a) Statutory Authority. This Article is enacted pursuant to the U.S. National Flood Insurance Act of 1968 (Public Laws 90-418 and 91-152), as amended, and the U.S. Flood Disaster Protection Act of 1973 (Public Law 93-234), as amended.

(b) Lands Subject to this Article. This Article shall apply to all areas of special flood hazards identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for the County of Kauai," dated December 9, 1994, September 30, 1995, and October 18, 2002, with accompanying Flood Insurance Rate Maps; and lands outside the identified special flood hazard areas encompassing and adjacent to a river, stream, storm water channel, outfall area, or other inland water or drainage facility determined by the County Engineer to be subject to special flood hazards. The different special flood hazard areas are as follows:

(1) Flood Fringe -- AE and AH Zones
(2) Floodway
(3) Coastal High Hazard (Tsunami) -- VE Zones
(4) General Flood Plain -- A, X and D Zones
(5) Land Adjacent to Drainage Facility
(6) "The Flood Insurance Study for the County of Kauai," dated March 4, 1987, September 30, 1995, and October 18, 2002 with the following Flood Insurance Rate Maps that are dated March 4, 1987 with panel numbers 0030C, 0035C, 0055C, 0070C, 0135C, 0201C, 0202C, 0203C, 0204C, 0185C, 0180C, and 0100C, dated September 30, 1995 with panel numbers 0130D, 0140D, 0152D, 0156D, 0157D, 0160D, 0186D, 0190D, 0191D, 0192D and 0194D, and dated October 18, 2002 with panel numbers 0030D, 0035D, 0045D, 0335D, and 0355D.

(c) Compliance; Effective Date. No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this Article and other applicable regulations.

This Article shall take effect on October 18, 2002.

(d) Other Laws and Regulations. All construction and improvements subject to this Article shall comply with other applicable laws and regulations including, but not limited to, the Comprehensive Zoning Ordinance, Building Code, Electrical Code, Plumbing Code, Subdivision Ordinance, and Grading Ordinance. This Article, designed to reduce flood losses, shall take precedence over any less restrictive, conflicting laws, ordinances, and regulations.

(e) Interpretation. In the interpretation and application of this Article, all provisions shall be:

(1) Considered as minimum requirements;
(2) Liberally construed in favor of the County; and

(3) Deemed neither to limit nor repeal any other powers granted under state statutes.

(f) Warning and Disclaimer of Liability. The degree of flood protection required by this Article is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This Article does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This Article shall not create liability on the part of the County of Kauai, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this Article or any administrative decision lawfully made thereunder. (Ord. No. 155, January 7, 1972; Sec. 15-1.1, R.C.O. 1976; Ord. No. 416, October 28, 1981; Ord. No. 630, July 16, 1993; Ord. No. 696, September 25, 1995; Ord. No. 788, August 13, 2002)

Sec. 15-1.3 Definitions.

Unless plainly evident from the context that a different meaning is intended, the words and terms used herein are only applicable to this Article and defined as follows:

"Base Flood" means the flood having a one percent (1.0%) chance of being equalled or exceeded in any given year, otherwise commonly referred to as the 100-year flood.

"Base Flood Elevation" means the water surface elevation of the base flood.

"Breakaway Walls" mean any type of walls, whether solid or lattice, and whether constructed of concrete, masonry, wood, metal, plastic or any other suitable building material which are not part of the structural support of the building and which are so designed as to breakaway, under abnormally high tides or wave action, without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system.

"Coastal High Hazard Area" means the area subject to high velocity waters, including but not limited to coastal and tidal inundation or tsunamis. The area is designated on a FIRM as Zone VE.

"County Engineer" means the County Engineer of the County of Kauai or his authorized representative.

"Development" means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, filling, grading or excavation operations.

"Existing Manufactured Home Park or Subdivision" means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

"Expansion to an Existing Manufactured Home Park or Subdivision" means the preparation of additional sites by

streets, and either final site grading or the pouring of concrete pads).

"Expansion to an Existing Manufactured Home Park or Subdivision" means the preparation of additional sites by

Table 8-1 - Overhang Multiplier Coefficients

Orientation	**a**	**b**
North	-0.440	0.123
East, West and South	-0.840	0.245

Table 8-2 - Sidefin Multiplier Coefficients

Orientation	**c**	**d**
North	-0.81	0.27
East	-0.51	0.13
South	-0.65	0.16
West	-0.61	0.16

The overhang and sidefin projection factors are calculated using the following equations.

Equation 8-6

$$OPF = A / B$$

Where:

OPF = Overhang Projection Factor.

A = Horizontal projection of overhang.

B = Height of overhang. The vertical distance between the bottom of the overhang and the bottom of the window.

Note: Overhangs shall extend the full width of the window to receive credit for shading.

Equation 8-7

$$SPF = A / B$$

Where:

SPF =Sidefin Projection Factor.

A =Sidefin depth, measured perpendicular to the window surface. If the left and right sidefins have different depths, then *A* is the average of the two depths.

B =Distance between sidefins. If the window width is less than the sidefin spacing, then the average of the distance between the left sidefin and the right edge of the window and the distance between the right sidefin and the left edge of the window may be used. The average provides a larger SPF and, therefore, a larger sidefin credit.

Note: Sidefins shall extend the full height of the window to receive credit for shading.

A single sidefin shall receive shading credit if, for window orientations between true north and either true east or west, the sidefin is on the south side of the window. Similarly, for windows facing between true south and east or west, a single sidefin is eligible for credit if it is on the north side of the window.

Table 8-3 - Overhang Multiplier, OHM

Overhang Projection Factor	North	East, West and South
0.0 - 0.1	1.00	1.00
0.1 - 0.2	0.96	0.92
0.2 - 0.3	0.92	0.84
0.3 - 0.4	0.88	0.77
0.4 - 0.5	0.84	0.70
0.5 - 0.6	0.81	0.64
0.6 - 0.7	0.78	0.58
0.7 - 0.8	0.75	0.53
0.8 - 0.9	0.73	0.48
0.9 - 1.0	0.70	0.44
1.0 - 1.1	0.68	0.40
1.1 - 1.2	0.66	0.37
1.2 - 1.3	0.65	0.34
1.3 - 1.4	0.64	0.32
1.4 - 1.5	0.62	0.30

Note: Equation 8-4 for OHM may be used to provide slightly greater credit for overhangs than the values in this table.

Table 8-4 - Sidefin Multiplier, SFM

Sidefin Projection Factor	Sidefin Multiplier			
	North		South	East
0.0 - 0.1	1.00	1.00	1.00	1.00
0.1 - 0.2	0.92	0.95	0.94	0.94
0.2 - 0.3	0.85	0.90	0.88	0.88
0.3 - 0.4	0.78	0.86	0.82	0.83
0.4 - 0.5	0.72	0.82	0.76	0.78
0.5 - 0.6	0.66	0.78	0.71	0.74
0.6 - 0.7	0.61	0.74	0.67	0.69
0.7 - 0.8	0.56	0.71	0.62	0.65
0.8 - 0.9	0.52	0.68	0.58	0.62
0.9 - 1.0	0.49	0.65	0.54	0.58
1.0 - 1.1	0.46	0.62	0.51	0.55
1.1 - 1.2	0.43	0.60	0.48	0.53
1.2 - 1.3	0.41	0.57	0.45	0.50
1.3 - 1.4	0.40	0.56	0.43	0.48
1.4 - 1.5	0.39	0.54	0.40	0.47

Note: Equation 8-5 for SFM may be used to provide slightly greater credit for sidefins than the values in this table.

(B) Exterior Shading Devices. Exterior louvers or exterior sunscreens shall be allowed for

compliance in the RSHG calculations in subsection (c)(4). In Equation 8-2 or Equation 8-3 an exterior shading device shall be described either by its shading coefficient (SC_{ext}) or by its overhang multiplier (OHM) or sidefin multiplier (SFM). Automatic or manually operable louvers shall be assumed to have an Overhang Projection Factor (for horizontal louvers) or Sidefin Projection Factor (for vertical louvers) of 1.0. Projection factors for fixed louvers and sunscreens shall be calculated as the ratio of louver width to louver spacing (see Equations 8-6 and 8-7).

(C) Interior Shading Devices. Interior shading devices shall be allowed for compliance with the RSHG requirements in accordance with Equations 8-2 or 8-3.

(5) Air leakage and comfort ventilation.

All residential buildings including hotel and motel guest rooms shall meet the requirements of subdivision (c)(5)(A) for Comfort Ventilation. In addition, conditioned spaces in residential buildings and hotel and motel guest rooms shall meet the requirements of subdivision (c)(5)(A) and the Air Leakage requirements of subdivision (c)(5)(B).

Conditioned spaces in commercial buildings shall comply with subdivision (c)(5)(B). Unconditioned spaces in commercial buildings shall comply with either subdivision (c)(5)(A) or subdivision (c)(5)(B).

(A) Comfort Ventilation.

(i) When compliance with this section is required under subsection (c)(5), then habitable spaces and working spaces shall meet the following requirements. Kitchens are exempt from this section.

(1) Louvers or door catches which allow doors to be held open shall be provided for interior doors. This requirement does not apply to hotel and motel guest room entry doors;

(2) A minimum of two operable openings to outside shall be provided on opposite or adjacent walls. Operable openings include operable windows, sliding glass doors, louvers and entry screen doors (if entry door is provided with door catches). For spaces with only one external wall, two windows on either side of a wing wall may be used; and

(3) The minimum total free area for ventilation in each space shall be equal to 12 percent of floor area. No more than 70 percent of the total free area may be placed on one wall. For spaces employing a wing wall, no more than 70 percent of the total free area may be placed on one side of the wing wall.

(ii) Exceptions

(1) Spaces with wiring provided for ceiling fans. In each space, a minimum of one ceiling fan outlet shall be provided for each 400 ft^2 of floor area. When more than one outlet is required within a space, the outlets shall be uniformly distributed throughout the room. Wiring shall enable wall-mounted fan controls;

(2) Hotel/motel guest rooms that are air conditioned;

(3) Spaces employing innovative natural ventilation designs which do not comply with this section, but which can be shown through analysis or demonstration to provide adequate air movement or temperature and humidity conditions for human comfort.

(B) Air Leakage. Conditioned spaces shall meet the following criteria for minimizing air leakage.

(i) The conditioned space shall be enclosed. Conditioning of unenclosed spaces is allowed only under the provisions of Section 12-6.12(c);

(ii) Fenestration and doors enclosing conditioned space shall be weatherstripped or otherwise tightly sealed to minimize air leakage. Operable windows shall be capable of being tightly closed. Openings which may be closed but not tightly sealed, such as jalousie windows or louvers, may account for up to 2 percent of the wall area enclosing the space;

(iii) Commercial entrances enclosing conditioned space shall be revolving or self closing doors to minimize air leakage; and

(iv) Exterior joints, cracks and holes in building envelope components enclosing conditioned space shall be caulked, gasketed, weatherstripped or otherwise sealed to prevent air leakage.

(6) Roof heat gain factor (RHGF).

The solar heat gain limits for opaque roof constructions are expressed in terms of the Roof Heat Gain Factor (RHGF) which is described in Equation 8-8. The maximum allowed limits are listed in Section 12-6.11(d)(1).

Equation 8-8

$$RHGF = U_r \times a \times RB$$

Where:

RHGF = Roof Heat Gain Factor. [Btu/ft^2-h-^{0}F].

U_r = overall thermal transmittance value for the gross area of opaque roof surfaces, as defined in subsection (c)(3). [Btu/ft^2-h-^{0}F].

a = roof surface absorptivity. Between 0.3 and 1.0 [unitless].

RB = Radiant Barrier credit. Equals 0.33 if a radiant barrier is installed and 1.00 otherwise [unitless]. Radiant barrier installation shall comply with subsection (c)(7) to qualify for credit.

(7) Radiant barrier eligibility

To qualify for the radiant barrier credit (RB) described in subsection (c)(6), the installation of the radiant barrier shall meet the following criteria:

(A) The emissivity of the radiant barrier shall be less than or equal to 0.10. The manufacturer shall provide test data or documentation of the emissivity using ASTM E-408, Test Method For Total Normal Emittances of Surfaces Using Inspection Meter Techniques, ASTM Philadelphia, PA 19103.

(B) The radiant barrier shall be securely installed in a permanent manner using one of the following five installation methods.

(i) Draped with the shiny side facing down over the top cord of the truss before the roof deck is installed. A minimum air gap of 3/4 inch shall be provided between the radiant barrier and the roof deck above at the center of the span. A minimum 3/4 inch air gap shall also be provided between the radiant barrier and the ceiling or insulation below.

(ii) Stretched with the shiny side facing down between the top cords of the truss and stapled or otherwise secured at each side. A minimum air space of 3/4 inch above and below is required.

(iii) Stapled or otherwise secured to the bottom surface of the top cord of the truss and draped below with the shiny side facing down. For attic installations only. A minimum air space of 3/4 inch above and below is required.

(iv) Laid on top of the roof deck with the shiny side facing up and a minimum 3/4 inch air gap between the radiant barrier and the roofing material above. For open beam ceiling construction only. The roof slope shall be greater than or equal to 14^0 from horizontal.

(v) Laminated to the underside of the roof sheathing with at least 3/4 inch air space below.

(C) At least one square foot of free area for ventilation shall be provided per 150 square feet of attic floor area, or in the case of vaulted or open-beam ceilings, per 150 square feet of ceiling area. In vaulted or open beam ceilings, the air space shall be vented with vent area approximately evenly distributed between the top and the bottom. In vaulted ceilings, vents shall be provided for each air space between rafters.

(d) Prescriptive criteria.

(1) Opaque roof surfaces

(A) The Roof Heat Gain Factor (RHGF) for opaque roofs shall be less than 0.05 when calculated as described in Section 12-6.11(c)(6).

(B) Exception.

Roofs which are completely shaded from direct sunlight or attics with one square foot of free area for ventilation per ten square feet of attic floor area shall be exempt from the requirement in subsection 12-6.11(d).

(2) Opaque wall surfaces

(A) The overall thermal transmittance value (U_o) for the gross area of opaque wall surfaces, as defined in Section 12-6.11(c), shall be less than or equal to 0.15 for metal framed walls and 0.10 for all others. Alternatively, the R-value of insulation shall be greater than or equal to R-11.

(B) Exceptions

(i) Walls with a heat capacity greater than 7.5 Btu/^{0}F-ft^2 of wall surface area;

(ii) Portions of opaque walls completely shaded from direct sunlight by an overhang, adjacent building or feature of the landscape such as a hill or cliff. The wall must be shaded all day, throughout the year;

(iii) Walls shaded by overhangs with a projection factor greater than or equal to 0.2 on north facing walls or 0.3 on all other orientations. The projection factor equals the ratio of the horizontal projection of the overhang to the height of the wall (measured as the vertical distance from the bottom of the wall to the bottom outer edge of the overhang);

(iv) Walls enclosing spaces which are not air conditioned.

(3) Vertical glazing

(A) The Relative Solar Heat Gain (RSHG) of vertical fenestration, as defined in Section 12-6.11(c)(4), shall be less than or equal to the appropriate value in Table 8-6. The maximum RSHG for north orientations shall be based on the window-to-wall ratio (WWR) for north-facing walls. The maximum RSHG for all other orientations shall be based on the combined WWR for east, west and south walls. Linear interpolation may be used to

determine the maximum allowed RSHG for WWR's which lie within one of the ranges.

(B) Exceptions.

(i) A window area of up to 2 percent of gross exterior wall area may exceed the RSHG limits for any given orientation;

(ii) Individual windows may exceed the maximum RSHG limit as long as the area-weighted average RSHG's for both the north orientation and the combined east, west and south orientations are less than or equal to the maximum limit.

(iii) Individual windows completely shaded from the sun are exempt from the RSHG limits and shall be excluded from the window area calculation.

Table 8-5 RESERVED.

Table 8-6 - Maximum Relative Solar Heat Gain (RSHG) for High-Rise Residential and Non-Residential Buildings

	North	East, West and South
WWR Range	**Max. RSHG**	**Max. RSHG**
0 - 0.15	0.85	0.65
0.15 - 0.30	0.85	0.45
0.30 - 0.45	0.65	0.30
0.45 - 0.60	0.50	0.25
0.60 - 0.75	0.40	0.20
0.75 - 1.00	0.40	0.20

(4) Horizontal glazing (skylights)

(A) The horizontal projection of skylight area shall be limited to a maximum fraction of the horizontal projection of roof area which is specified by the following equation:

Equation 8-9

$$A = 0.025 / SC$$

Where:

A = Maximum allowed skylight area measured as the skylight's horizontal projection. Expressed as a fraction of the horizontal projection of roof area. Shall be less than or equal to 0.15.

SC = Shading coefficient of skylight; may be from manufacturer's literature.

(B) Exception.

Low-rise residential buildings that are not air-conditioned or those in locations with greater than 800 Heating Degree Days (base 65°F) or with elevation greater than 2,500 feet above sea level (where degree day data are not available).

(e) Systems Performance Criteria.

(1) Purpose

This section provides a systems approach to compliance with the wall and window requirements of this Article. This section may be used instead of Sections 12-6.11(c)(2) and 12-6.11(c)(3).

(2) Compliance

(A) Walls of the building envelope are in compliance with this subsection when the annual cooling energy flux (ACEF) attributable to transmission and solar gain for the proposed design is less than the ACEF of the reference design. The ACEF shall be calculated using the methods of subsection (e)(3).

(B) The reference building and proposed design are defined as follows:

Surface Areas and Orientation. Walls of the reference building shall have the same gross surface areas and orientations as walls in the proposed design. Glazing area and orientation of the reference building shall be identical to the proposed design.

Shading Coefficients (SC_x). The shading coefficient of glazing in the reference building shall be equal to the Relative Solar Heat Gain requirements of Section 12-6.11(d)(3) for each window orientation.

Projection Factor (PF). The projection factor of reference building shall be zero (no overhangs) for all window orientations.

Visible Transmittance (VT). The visible transmittance of glazing in the reference building shall be equal to the RSHG requirement of Section 12-6.11(d)(3) for each orientation minus 0.25. The visible transmittance shall not be less than zero.

Glazing Thermal Transmittance (U_{of}). The Glazing thermal transmittance in the reference building shall be equal to 1.21 Btu/h-ft^2-°F.

Opaque Wall Thermal Transmittance (Wall U_o). The thermal transmittance of opaque wall surfaces in the reference

building shall be equal to the requirement specified in Section 12-6.11(d)(2) for all orientations.

Wall Heat Capacity (HC). Wall heat capacity in the reference design shall be equal to 1.0.

Equipment Power Density (EQUIP). The equipment power density in W/ft^2 of the reference building shall be equal to that in the proposed design. The equipment power density in the proposed design is average receptacle power density in W/ft^2, considering diversity, in the activity areas within 15 ft of each exterior wall.

If the equipment power density is not known for the proposed design, use a value from Table 13-2 for both the reference building and the proposed design. If the building occupancy is not known, use 0.5 W/ft^2 for both the reference design and the proposed design.

Lighting Power Density (LIGHTS). The lighting power density in W/ft^2 of the reference building shall be equal to that in the proposed design. The lighting power density in the proposed design is the average for activity areas within 15 ft of each exterior wall.

If the lighting power density is not known for the proposed design, select a value from Table 6-5 for both the reference building and the proposed design. If the building occupancy is not known, use 1.5 W/ft^2 for both the reference building and the proposed design.

Daylighting Control Factor (DLCF). The daylighting control factor (DLCF) for the reference design shall be determined from Equation 8-10 for each orientation. The DLCF for the reference design shall not be greater than 1.0.

Equation 8-10

$$DLCF_{ref} = WWR_{prop} \times 1.67$$

Where:

$DLCF_{ref}$ = The daylighting control factor (DLCF) for the reference building.

WWR_{prop} = The window wall ratio of the proposed design for each orientation.

The daylighting control factor (DLCF) for the proposed design shall be equal to the ratio of daylighted perimeter to total perimeter and shall be calculated separately for each orientation. The daylighted

perimeter includes the width of windows and as much as three feet of wall to the left and right of windows. This may be determined from Equation 8-11. The DLCF for the proposed design shall not be greater than 1.0.

Equation 8-11

$$DLCF_{prop} = \Sigma\ (P_w + P_{wr} + P_{wl})\ /\ P_t$$

Where:

$DLCF_{prop}$ = Daylighting control factor for the proposed design for each orientation.

P_w = Width of each window on each orientation.

P_{wr} = Daylighted area to the right of each window on each orientation. This shall be the lesser of three feet, half the distance to the next window or the distance to a wall in the room or space that is perpendicular to the building perimeter.

P_{wl} = Daylighted area to the left of each window on each orientation. Similar to P_{wr}.

P_t = The total perimeter on each orientation.

Loads from Occupants. Sensible load from occupants in the reference building shall be equal to that of the proposed design. The default is 0.6 W/ft^2.

(3) Equation for annual cooling energy flux (ACEF)

This section contains the external wall equation for use in determining external wall cumulative annual cooling energy flux and for determining compliance with the Systems Performance method of this section.

Seven individual terms are identified that correlate variables with physical meaning such as U-values, internal gains, and weather related variables.

CLU,
CLUO,
CLXUO: Terms that correlate the cumulative annual cooling loads with the thermal transmittance of the wall.

CLM: Term that correlates the cumulative annual cooling loads with the heat capacity of the wall.

CLG: Term that correlates the cumulative annual cooling loads with the internal gains from occupant light and equipment.

CLS: Term that correlates the cumulative annual cooling loads with the incident solar gains.

CLC: Term that correlates the cumulative annual cooling loads with the climate variables for a specific location.

(A) Cooling Equation

Equation 8-12

$$WC_c \text{ or } C_1 = \Sigma\ [CLUO_i + CLXUO_i + CLG_i + CLS_i + CLC_i + \Sigma\ (CLU_{i,j} + CLM_{i,j})].$$

If WC_c or $C_1 < 0.0$, then WC_c or C_1 is set equal to 0.0.

Where

Subscripts

i = matrix consideration for each given orientation

j = matrix consideration for each wall mass construction type for the given orientation

Indices

m = number of wall construction types per orientation

n = number of wall orientations

Variables

$CLUO_i$ = $FC_i \times UOC_i[CUO1_i \times EA_i \times VS_i \times CDD50 + CUO2_i \times G_i + CUO3_i \times G_i^2 \times EA_i^2 \times VS_i \times CDD50 + CUO4_i \times G_i^2 \times EA_i^2 \times VS_i \times CDD65]$

$CLXUO_i$ = $FC_i(1/UOC_i)[CXUO1_i \times EA_i \times VS_i \times CDD50 + CXUO2_i \times EA_i(VS_i \times CDD50)^2 + CXUO3_i \times G_i \times CDD50 + CXUO4_i \times G_i^2 \times EA_i^2 \times VS_i \times CDD50 + CXUO5_i \times G_i^2 \times CDD65]$

CLG_i = $FC_i\{G_i[CG1_i + CG2_i \times CDD50 + CG3_i \times EA_i(VS_i \times CDD50)^2 + CG4_i \times EA_i^2 \times VS_i \times CDD50 + CG5_i \times CDD65 + CG6_i \times CDD50^3 + CG7_i \times CDD65^3] + G_i^2[CG8_i \times EA_i \times VS_i \times CDD50 + CG9_i \times EA_i^2 \times VS_i \times CDD50]\}$

CLS_i = $FC_i\{EA_i[CS1_i + CS2_i \times VS_i \times CDD50 + CS3_i(VS_i \times CDD50)^2 + CS4_i \times VS_i \times CDD65 + CS5_i(VS_i \times CDD65)^2] + EA_i^2[CS6_i + CS7_i(VS_i \times CDD65)^2]\}$

CLC_i = $FC_i[CC1_i \times CDD50 + CC2_i \times CDD50^2 + CC3_i \times CDH80 + CC4_i \times CDH80^2 + CC5_i \times CDD65 + CC6_i(VS_i \times CDD65)^2 + CC7_i \times VS_i \times CDD50 + CC8_i(VS_i \times CDD50)^2 + CC9_i(VS_i \times CDH80)^2 + CC10_i \times VS_i + CC11_i \times DR + CC12_i \times DR^2 + CC13_i]$

$CLU_{i,j}$ = $FO_{i,j} \times U_{ow,i}[CU1_i \times CDH80 + CU2_i \times CDH80^2 + CU3_i(VS_i \times CDH80)^2 + CU4_i \times DR]$

$CLM_{i,j}$ = $FO_{i,j} \times CMC_{i,j}[CM1_i + CM2_i \times EA_i \times VS_i \times CDD50 + CM3_i \times EA_i \times VS_i \times CDD65 + CM4_i \times EA_i^2 \times VS_i \times CDD50 + CM5_i \times G_i^2 \times CDD65 + CM6_i \times G_i \times CDD50 + CM7_i \times G_i \times CDD65 + CM8_i \times G_i \times EA_i \times VS_i \times CDD50]$

Note: The coefficients for various orientations in the above equations are shown in Table 8-8.

Climate data

CDD50 = Cooling degree-days base 50°F

CDD65 = Cooling degree-days base 65°F

CDH80 = Cooling degree-hours base 80°F

DR = average daily temperature range for warmest month

VS_i = annual average daily incident solar energy on facade under consideration, Btu/(ft²-day)

Building Data

FC_i = ratio, wall area (opaque and glazed) of zone under consideration divided by total wall area (opaque and glazed) of all zones

$FO_{i,j}$ = ratio, opaque wall area of zone under consideration divided by total wall area (opaque and glazed) of all zones. If multiple mass constructions are present, the $FO_{i,j}$ is calculated for each construction j and used to form the area weighted mass correction

$U_{ow,i}$ = area average U-value of opaque walls (including those of mass construction) in zone under consideration, Btu/(h-ft²-°F)

UOC_i = area average U-value of wall (opaque and glazed, evaluated under cooling conditions) in zone under consideration, Btu/(h-ft²-°F).

WWR_i = window wall ratio for zone under consideration; defined as fenestration area divided by total wall area (opaque and glazed)

EA_i = effective aperture fraction for zone under consideration, where:

Equation 8-13

$$EA_i = WWR_i \times RSHG_i$$

And

$RSHG_i$ = the relative solar heat gain for the fenestration in a given orientation, as determined from Section 12-6.11(c)(4).

Internal Load

Equation 8-14

$$G_i = E_{p,i} + L_{p,i} \ (1 - R_{c,i} \times K_{d,i}) + O_{l,i}$$

Where

G_i = effective internal gain (W/ft^2) for zone under consideration.

$E_{p,i}$ = equipment power, from subsection 12-6.11(e)(2).

$L_{p,i}$ = lighting power, from subsection 12-6.11(e)(2).

$O_{1,i}$ = occupant load adjustment, from subsection 12-6.11(e)(2).

$R_{c,i}$ = for a specified orientation, the ratio of the daylighting area of the space to the total area of the space.

Equation 8-15

$$K_{d,i} = 5.871(WWR_i \times VLT_i \times OHM_i) - 13.311(WWR_i \times VLT_i \times OHM_i)^2$$

If $WWR_i \times VLT_i \times OHM_i$ is greater than 0.22, then $K_{d,i}$ is set equal to 0.647.

Where

WWR_i = as defined above under Building Data.

VLT_i = visible light transmittance of the glazing material, as defined in subsection 12.-6.11(e)(2).

OHM_i = Overhang multiplier, from Section 12-6.11(c)(4).

$CMC_{i,j}$ = mass correction from Eq 8-16. If multiple mass constructions are present, then each $CMC_{i,j}$ is evaluated separately and combined by area weighting. If the U-value of the mass wall is greater than 0.40, then U_{ow} = 0.4 shall be used to calculate the $CMC_{i,j}$. If the value of HC is greater than 20, then HC = 20 shall be used to calculate the $CMC_{i,j}$.

(B) Cooling Delta Load Factor Equations

Equation 8-16 is used to predict the Cooling Delta Load Factor values.

Equation 8-16

$$CMC = \text{Cooling Delta Load Factor} = [1 - e^{-CP1(HC-1)}] \times$$

$$CP_2 + CP_3U \quad \frac{CP_4}{1 + (CP_5 + CP_6U)\exp[-(CP_7 + CP_8U^2)(HC-1)]}$$

$$\times \quad \frac{1.0}{0.7}$$

Where:

HC = Wall Heat Capacity (Btu/ft^2-^{0}F).

U = Wall U-Value (Btu/h-ft^2-^{0}F).

A = (Cooling degree-hours base 80^{0}F)/10,000 + 2 (^{0}F-h).

B = (Daily Range)/10 + 1(^{0}F).

$CP_1 = C_5$

$CP_2 = C_{15}/B^3 + C_{16}/(A^2B^2) + C_{17}$

$CP_3 = C_1/A^3 + C_2B^3 + C_3/(A^2B) + C_4$

$CP_4 = C_{12}/(A^2B^2) + C_{13}/B^3 + C_{14}$

$CP_5 = C_{18}$

$CP_6 = C_6B\ LN(A) + C_7$

LN = Natural Logarithm

$CP_7 = C_{19}/(A^2B^2) + C_{20}/(AB) + C_{21}A^2/B + C_{22}$

$CP_8 = C_8/(A^2B^2) + C_9/(AB) + C_{10}/(A^2B) + C_{11}$

The coefficients C_1 through C_{22} are taken from Table 8-7.

Table 8-7 Cooling Delta Load Coefficients

	Insulation Position		
Coefficient	**Exterior**	**Integral**	**Interior**
C_1	220.724503	139.105667	181.616776
C_2	-.056589	-.033991	-.055196
C_3	-118.835388	-10.326704	-34.158966
C_4	-13.674420	-20.867386	-25.591934
C_5	.236381	.283882	.081029
C_6	.959588	.305851	1.418998
C_7	-.255004	.022622	.432421
C_8	-905.677979	-307.943848	-1882.926758
C_9	425.191895	80.209610	443.195801
C_{10}	-2.510600	.049955	.430200
C_{11}	-43.387955	-5.989545	-28.285065
C_{12}	-259.723389	-11.396114	-63.562256
C_{13}	-33.975525	.366851	20.844650
C_{14}	20.488235	30.253494	9.817521
C_{15}	-26.209152	8.833706	24.459824
C_{16}	-241.173386	-22.254623	-70.337494
C_{17}	18.897781	29.329697	9.884280
C_{18}	-.353790	-.023878	-.114646
C_{19}	156.305634	63.322754	326.344727
C_{20}	-74.098999	-16.334656	-77.635498
C_{21}	.445363	-.011114	-.074788
C_{22}	7.496696	1.295576	5.204088

Table 8-8 Cooling Coefficients

	North	East	South	West
CU1	0.001539	0.003315	0.003153	0.00321
CU2	-0.308548E-07	-0.896618E-07	-0.712993E-07	-0.810530E-07
CU3	0.799493E-13	0.379280E-13	0.183083E-13	0.339810E-13
CU4	-0.079647	0.163114	0.286458	0.11178
CM1	0.32314	0.515262	0.71477	0.752643
CM2	0.153060E-05	0.138197E-05	0.161630E-05	0.142228E-05
CM3	-0.204322E-05	-0.160240E-05	-0.211063E-05	-0.197938E-05
CM4	-0.753665E-06	-0.767849E-06	-0.664430E-06	-0.740067E-06
CM5	-0.100472E-05	0.0	0.801057E-05	0.315193E-05
CM6	0.366708E-04	0.356503E-04	0.448106E-04	0.296012E-04
CM7	-0.673045E-04	-0.640938E-04	-0.000119	-0.766719E-04
CM8	-0.238335E-07	-0.472534E-07	-0.497469E-07	0.0
CUO1	-0.651094E-05	-0.838669E-05	-0.888996E-05	-0.756465E-05
CUO2	-1.040207	-1.507235	-1.512625	-1.238545
CUO3	-0.438254E-05	-0.278828E-05	-0.231352E-05	-0.412567E-05
CUO4	0.126580E-04	0.809874E-05	0.736219E-05	0.106712E-04
CXUO1	0.103744E-05	0.119338E-05	0.118588E-05	0.123251E-05
CXUO2	-0.132180E-12	-0.134656E-12	-0.116252E-12	-0.130002E-12
CXUO3	0.275554E-04	0.202621E-04	0.202365E-04	0.236964E-04
CXUO4	0.974090E-07	0.117514E-06	0.939207E-07	0.136276E-06
CXUO5	-0.118247E-04	-0.909694E-05	-0.909192E-05	-0.111077E-04
CG1	0.891286	0.583388	0.393756	0.948654
CG2	0.001479	0.001931	0.002081	0.001662
CG3	-0.552042E-12	-0.282139E-12	-0.284766E-12	-0.455720E-12
CG4	0.252311E-05	0.370821E-05	0.430536E-05	0.591511E-05
CG5	-0.001151	-0.001745	-0.001864	-0.00153
CG6	0.195243E-11	0.0	-0.296055E-11	0.316358E-11
CG7	-0.835805E-11	0.101089E-10	0.330027E-10	0.0
CG8	0.141022E-05	0.753875E-06	0.713300E-06	0.970752E-06
CG9	-0.238887E-05	-0.164961E-05	-0.163927E-05	-0.197363E-05
CS1	46.9871	33.9683	18.32016	29.3089
CS2	0.348091E-04	0.374118E-04	0.340490E-04	0.502498E-04
CS3	0.0	0.0	0.271313E-11	0.0
CS4	-0.166409E-04	0.694779E-05	-0.282181E-04	-0.277158E-04
CS5	0.842765E-11	0.0	-0.304677E-11	0.291137E-11
CS6	-56.5446	0.0	26.9954	14.9771
CS7	-0.134764E-10	-0.588097E-11	-0.650089E-11	-0.789218E-11
CC1	0.002747	0.0	0.010349	0.001865
CC2	0.0	0.318928E-06	-0.304413E-06	0.0
CC3	-0.000348	0.000319	0.00024	0.000565
CC4	0.122123E-07	-0.775318E-07	-0.271443E-07	-0.544380E-07
CC5	0.012112	0.011894	0.013248	0.009236
CC6	0.104027E-11	-0.622661E-12	-0.205178E-11	0.0
CC7	-0.124013E-04	-0.706280E-05	-0.165377E-04	-0.602685E-05
CC8	0.0	0.0	0.820869E-12	0.0
CC9	-0.375797E-13	0.606235E-13	0.197598E-13	0.389425E-13
CC10	0.030056	0.023121	0.0265	0.01704
CC11	0.0	0.0	-0.271026	-0.244274
CC12	0.002138	0.001103	0.006368	0.007323
CC13	-12.8674	-13.16522	-18.271	-10.1285

(Ord. No. 95, September 5, 1956, Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001; Ord. No. 810, December 1, 2003)

Sec. 12-6.12 Heating, Ventilating and Air Conditioning (HVAC) Systems

(a) Scope.

(1) The requirements of this Division apply to all new HVAC systems or system components in both new and existing buildings.

(2) Exception.

This Division does not apply to the maintenance and repair of existing systems.

(b) General.

The requirements in this Division represent minimum design criteria.

(c) Basic Requirements.

(1) Load calculations

(A) Calculation Procedures. Cooling system design loads for the purpose of sizing systems and equipment shall be determined in accordance with the procedures described in the ASHRAE Handbook, 1989 Fundamentals or a similar computation procedure. For those design parameters addressed in (B) through (I), the values specified shall be used.

(B) Indoor Design Conditions. Indoor design temperature and humidity conditions for general comfort applications shall be in accordance with the comfort criteria established in ANSI/ASHRAE Standard 55-1981 Thermal Environmental Conditions for Human Occupancy, or Chapter 8 of the ASHRAE Handbook, 1989 Fundamentals, or both, except that winter humidification and summer dehumidification are not required.

(C) Outdoor Design Conditions. Outdoor design conditions shall be selected from "Climatic Data for Region X Arizona, California, Hawaii, Nevada", Golden Gate and Southern California Chapters, ASHRAE, Fifth Edition, May 1982, or from data obtained from the National Climatic Center or a similar recognized weather data source. Cooling design temperatures shall be no greater than the 0.5% annualized value.

(D) Ventilation. Outdoor air ventilation loads shall be based on ventilation rates specified in subsection 12.6.12(c)(6).

(E) Envelope. Envelope cooling loads shall be based on envelope characteristics, such as thermal conductance, shading coefficient, and air leakage, consistent with the values used to demonstrate compliance with Section 12-6.11.

(F) Lighting. Lighting loads shall be based on actual design lighting levels or power budgets consistent with Section 12-6.10.

(G) Other Loads. Other HVAC system loads, such as those due to people and equipment, shall be based on design data compiled from one or more of the following sources:

(i) Actual information based on the intended use of the building;

(ii) Published data from manufacturers' technical publications;

(iii) Technical society publications such as the ASHRAE Handbooks, 1991 HVAC Applications and 1992 HVAC Systems and Equipment;

(iv) Alereza, "Estimates of recommended heat gains due to commercial appliances and equipment", *ASHRAE Transactions,* Vol. 90, Pt 2A, pp. 25-58, 1984.

(v) Default values to be used in determining the design energy budget in Section 12.6.16 are taken from Tables 13-1, 13-2, and 13-4;

(vi) Other data based on designer's experience of loads and occupancy patterns.

(H) Safety Factor. Design loads may, at the designer's option, be increased by as much as 10% to account for unexpected loads or changes in space usage.

(I) Pick-up Loads. Transient loads such as cool-down loads which occur after off-hour setback or shutoff, may be calculated from basic principles, based on the heat capacity of the building and its contents, the level of setback, and desired recovery time, or may be assumed to be up to 10% of the steady-state cooling design loads. The steady-state load may include a safety factor in accordance with subdivision 12-6.12(c)(1)(H).

(2) Separate air distribution systems

(A) Zones with special process temperature requirements, humidity requirements, or both, shall be served by separate air distribution systems from those serving zones requiring only comfort conditions, or shall include supplementary provisions so that the primary systems may be specifically controlled for comfort purposes only.

(B) Exception.

Zones that require only comfort cooling and are served by a system primarily used for process temperature and humidity control, need not be served by a separate system if the total supply air to these comfort zones is no more than 25% of the total system supply air, or the total conditioned floor area of the zones is less than 1000 ft^2.

(3) Temperature controls

(A) System control. Each HVAC system shall include at least one temperature control device.

(B) Zone controls.

(i) The supply of cooling energy to each zone shall be controlled by individual

thermostatic controls responding to temperature within the zone.

(ii) Exceptions

(1) Independent perimeter systems that are designed to offset only envelope heat gains may serve one or more zones also served by an interior system, with the following limitations:

(i) The perimeter system shall include at least one thermostatic control zone for each building exposure having exterior walls facing only one orientation for 50 contiguous feet or more;

(ii) The perimeter system cooling supply shall be controlled by thermostat located within the zone served by the system.

(2) A dwelling unit may be considered a single zone.

(C) Thermostats shall be shaded from direct solar radiation and shall be isolated from heat gain due to large equipment and machinery.

(D) Where used to control comfort cooling, zone thermostatic controls shall be capable of being set, locally or remotely, by adjustment or selection of sensors, up to 85°F or higher.

(4) Off-hour and interlock controls

(A) Off-hour controls

(i) HVAC systems shall be equipped with automatic controls capable of accomplishing a reduction of energy use through control setback or equipment shutdown during periods of non-use or alternate use of the spaces served by the system.

(ii) Exceptions.

(1) Systems serving areas expected to operate continuously;

(2) Where it can be shown that setback or shutdown will not result in a decrease in overall building energy costs;

(3) Equipment with full load demands of 2 kW (6826 Btu/hr) or less may be controlled by readily accessible manual off-hour control;

(4) Where process conditioning is required on a 24 hour basis.

(B) Systems that serve zones which can be expected to operate non-simultaneously for more than 750 hours per year shall include isolation devices and controls to shut off or set back the supply of cooling to each zone independently. Isolation is not required for zones expected to operate continuously or expected to be inoperative only when all other zones are inoperative.

For buildings where occupancy patterns are not known at the time of system design, such as speculative buildings, isolation areas may be predesignated.

Zones may be grouped into a single isolation area provided that the total conditioned floor area does not exceed 25,000 ft^2 per group nor include more than one floor.

(C) Operable doors leading from a conditioned space to a balcony or patio in hotel or motel guest rooms shall be provided with interlock controls to disable cooling of the space while the door is open.

(5) Dehumidification

Where a humidistat is used for comfort dehumidification, it shall be capable of being set to prevent the use of fossil fuel or electricity to reduce relative humidities below 60%.

(6) Ventilation.

(A) Outdoor air ventilation rates shall not exceed the minimum rates required by ASHRAE Standard 62-1989 by more than 10%.

(B) Exception.

Outdoor air quantities may be greater if required because of special occupancy or process requirements, source control of air contamination or local codes, or if it can be shown that the additional outside air does not increase overall building energy costs.

(7) Materials and construction

(A) Insulation required by subsections 12-6.12(c)(7)(B) and (C) shall be suitably protected from damage. Insulation should be installed in accordance with MICA Commercial and Industrial Insulation Standards, 1983.

(B) Piping insulation.

(i) All HVAC system piping shall be thermally insulated in accordance with Table 9-1.

(ii) Exceptions.

Piping insulation shall not be required in any of the following cases:

(1) Factory installed piping within HVAC equipment tested and rated in accordance with Section 12-6.13(c);

(2) Piping that conveys fluids which have a design operating temperature range between 55°F and 105°F;

(3) Piping that conveys fluids which have not been heated or cooled through the use of fossil fuels or electricity;

(4) Where it can be shown that the heat gain and/or heat loss to or from piping without insulation will not increase building energy costs.

Table 9-1 - Minimum Pipe Insulation (Inches)[a]

Fluid Design Operating Temp., Range °F	Insulation Conductivity Cond. Range, Btu°in/h°ft²°F	Mean Rating Temp., °F	Runouts[b] up to 2	Nominal Pipe Diameter (in) 1 and less	1.25 to 2	2.5 to 4	5 & 6	8 and up
Heating Systems (Steam, Steam Condensate, and Hot Water)								
Above 350	0.32-0.34	250	1.5	2.5	2.5	3.0	3.5	3.5
251-350	0.29-0.31	200	1.5	2.0	2.5	2.5	3.5	3.5
201-250	0.27-0.30	150	1.0	1.5	1.5	2.0	2.0	3.5
141-200	0.25-0.29	125	0.5	1.5	1.5	1.5	1.5	1.5
105-140	0.24-0.28	100	0.5	1.0	1.0	1.0	1.5	1.5
Domestic and Service Hot Water[c]								
105 and Greater	0.24-0.28	100	0.5	1.0	1.0	1.5	1.5	1.5
Cooling Systems (Chilled Water, Brine & Refrigerant)[d]								
40-55	0.23-0.27	75	0.5	0.5	0.75	1.0	1.0	1.0
Below 40	0.23-0.27	75	1.0	1.0	1.5	1.5	1.5	1.5

a. For minimum thicknesses of alternative insulation types, see Sec. 12-6.12(7)(B).

b. Runouts to individual terminal units not exceeding 12 ft in length.

c. Applies to recirculation sections of service or domestic hot water systems and first 8 ft from storage tank for non-recirculating systems.

d. The required minimum thicknesses do not consider water vapor transmission and condensation. Additional insulation and/or vapor retarders may be required to limit water vapor transmission and condensation.

Alternative Insulation Types. Insulation thicknesses in Table 9-1 are based on insulation with thermal conductivities within the range listed in Table 9-1 for each fluid operating temperature range, rated in accordance with ASTM C 335-84 at the mean temperature listed in the Table. For insulation that has a conductivity outside the range shown in Table 9-1, for the applicable fluid operating temperature range at the mean rating temperature shown, when rounded to the nearest 1/100th Btu°inch/h°°F°ft², the minimum thicknesses shall be determined in accordance with Eq. 9-1:

Equation 9-1

$$T = PR\ [(1 + t / PR)^{K/k} - 1]$$

Where

T = minimum insulation thickness for material with conductivity K, inches.

PR = pipe actual outside radius, in.

t = insulation thickness from Table 9-1, in.

K = conductivity of alternate material at the mean rating temperature indicated in Table 9-1 for the applicable fluid temperature range, Btu•in/h • °F•ft²

k = the lower value of the conductivity range listed in Table 9-1 for the applicable fluid temperature range, Btu • in/h•°F•t²

(C) Air handling system insulation.

(i) All air handling ducts and plenums installed as part of an HVAC air distribution system shall be thermally insulated in accordance with Table 9-2.

(ii) Exceptions

(1) Factory installed plenums, casings, or ductwork furnished as a part of HVAC equipment tested and rated in accordance with Section 12-6.13(c).

(2) Where it can be shown that the heat gain to or heat loss from ducts without insulation will not increase building energy costs.

Table 9-2 Minimum Duct Insulation[a]

	Temperature Difference[b] °F	Insulation R-value ft²°h°°F/Btu
Exterior of Building	all	8.0
Inside of building envelope in conditioned or unconditioned spaces	≤ 15	Not Required
	> 15 to ≤ 40	3.3
	> 40	5.0[d]

a. Insulation R-values shown are for the insulation as installed and do not include film resistance. The required minimum thicknesses do not consider water vapor transmission and condensation. Additional insulation and/or vapor retarders may be required to limit vapor transmission and condensation. Where exterior walls are used as plenum walls, wall insulation shall be as required by the most restrictive conditions of this section or Section 12-6.11.

b. Temperature difference is at design conditions (see Section 12-6.12(c)(1)) between the space within which the duct is located and the design air temperature in the duct.

c. Insulation resistance measured on a horizontal plane in accordance with ASTM C518-85 at a mean temperature of 75°F at the installed insulation thickness.

d. Insulation resistance for runouts to terminal devices less than 10 ft in length need not exceed 3.3 ft² • h• ° F/Btu.

e. Unconditioned spaces include crawl spaces and attics.

(D) Duct Construction.

(i) All air handling ductwork and plenums shall be constructed and erected in accordance with the following SMACNA Publications:

(1) HVAC Duct Construction Standards -- Metal and Flexible, 1985;

(2) HVAC Duct Leakage Test Manual, 1985;

(3) TIMA Fibrous Glass Duct Construction Standards, 1989.

(ii) In addition to the above referenced standards, the following are required:

(1) Leakage Tests. Ductwork which is intended to operate at static pressures in excess of 3 in. wc shall be leak tested and be in conformance with sections of the HVAC Duct Leakage Test Manual, as follows: Test procedures shall be in accordance with those outlined in Section 12-6.9 of the manual, or equivalent; test reports shall be provided in accordance with Section 12-6.10 of the manual, or equivalent; the tested duct leakage class at a test pressure equal to the design duct pressure class rating shall be equal to or less than leakage class 6 as defined in Table 4.1 of the manual. Leakage testing may be limited to representative sections of the duct system but in no case shall such tested sections include less than 25% of the total installed duct area for the designated pressure class.

(2) Additional Sealing. Where supply ductwork and plenums that are intended to operate at static pressures from 1/4 in. to 2 in. wc inclusive, are located outside of the conditioned space or in return plenums, joints shall be sealed in accordance with Seal Class C, as defined in the SMACNA manuals referenced above. Pressure sensitive tape shall not be used as the primary sealant where such ducts are intended to operate at static pressures of 1 in. wc or greater.

(8) Energy recovery.

Condenser heat recovery from air conditioning or refrigeration equipment is required for any single cooling system larger than 10 tons of cooling capacity or compressor size of greater than 15 hp for buildings with service hot water heaters with more than 75,000 Btu/h or 12 kW input rating, unless an alternative system can be shown to have a lower life-cycle cost as determined in accordance with procedures defined by the National Institute of Standards and Technology (NIST) Life-Cycle Costing Manual for the Federal Energy Management Program,

NIST Handbook 135, and its supplement, Energy Price Indices and Discount Factors for Life-Cycle Cost Analysis. Assumptions used in any calculation should use the latest price indices and discount factors available.

(9) Completion requirements

(A) Operating and maintenance manual. An operating and maintenance manual shall be provided to the building owner. The manual shall include basic data relating to the operation and maintenance of HVAC systems and equipment. Required routine maintenance actions shall be clearly identified. Where applicable, HVAC controls information such as diagrams, schematics, control sequence descriptions, and maintenance and calibration information shall be included.

(B) Air system balancing

(i) Air system balancing shall be accomplished in a manner to first minimize throttling losses, then fan speed shall be adjusted to meet design flow conditions. Balancing procedures shall be in accordance with those established by the National Environmental Balancing Bureau (NEBB) Procedural Standards (1983), the Association of Air Balancing Council (AABC) National Standards (1982), or equivalent procedures.

(ii) Exception.

Damper throttling may be used for air system balancing with fan motors of 1 hp or less, or if throttling results in no greater than 1/3 hp fan horsepower draw above that required if the fan speed were adjusted.

(C) Hydronic system balancing.

(i) Hydronic system balancing shall be accomplished in a manner to first minimize throttling losses, then the pump impeller shall be trimmed or pump speed shall be adjusted to meet flow conditions.

(ii) Exceptions.

Valve throttling may be used for hydronic system balancing under any of the following conditions:

(1) Pumps with pump motors of 10 hp or less;

(2) If throttling results in no greater than three (3) pump horsepower draw above that required if the impeller were trimmed;

(3) To reserve additional pump pressure capability in open-circuit piping systems subject to fouling. Valve throttling pressure drop shall not exceed that expected for future fouling;

(4) Where it can be shown that throttling will not increase overall building energy costs.

(10) Cooling of unenclosed spaces.

(A) Cooling systems for unenclosed spaces shall meet the following requirements:

(i) Cooling system capacity shall be no greater than 20 Btu/hr per ft^2 of floor area or 400 Btu/hr per occupant, whichever is greater. The estimated number of occupants shall be based on the intended average occupancy and shall not exceed the Estimated Maximum Occupancy listed in Table 2 of ASHRAE Standard 62-1989.

(ii) The floor area used to calculate the allowed cooling capacity shall be limited by a perimeter defined as follows:

(1) The perimeter shall not extend beyond the location of the ceiling air supply diffusers or the throw of the side wall diffusers.

(2) The perimeter shall be set back at least 10 feet from the opening to the outside, which is defined by the outer edge of the ceiling or overhanging roof.

(3) The perimeter shall be bounded on at least one side by a permanent, ceiling-height physical obstruction such as a wall or fixed window.

(11) System Commissioning

(A) HVAC control systems shall be tested to assure that control elements are calibrated, adjusted, and in proper working condition.

(B) For projects larger than 50,000 ft^2 (4600 m^2) conditioned area, detailed instructions for commissioning HVAC systems shall be provided by the designer in plans and specifications.

(d) Prescriptive Criteria.

(1) System and equipment sizing.

(A) HVAC systems and equipment shall be sized to provide no more than the space and system loads calculated in accordance with Section 12-6.12(c)(1).

(B) Exceptions.

(i) Equipment capacity may exceed the design load provided the equipment selected is the smallest size needed to meet the load within available options of the desired equipment line.

(ii) Equipment whose capacity exceeds the design load may be specified if oversizing the equipment can be shown to not increase the overall annual energy costs.

(iii) Stand-by equipment may be installed if controls and devices are provided which allow stand-by equipment to operate

automatically only when the primary equipment is not operating.

(iv) Multiple units of the same equipment type, such as multiple chillers and boilers, with combined capacities exceeding the design load may be specified to operate concurrently only if controls are provided that sequence or otherwise optimally control the operation of each unit based on load.

(v) For a single piece of equipment which has both heating and cooling capability, only the cooling function need meet the requirements of this section. Capacity for the heating function shall be, within available equipment options, the smallest size necessary to meet the load.

(2) Zone controls.

(A) Zone thermostatic and humidistatic controls shall prevent:

(i) Reheating;

(ii) Recooling;

(iii) Mixing or simultaneous supply of air that has been previously mechanically heated and air that has been previously cooled;

(iv) Other simultaneous operation of heating and cooling systems to the same zone.

(B) Exceptions

(i) Variable air volume systems which, during periods of occupancy, are designed to reduce the air supply to each zone to a minimum before reheating, recooling, or mixing takes place. This minimum volume shall be no greater than the largest of the following:

(1) 30% of the peak supply volume;

(2) The minimum allowed to meet ventilation requirements of Section 12-6.12(c)(6);

(3) 0.4 cfm/ft^2 of zone conditioned floor area;

(ii) Zones where special pressurization relationships or cross-contamination requirements are such that variable air volume systems are impractical, such as some areas of hospitals and laboratories;

(iii) At least 75% of the energy for reheating or for providing warm air in mixing systems is provided from a site-recovered or site-solar energy source;

(iv) Zones where specified humidity levels are required to satisfy process needs, such as computer rooms and museums. See Section 12-6.12(c)(2);

(v) Zones with a peak supply air quantity of 300 cfm or less.

(3) Fan system design criteria

(A) General.

(i) The following design criteria apply to all HVAC fan systems used for comfort ventilating and/or air conditioning. For the purposes of this section, the energy demand of a fan system is the sum of the demand of all fans which are required to operate at design conditions to supply air from the cooling source to the conditioned space(s) and return it to the source or exhaust it to the outdoors.

(ii) Exceptions.

(1) Systems with total fan system motor power of 10 hp or less;

(2) Unitary equipment for which the energy used by the fan is considered in the efficiency ratings of Section 12-6.13(c);

(3) For the purposes of subsection 12-6.12(d)(3), total fan energy demand need not include the additional power required by air treatment or filtering systems with final pressure drops in excess of 1.0 in. wc.

(B) Constant Volume Fan Systems. For fan systems which provide a constant air volume whenever the fans are operating, the power required by the motors for the combined fan system at design conditions shall not exceed 0.8 W/cfm of supply air.

(C) Variable Air Volume (VAV) Fan Systems.

(i) For fan systems which are able to vary system air volume automatically as a function of load, the power required by the motors for the combined fan system shall not exceed 1.25 W/cfm of supply air at design conditions.

(ii) Individual VAV fans with motors 25 hp and larger shall include controls and devices necessary for the fan motor to demand no more than 50% of design wattage at 50% of design air volume, based on manufacturer's test data.

(4) Pumping system design criteria

(A) General.

(i) The following design criteria apply to all HVAC pumping systems used for comfort air conditioning. For the purposes of subsection 12-6.12(d)(4), the energy demand of a pumping system is the sum of the demand of all pumps which are required to operate at design conditions to supply fluid from the cooling source to the conditioned space(s) or heat transfer devices(s) and return it to the source.

(ii) Exception.

Systems with total pump system motor power of 10 hp or less.

(B) Friction Rate. Piping systems should be designed at a friction pressure loss rate of no more than 4 feet of water per 100 equivalent ft of pipe. Note: Lower friction rates may be required for proper noise or corrosion control.

(C) Variable Flow.

(i) Pumping systems which serve control valves designed to modulate or step open and closed as a function of load, shall be designed for variable fluid flow. The system shall be capable of reducing system flow to 50% of design flow or less. Flow may be varied with variable speed driven pumps or staged multiple pumps.

(ii) Exceptions.

(1) Dedicated equipment pumps separated from modulation control valves in a primary/secondary loop arrangement. Secondary pumps shall comply with (4)(A)(i);

(2) Systems that serve no more than one control valve;

(3) Systems that include supply temperature reset controls in accordance with subsection 12-6.12(d)(5)(B) without exception;

(4) Where the overall building energy costs resulting from an alternative design can be shown to be no more than those from a variable flow system.

(5) System temperature reset controls

(A) Air Systems.

(i) Systems supplying cooled air to multiple zones shall include controls which automatically reset supply air temperatures by representative building loads or by outside air temperature. Temperature shall be reset by at least 25% of the design supply-air-to-room-air temperature difference. Zones which are expected to experience relatively constant loads, such as interior zones, shall be designed for the fully reset supply temperature.

(ii) Exceptions.

(1) Systems which comply with subsection 12-6.12(d)(2) without using exceptions (B)(i) or (B)(ii)(2);

(2) Where it can be shown that supply air temperature reset increases overall building annual energy costs.

(B) Hydronic Systems.

(i) Systems supplying chilled water to comfort air conditioning systems shall include controls which automatically reset supply water temperatures by representative building loads

(including return water temperature) or by outside air temperature. Temperature shall be reset by at least 25% of the design supply-to-return water temperature difference.

(ii) Exceptions.

(1) Systems that comply with subsection 12-6.12(d)(4)(C) without exception;

(2) Where it can be shown that supply temperature reset increases overall building annual energy costs;

(3) Systems for which supply temperature reset controls cannot be implemented without causing improper operation of heating, cooling, humidification, or dehumidification systems;

(4) Systems with less than 600,000 Btu/hr design capacity.

(6) Kitchen Hoods

(A) Individual kitchen exhaust hoods larger than 5000 cfm (2500 L/s) shall be provided with make-up air sized for at least 50 per cent of exhaust air volume that is uncooled or cooled without the use of mechanical cooling.

(B) Exceptions:

(i) Where hoods are used to exhaust ventilation air, which would otherwise exfiltrate, or be exhausted by other fan systems.

(ii) Certified grease extractor hoods that require a face velocity no greater than 60 fpm (18 m/s). (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001; Ord. No. 810, December 1, 2003)

Sec. 12-6.13 Heating, Ventilating and Air-Conditioning (HVAC) Equipment.

(a) Scope.

(1) The requirements of this Division apply to new HVAC equipment installed in new or existing buildings.

(2) Exception.

This Division does not apply to the maintenance or repair of existing HVAC equipment.

(b) General.

HVAC equipment shall be supplied with the information necessary to make the analysis required to determine compliance with this Article.

(c) Basic Requirements.

(1) Mechanical equipment efficiency

(A) Equipment shown in Tables 10.1A through 10.1G shall have a minimum performance at the specified rating conditions when tested in accordance with the specified test procedure. Omission of minimum performance requirements for equipment not listed in Tables 10.1A through 10.1G does not preclude use of such equipment. Equipment not listed in Tables 10.1A through 10.1G has no minimum performance requirements. Where multiple rating conditions or performance requirements are provided, the equipment shall satisfy all stated requirements, unless otherwise exempted by footnotes in the table. However, equipment covered under the Federal Energy Policy Act of 1992 (EPACT) shall have no minimum efficiency requirements for operation at minimum capacity or other than standard rating conditions. Equipment used to provide water heating functions as part of a combination shall satisfy all stated requirements for the appropriate space heating or cooling category.

(B) If a certification program exists for a product covered in Tables 10.1A through 10.1G, and it includes provisions for verification and challenge of equipment efficiency rating, then the product shall be either listed in the certification program or, alternatively, the ratings shall be verified by an independent laboratory test report. If no certification program exists for a product covered in Tables 10.1A through 10.1G, the equipment efficiency ratings shall be supported by data furnished by the manufacturer. Where components such as indoor or outdoor coils from different manufacturers are used, the system designer shall specify component efficiencies whose combined efficiency meets the minimum equipment efficiency requirements in the section.

(C) Tables 10.1A through 10.1G contain the minimum efficiency requirements for equipment covered by this section of the standard. The tables are organized to cover the following types of equipment:

(i) Table 10.1A Air Conditioners and Condensing Units;

(ii) Table 10.1B Heat Pumps;

(iii) Table 10.1C Water Chilling Packages;

(iv) Table 10.1D Terminal and Room Air Conditioners and Heat Pumps

(v) Table 10.1E Furnaces and Unit Heaters;

(vi) Table 10.1F Boilers; and

(vii) Table 10.1G Heat Rejection Equipment.

(D) Gas-fired and oil-fired forced air furnaces with input ratings . 225,000 Btu/h (65 kW) shall also have an intermittent ignition or interrupted device (IID), and have either power venting or a flue damper. A vent damper is an acceptable alternative to a flue damper for furnaces where combustion air is drawn from the conditioned space. All furnaces with input ratings .225,000 Btu/h (65kW), including electric furnaces, that are not located within the conditioned space shall have jacket losses not exceeding 0.75% of the input rating.

(E) Exceptions:

(i) Water-cooled centrifugal water-chilling packages that are not designed for operation at ARI Standard 550 test conditions (and thus cannot be tested to meet the requirements of Table 10.1C) of 44°F leaving chilled water temperature and 85°F entering condenser water temperature shall have a minimum full load COP and IPLV rating as shown in Tables 10.1H, I, and J. The table values are only applicable over the following full load design ranges:

(1) Leaving Chiller Water Temperature: 40 to 48°F;

(2) Entering Condenser Water Temperature: 75 to 85°F; and

(3) Condensing Water Temperature Rise: 5 to 15°F.

(ii) Chillers designed to operate outside of these ranges are not covered by this standard.

(2) Maintenance.

Operation and maintenance information shall be provided with the equipment.

Table 10.1 A (I-P Units)
Unitary Air Conditioners and Condensing Units, Electrically Operated, Minimum Efficiency Requirements.

Equipment Type	Size Category	Sub-Category or Rating Condition	Minimum Efficiency[b]	Test Performance
Air Conditioners Air Cooled	<65,000 Btu/h[d]	Split System and Single Package	10.0 SEER 9.7 SEER	ARI 210/240
	65,000 Btu/h and <135,000 Btu/h	Split System and Single Package	10.3 EER[c] 10.6 IPLV[c]	ARI210/240
	135,000 Btu/h and <240,000 Btu/h	Split System and Single Package	9.7 EER[c] 9.9 IPLV[c]	ARI 340/360
	240,000 Btu/h and <760,000 Btu/h	Split System and Single Package	9.5 EER[c] 9.7 IPLV[c]	ARI 340/360
	760,000 Btu/h	Split System and Single Package	9.2 EER[c] 9.4 IPLV[c]	ARI 340/360
Air Conditioners, Water and Evaporatively Cooled	<65,000 Btu/h	Split System and Single Package	12.1 EER 11.2 IPLV	ARI 210/240
	65,000 Btu/h and <135,000 Btu/h	Split System and Single Package	11.5 EER[c] 10.6 IPLV[c]	ARI 210/240
	135,000 Btu/h and 240,000 Btu/h	Split System and Single Package	11.0 EER[c] 10.3 IPLV[c]	ARI 340/360
	>240,000 Btu/h	Split System and Single Package	11.0 EER[c] 10.3 IPLV[c]	ARI 340/360
Condensing Units, Air Cooled	135,000 Btu/h		10.1 EER 11.2 IPLV	ARI 365
Condensing Units, Water or Evporatively Cooled	135,000 Btu/h		13.1 EER 13.1 IPLV	ARI 365

[b] IPLVs are only applicable to equipment with capacity modulation.

[c] Deduct 0.2 from the required EERs and IPLVs for units with a heating section other than electric resistance heat.

[d] Single-phase air-cooled air conditioners <65,000 Btu/h are regulated by NAECA. SEER values are those set by NAECA.

Table 10.1B (I-P Units)
Unitary and Applied Heat Pumps, Electrically Operated Minimum Efficiency Requirements.

Equipment Type	Size Category	Sub-Category or Rating Condition	Minimum Efficiency[b]	Test Performance
Air Cooled, (Cooling Mode)	<65,000 Btu/h[d]	Split System	10.0 SEER	ARI 210/240
		Single Package	9.7 SEER	
	65,000 Btu/h and <135,000 Btu/h	Split System and Single Package	10.1 EER[c] 10.4 IPLV[c]	ARI 210/240
	135,000 Btu/h and <240,000 Btu/h	Split System and Single Package	9.3 EER[c] 9.5 IPLV[c]	ARI 340/360
	240,000 Btu/h	Split System and Single Package	9.0 EER[c] 9.2 IPLV[c]	ARI 340/360
Water-Source (Cooling Mode)	<17,000 Btu/h	85°F Entering Water		ARI 320
		86°F Entering Water	11.2 EER	ARI/ISO-13256-1
	17,000 Btu/h and <65,000 Btu/h	85°F Entering Water		ARI 320
		86°F Entering Water	12.0 EER	ARI/ISO-13256-1
	65,000 Btu/h and <135,000 Btu/h	85°F Entering Water		ARI 320
		86°F Entering Water	12.0 EER	ARI/ISO-13256-1
Groundwater-Source (Cooling Mode)	<135,000 Btu/h	70°F Entering Water		ARI 325
		59°F Entering Water	16.2 EER	ARI/ISO-13256-1
Ground Source (Cooling Mode)	<135,000 Btu/h	77°F Entering Brine		ARI 330
		77°F Entering Water	13.4 EER	ARI/ISO-13256-1
Air Cooled (Heating Mode)	<65,000 Btu/h[d]	Split System	6.8 HSPF	ARI 210/240
		Single Package (Cooling Capacity)	6.6 HSPF	
	65,000 Btu/h and <135,000 Btu/h (Cooling Capacity)	47°F db/43°F wb Outdoor Air	3.2 COP	ARI 210/240
		17°F db/15°F wb Outdoor Air	2.2 COP	ARI 210/240
	135,000 Btu/h (Cooling Capacity)	47°F db/43°F wb Outdoor Air	3.1 COP	ARI 340/360
		17°F db/15°F wb Outdoor Air	2.0 COP	
Water-Source (Heating Mode)	<135,000 Btu/h (Cooling Capacity)	70°F Entering Water		ARI 320
		68°F Entering Water	4.2 COP	ARI/ISO-13256-1

Table 10.1B (continued)

Equipment Type	Size Category	Sub-Category or Rating Condition	Minimum Efficiency[b]	Test Performance
Groundwater-Source (Heating Mode)	<135,000 Btu/h (Cooling Capacity)	70°F Entering Water 50°F Entering Water	3.6 COP	ARI 325 ARI/ISO-13256-1
Ground Source (Heating Mode)	<135,000 Btu/h (Cooling Capacity)	32°F Entering Brine 32°F Entering Water	3.1 COP	ARI 330 ARI/ISO-13256-1

[b] IPLVs and Part load rating conditions are only applicable to equipment with capacity modulation.

[c] Deduct 0.2 from the required EERs and IPLVs for units with a heating section other than electric resistance heat.

[d] Single-phase air-cooled heat pumps <65,000 Btu/h are regulated by NAECA. SEER and HSPF values are those set by NAECA.

Table 10.1C (I-P Units)
Water Chilling Packages, Minimum Efficiency Requirements

Equipment Test	Size Category	Minimum Efficiency[b]	Test Procedure
Air Cooled, With Condenser, Electrically Operated	<150 Tons 150 Tons	2.80 COP 2.80 IPLV	ARI 550 or ARI 590 as appropriate
Air Cooled, Without Condenser, Electrically Operated	All Capacities	3.10 COP 3.10 IPLV	
Water Cooled, Electrically Operated, Positive Displacement (Reciprocating)	All Capacities	4.20 COP 4.65 IPLV	ARI 590
Water Cooled, Electrically Operated, Positive Displacement (Rotary Screw and Scroll)	<150 Tons 150 Tons and <300 Tons 300 Tons	4.45 COP 4.50 IPLV 4.90 COP 4.95 IPLV 5.50 COP 5.60 IPLV	ARI 550 or ARI 590 as appropriate
Water Cooled, Electrically Operated, Centrifugal	<150 Tons 150 Tons and <300 Tons 300 Tons	5.00 COP 5.00 IPLV 5.55 COP 5.55 IPLV 6.10 COP 6.10 IPLV	ARI 550
Air Cooled Absorption Single Effect	All Capacities	0.60 COP	ARI 560
Water Cooled Absorption Single Effect	All Capacities	0.70 COP	ARI 560
Absorption Double Effect, Indirect-Fired	All Capacities	1.00 COP 1.05 IPLV	ARI 560
Absorption Double Effect, Direct- Fired	All Capacities	1.00 COP 1.00 IPLV	ARI 560 ARI 560

[b] The chiller equipment requirements do not apply for chillers used in low temperature applications where the design leaving fluid temperature is less than or equal to 40°F.

Table 10.1D (I-P Units)
Packaged Terminal Air Conditioners, Packaged Terminal Heat Pumps, Room Air Conditioners, and Room Air Conditioners Heat Pumps, Electrically Operated, Minimum Efficiency Requirements.

Equipment Type	Size Category (Input)	Sub-Category or Rating Condition	Minimum Efficiency	Test Performance
PTAC (Cooling Mode) New Construction	All Capacities	95°F db Outdoor-Air	12.5 - (0.213 x Cap/1000)[b] EER	ARI 310/380
		82°F db Outdoor-Air	14.7 - (0.213 x Cap/1000)[b] EER	
PTAC (Cooling Mode) Replacements[c]	All Capacities	95°F db Outdoor-Air	10.9 - (0.213 x Cap/1000)[b] EER	ARI 310/380
		82°F db Outdoor-Air	13.1 - (0.213 x Cap/1000)[b] EER	
PTHP (Cooling Mode) New Construction	All Capacities	95°F db Outdoor-Air	12.3 - (0.213 x Cap/1000)[b] EER	ARI 310/380
		82°F db Outdoor-Air	12.3 - (0.213 x Cap/1000)[b] EER	
PTHP (Cooling Mode) Replacements[c]	All Capacities	95°F db Outdoor-Air	10.8 - (0.213 x Cap/1000)[b] EER	ARI 310/380
		82°F db Outdoor-Air	13.0 - (0.213 x Cap/1000)[b] EER	
PTHP (Heating Mode) New Construction	All Capacities		3.2 - (0.026 x Cap/1000)[b] COP	ARI 310/380
PTHP (Heating Mode) Replacements[c]	All Capacities		2.9 - (0.026 x Cap/1000)[b] COP	ARI 310/380
Room Air Conditioners, with Louvered Sides	<6,000 Btu/h		9.7 EER	ANSI/AHAM RAC-1
	6,000 Btu/h and <8,000 Btu/h		9.7 EER	
	8,000 Btu/h and <14,000 Btu/h		9.8 EER	
	14,000 Btu/h and <20,000 Btu/h		9.7 EER	
	20,000 Btu/h		8.5 EER	
Room Air Conditioners without Louvered Sides	<8,000 Btu/h		9.0 EER	ANSI/AHAM RAC-1
	<20,000 Btu/h		8.0 EER	
	20,000 Btu/h		8.5 EER	

Table 10.1D (continued)

Equipment Type	Size Category (Input)	Sub-Category or Rating Condition	Minimum Efficiency	Test Performance
Room Air Conditioners Heat Pumps Louvered Sides	<20,000 Btu/h		9.0 EER	ANSI/AHAM
	20,000 Btu/h		8.5 EER	
Room Air Conditioner Heat Pumps without Louvered Sides	<14,000 Btu/h		8.5 EER	ANSI/AHAM
	14,000 Btu/h		8.0 EER	
Room Air Conditioner, Casement Only	All Capacities		8.7 EER	ANSI/AHAM
Room Air Conditioner Casement - Slider	All Capacities		9.5 EER	

[b] Cap means the rated cooling capacity of the product in Btu/h. If the unit's capacity is less than 7,000 Btu/h, use 7,000 Btu/h in the calculation. If the unit's capacity is greater than 15,000 Btu/h, use 15,000 Btu/h in the calculation.

[c] Replacement units must be factory labeled as follows: "MANUFACTURED FOR REPLACEMENT APPLICATIONS ONLY, NOT TO BE INSTALLED IN NEW CONSTRUCTION PROJECTS." Replacement efficiencies apply only to units with existing sleeves less than 16 inches high and less than 42 inches wide.

Table 10.1E (I-P and SI Units)
Warn Air Furnaces and Combination Warm Air Furnaces/Air Conditioning Units, Warm Air Duct Furnaces and Unit Heaters, Minimum Efficiency Requirements.

Equipment Type	Size Category	Sub-Category or Rating Condition	Minimum Efficiency	Test Performance
Warm Air Furnace, Gas-Fired	<225,000 Btu/h (66 kW)		78% AFUE or 80% E_t[c]	DOE 10 CFR Part 430 or ANSI Z21.47
	225,000 Btu/h (66kW)	Maximum Capacity[c]	80% E_c[f]	ANSI Z21.47
Warm Air Furnace, Oil-Fired	<225,000 Btu/h (66kW)		78% AFUE or 80% E_t[c]	DOE 10 CFR Part 430 or UL 727
	225,000 Btu/h (66 kW)	Maximum Capacity[b]	81% E_t[g]	UL 727
Warm Air Duct Furnaces, Gas-Fired	All Capacities	Maximum Capacity[b]	81% E_c[e]	ANSI Z83.9
Warm Air Unit Unit Heaters, Gas-Fired	All Capacities	Maximum Capacity[b]	80% E_c[e]	ANSI Z83.8
Warm Air Unit Unit Heaters, Oil-Fired	All Capacities	Maximum Capacity[b]	80% E_c[e]	UL 731

[b] Maximum rating as provided for and allowed by the unit's controls.
[c] Combination units not covered by NAECA (3-phase power or cooling capacity greater than or equal to 65,000 Btu/h [19 kW] may comply with either rating.
[d] E_t = Thermal efficiency. See test procedure for detailed discussion.
[e] E_c = Combustion efficiency (100% less flue losses). See test procedure for detail discussion.
[f] E_c = Combustion efficiency. Units must also include an IID, have jacket losses not exceeding 0.75% of the input rating, and have either power venting or a flue damper. A vent damper is an acceptable alternative to a flue damper for those furnaces where combustion air is drawn from the conditioned space.
[g] E_t = Thermal efficiency. Units must also include an IID, have jacket losses not exceeding 0.75% of the input rating, and have either power venting or a flue damper. A vent damper is an acceptable alternative to a flue damper for those furnaces where combustion air is drawn from the conditioned space.

Table 10.1F (I-P Units)
Boilers, Gas-and Oil-Fired, Minimum Efficiency Requirements.

Equipment Type[f]	Size Category	Sub-Category or Rating	Minimum Efficiency[d] Condition	Test Procedure
Boilers, Gas-Fired	<300,000 Btu/h	Hot Water	80% AFUE	DOE 10 CFR Part 430 H.I. Htg Standard
	300,000 Btu/h and 2,500,00 Btu/h	Steam Maximum Capacity[b]	75% AFUE 75% E_t	
	>2,550,000 Btu/h	Hot Water	80% E_c	
	>2,500,000 Btu/h	Steam	80% E_c	
Boilers, Oil-Fired	<300,000 Btu/h		80% E_c	DOE 10 CFR Part 430 H.I. Htg Standard
	300,000 Btu/h and 2,500,000 Btu/h	Maximum Capacity[b]	78% E_t	
	>2,500,000 Btu/h[f]	Hot Water	83% E_c	
	>2,500,000	Steam	83% E_c	
Oil-Fired (Residual)	300,000 Btu/h and 2,500,000 Btu/h	Maximum Capacity$_b$	78% E_t	H.I. Htg Standard
	>2,500,000 Btu/h[f]	Hot Water	83% E_c	
	>2,500,000 Btu/h[f]	Steam	83% E_c	

[b] Maximum rating as provided for and allowed by the unit's controls.
[d] E_t = Thermal efficiency. See reference document for detailed information.
[f] These requirements apply to boilers with rated input of 8,000,000 Btu/h or less that are not packaged boilers, and to all packaged boilers. Minimum efficiency requirements for boilers cover all capacities of packaged boilers.

Table 10.1G (I-P and SI Units)
Performance Requirements for Heat Rejection Equipment.

Equipment Type	Total System Heat Rejection Capacity at Rated Conditions	Sub-Category or Rating Condition	Required Performance[a,b]	Test Performance
Propeller or Axial Fan Cooling Towers	All	95°F (35°C) Entering Water 85°F (29°C) Leaving Water 75°F (24°C) wb Outdoor Air	38.2 gpm/hp (3.23L/s kW)	CTI ATC-105 and CTI STD-201
Centrifugal Fan Cooling Towers	All	95°F (35°C) Entering Water 875°F (29°C) Leaving Water wb Outdoor Air	20.0 gpm/hp (1.7 L/s kW)	CTI ATC-105 and CTI STD-201
Air Cooled Condensers	All	125°F (52°C) Condensing Temperature R22 Test Fluid 190°F (88°C) Entering Gas Temperature 15°F (8°C) Subcooling 95°F (35°C) Entering Drybulb	176,000 Btu/h hp (69 COP)	ARI 460

[a] For purposes of this table, cooling tower performance is defined as the maximum flow rating of the tower divided by the fan nameplate rated motor power.

[b] For purposes of this table air-cooled condensed performance is defined as the heat rejected from the refrigerant divided by the fan nameplate rated motor power.

Table 10.1H (I-P Units)

COPs and IPLV's for Non-Standard Centrifugal Chillers ≤ 150 Tons.

Centrifugal Chillers ≤ 150 Tons COP_{std} = 5.4								
			Condenser Flow Rate					
			2gpm/ ton	2.5gpm/ ton	3gpm/ ton	4gpm/ ton	5gpm/ ton	6gpm/ ton
Leaving Chilled Water Temperature (°F)	Entering Condenser Water Temperature (°F)	LIFT[a] (°F)	Required COP and IPLV					
46	75	29	6.00	6.27	6.48	6.80	7.03	7.20
45	75	30	5.92	6.17	6.37	6.66	6.87	7.02
44	75	31	5.84	6.08	6.26	6.53	6.71	6.86
43	75	32	5.75	5.99	6.16	6.40	6.58	6.71
42	75	33	5.67	5.90	6.06	6.29	6.45	6.57
41	75	34	5.59	5.82	5.98	6.19	6.34	6.44
46	80	34	5.59	5.82	5.98	6.19	6.34	6.44
40	75	35	5.50	5.74	5.89	6.10	6.23	6.33
45	80	35	5.50	5.74	5.89	6.10	6.23	6.33
44	80	36	5.41	5.66	5.81	6.01	6.13	6.22
43	80	37	5.31	5.57	5.73	5.92	6.04	6.13
42	80	38	5.21	5.48	5.64	5.84	5.95	6.04
41	80	39	5.09	5.39	5.56	5.76	5.87	5.95
46	85	39	5.09	5.39	5.56	5.76	5.87	5.95
40	80	40	4.96	5.29	5.47	5.67	5.79	5.86
45	85	40	4.96	5.29	5.47	5.67	5.79	5.86
44	85	41	4.83	5.18	5.40	5.59	5.71	5.78
43	85	42	4.68	5.07	5.28	5.50	5.62	5.70
42	85	43	4.51	4.94	5.17	5.41	5.54	5.62
41	85	44	4.33	4.80	5.05	5.31	5.45	5.53
40	85	45	4.13	4.65	4.92	5.21	5.35	5.44
Condenser DT[b]			14.04	11.23	9.36	7.02	5.62	4.68

[a] LIFT = Entering Condenser Water Temperature _ Leaving Chilled Water Temperature

[b] Condenser DT = Leaving Condenser Water Temperature (F) _ Entering Condenser Water Temperature (F)

$K_{adj} = 6.1507 - 0.30244(X) + 0.0062692(X)^2 - 0.000045595(X)^3$ where X = Condenser DT + LIFT

$COP_{adj} = K_{adj} * COP_{std}$

Table 10.1I (I-P Units)
COPs and IPLV's for Non-Standard Centrifugal Chillers > 150 Tons, ≤ 300 Tons

Centrifugal Chillers > 150 Tons, ≤ 300 Tons COP_{std} = 5.55								
			Condenser Flow Rate					
			2gpm/ ton	2.5gpm/ ton	3gpm/ ton	4gpm/ ton	5gpm/ ton	6gpm/ ton
Leaving Chilled Water Temperature (°F)	Entering Condenser Water Temperature (°F)	LIFT[a] (°F)	Required COP and IPLV					
46	75	29	6.17	6.44	6.66	6.99	7.23	7.40
45	75	30	6.08	6.34	6.54	6.84	7.06	7.22
44	75	31	6.00	6.24	6.43	6.71	6.90	7.05
43	75	32	5.91	6.15	6.33	6.58	6.75	6.89
42	75	33	5.83	6.07	6.23	6.47	6.63	6.75
41	75	34	5.74	5.98	6.14	6.36	6.51	6.62
46	80	34	5.74	5.98	6.14	6.34	6.51	6.62
40	75	35	5.65	5.90	6.05	6.26	6.40	6.51
45	80	35	5.65	5.90	6.05	6.26	6.40	6.51
44	80	36	5.56	5.81	5.97	6.17	6.30	6.40
43	80	37	5.46	5.73	5.89	6.08	6.21	6.30
42	80	38	5.35	5.64	5.80	6.00	6.12	6.20
41	80	39	5.23	5.54	5.71	5.91	6.03	6.11
46	85	39	5.23	5.54	5.71	5.91	6.03	6.11
40	80	40	5.10	5.44	5.62	5.83	5.95	6.03
45	85	40	5.10	5.44	5.62	5.83	5.95	6.03
44	85	41	4.96	5.33	5.55	5.74	5.86	5.94
43	85	42	4.81	5.21	5.42	5.66	5.78	5.86
42	85	43	4.63	5.08	5.31	5.56	5.69	5.77
41	85	44	4.45	4.93	5.19	5.46	5.60	5.69
40	85	45	4.24	4.77	5.06	5.35	5.50	5.59
Condenser DT[b]			14.04	11.23	9.36	7.02	5.62	4.68

[a] Lift = Entering Condenser Water Temperature _ Leaving Chilled Water Temperature

[b] Condenser DT = Leaving Condenser Water Temperature (F) - Entering Condenser Water Temperature (F)

$K_{adj} = 6.1507 - 0.30244(X) + 0.0062692(X)^2 - 0.000045595(X)^3$
where X = Condenser DT = LIFT

$$COP_{adj} = K_{adj} * COP_{std}$$

Table 10.1J (I-P Units)
COPs and IPLVs for Non-Standard Centrifugal Chillers > 300 Tons

Centrifugal Chillers > 300 COP_{std} = 6.1								
			Centrifugal Flow Rate					
			2gpm/ ton	2.5gpm/ ton	3gpm/ ton	4gpm/ ton	5gpm/ ton	6gpm/ ton
Leaving Chilled Water Temperature (°F)	Entering Chilling Water Temperature (°F)	LIFT[a] (°F)	Required COP and IPLV					
46	75	29	6.80	7.11	7.35	7.71	7.97	8.16
45	75	30	6.71	6.99	7.21	7.55	7.78	7.96
44	75	31	6.61	6.89	7.09	7.40	7.61	7.77
43	75	32	6.52	6.79	6.98	7.26	7.45	7.60
42	75	33	6.43	6.69	6.87	7.13	7.31	7.44
41	75	34	6.33	6.60	6.77	7.02	7.18	7.30
46	80	34	6.33	6.60	6.77	7.02	7.18	7.30
40	75	35	6.23	6.50	6.68	6.91	7.06	7.17
45	80	35	6.23	6.50	6.68	6.91	7.06	7.17
44	80	36	6.13	6.41	6.58	6.81	6.95	7.05
43	80	37	6.02	6.31	6.49	6.71	6.85	6.94
42	80	38	5.90	6.21	6.40	6.61	6.75	6.84
41	80	39	5.77	6.11	6.30	6.52	6.65	6.74
46	85	39	5.77	6.11	6.30	6.52	6.65	6.74
40	80	40	5.63	6.00	6.20	6.43	6.56	6.65
45	85	40	5.63	6.00	6.20	6.43	6.56	6.65
44	85	41	5.47	5.87	6.10	6.33	6.47	6.55
43	85	42	5.30	5.74	5.98	6.24	6.37	6.46
42	85	43	5.11	5.60	5.86	6.13	6.28	6.37
41	85	44	4.90	5.44	5.72	6.02	6.17	6.27
40	85	45	4.68	5.26	5.58	5.90	6.07	6.17
Condenser DT[b]			14.04	11.23	9.36	7.02	5.62	4.68

[a] LIFT = Entering Condenser Water Temperature _ Leaving Chilled Water Temperature

[b] Condenser DT = Leaving Condenser Water Temperature (F) - Entering Condenser Water Temperature (F)

$K_{adj} = 6.1507 - 0.30244(X) + 0.0062692(X)^2 - 0.000045595(X)^3$ where X = Condenser DT + LIFT

$COP_{adj} = K_{adj} * COP_{std}$

(Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001; Ord. No. 810, December 1, 2003)

Sec. 12-6.14 Service Water Heating Systems and Equipment

(a) Scope.

The requirements of this section apply to new water heating systems and equipment installed in new buildings, major additions to buildings or portions of buildings undergoing major alterations or repair. Emergency replacements of water heating equipment need not comply with this section.

(b) General.

(1) Information.

Service water heating equipment shall be supplied with the information needed to make the analysis required to determine compliance with this Article.

(2) Compliance.

The water heating system and equipment are in compliance with the requirements of this Division when the Basic Requirements of Section 12-6.14(c) are satisfied.

(c) Basic Requirements.

(1) Sizing of systems.

Service water heating system design loads for the purpose of sizing and selecting systems shall be determined in accordance with the procedures described in Chapter 44 of ASHRAE Handbook, 1991 HVAC Applications, or a similar computation procedure. Table 11-2 may be used for sizing residential water heating systems.

(2) Equipment efficiency.

(A) Minimum equipment efficiency.

(i) All water heaters and hot water storage tanks shall meet the criteria of Table 11-1. Where multiple criteria are listed, all criteria shall be met. Where no criteria are provided, no requirements need be met.

(ii) Exception.

Storage water heaters and hot water storage tanks having more than 140 gallons of storage capacity need not meet the standby loss (SL) or heat loss (HL) requirements of Table 11-1 if the tank surface area is thermally insulated to R-12.5 and if a standing pilot light is not used.

(B) Data furnished by the equipment manufacturer or certified under a nationally recognized certification program or rating procedure shall be acceptable to satisfy these requirements.

(C) Omissions. Omission of minimum performance requirements for certain classes of equipment does not preclude use of such equipment when appropriate.

(3) Piping insulation.

(A) Circulating Systems and Systems with Pipes Heated by Heat Tape or Similar Means. Piping insulation shall conform to the requirements of Table 9-1 or an equivalent level as calculated in accordance with Equation 9-1.

(B) Noncirculating Systems. The first eight feet of piping from a storage system that is

maintained at a constant temperature shall be insulated as provided in Table 9-1 or to an equivalent level as calculated in accordance with Equation 9-1.

(4) Temperature controls

(A) Service water heating systems shall be equipped with temperature controls capable of adjusting storage temperatures from 90°F to a temperature setting compatible with the intended use. Some representative hot water utilization temperatures are listed in the ASHRAE Handbook, 1991 HVAC Applications, Chapter 44, Table 3.

(B) Exception.

Service water heating systems serving residential dwelling units may be equipped with controls capable of adjustment down to 110°F only.

(5) Remote or booster heaters.

(A) Where temperatures higher than 130°F are required at certain outlets for a particular intended use, separate remote heaters or booster heaters shall be installed for those outlets.

(B) Exception.

Where it can be shown that either energy cost is not reduced by the application of this requirement or that the total installed cost of the equipment, maintenance and energy used over the life of the equipment is not reduced.

(6) Circulating hot water systems and heated pipes.

(A) Systems designed to maintain temperatures in hot water pipes, including circulating hot water systems and heat tape on water pipes, shall be equipped with automatic time switches or other controls that can be set to turn off the system when availability of hot water is not required.

(B) Exception

When the need for hot water is continuous.

Table 11-1 Minimum Performance of Water Heating Equipment

Category	Type	Fuel	Input Rating	Vol.	Input to Vol.Ratio (Btuh/gal)	Test Method	Energy Factor[c]	Et[g] %	Standby Loss[d] %/hr
NAECA Covered Water Heating Equipment[a]	all	electric[f]	≤12kW	all		DOE Test Proc. 10 CFR, Part 430	≥0.93-0.00132V		
	storage	gas	≤75,000 Btuh	all			≥0.62-0.0019V		
	instantaneous	gas	≤200,000 Btuh	all			≥0.62-0.0019V		
	storage	oil	≤105,000 Btuh	all			≥0.59-0.0019V		
	instantaneous	oil	≤210,000 Btuh	all			≥0.59-0.0019V		
	pool heater	gas/oil	all	all		ANSI Z21.56-1989		≥78%	
Other Water Heating Equipment[b]	storage	electric	all	all		ANSI Z21.10.3, 1990			$\leq 0.30+27/V_T$
	storage/ Instantaneous	gas/oil	≤155,000 Btuh	all	<4,000			≥78%	$\leq 1.3+114/V_T$
			≥155,000 Btuh	all	<4,000			≥78%	$\leq 1.3+95/V_T$
				<10	≥4,000			≥80%	-
				≥10	≥4,000			≥77%	$\leq 2.3+67/V_T$
	air-source heat pump[h]	electric	>24A	all	≥3.0				
Unfired	Storage Tanks			all					≤6.5Btuh/ft^2[e]

a. Consistent with National Appliance Energy Conservation Act (NAECA) of 1987.
b. All except those water heaters covered by NAECA.
c V is the rated storage volume as specified by the manufacturer.
d. V_T is the storage volume in gallons as measured during the test to determine the standby loss. V_T may differ from V, but it is within the tolerances allowed by the applicable Z21 and UL standards. Accordingly, for the purpose of estimating the standby loss requirement using the rated volume shown on the rating plate V_T should be considered as no less than 0.95V for gas and oil water heaters and no less than 0.90V for electric water heaters.
e. Heat loss of tank surface area (Btuh/ft^2) based on 80°F water-air temperature difference.
f. Electric water heaters covered by NAECA include heat pumps with maximum current ratings of 24 A at a voltage no greater than 250 V.
g. E_t = thermal efficiency. C.O.P. for heat pumps.
h. Heat pump C.O.P. minimum requirements based on 75°F DB, 63°F WB, 70°F inlet and 130°F leaving water temperature (heat pumps rated for a maximum leaving water temperature of 120°F shall have a minimum C.O.P. of 3.7).

(7) Swimming pools, hot tubs and Spas

(A) Swimming Pool, Hot Tub and Spa Heaters. All water heaters for swimming pools, hot tubs and spas shall meet the criteria of Table 11-1 and shall be equipped with a readily accessible switch to allow shutting off the heater without adjusting the thermostat setting and to allow restarting without manually relighting a pilot light.

(B) Pool Heating Systems.

(i) Active solar or heat pump heating systems shall be used for swimming pool heating.

(ii) Exception.

Alternative systems may be used if it can be shown that they provide lower annual energy costs.

(C) Time Switches.

(i) Time switches shall be installed so that the pump can be set to run in the off-peak electric demand period and can be set for the minimum time necessary to maintain the water in a clear and sanitary condition in keeping with applicable health standards.

(ii) Exception.

Pumps required to operate solar or waste-heat recovery pool heating systems need not use time switches.

(8) Heat Traps.

Vertical pipe risers serving storage water heaters and storage tanks not having integral heat traps and serving a non-recirculating system shall have heat traps on both the inlet and outlet piping as close as practical to the storage tank. A heat trap is a means to counteract the natural convection of heated water in a vertical pipe run. The means is either a device specially designed for the purpose or an arrangement of tubing that forms a loop of 360 degrees of piping that from the point of connection to the water heater (inlet of outlet) includes a length of piping directed downwards before connection to the vertical piping of the supply water or hot water distribution system as applicable.

Table 11-2 - Residential Hot Water Consumption for Sizing Water Heating Systems

Residential Dwelling Unit Size (ft^2)[a]	**Hot Water Consumption (gal/day)**
$\leq$ 1,000	30
> 1,000 and $\leq$ 1,400	40
> 1,400 and $\leq$ 1,800	60
> 1,800	80

[a] Excluding garage area.

(Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001; Ord. No. 810, December 1, 2003)

Sec. 12-6.15 Energy Management

(a) General.

This Division describes the minimum measurement, control, testing and documentation features that shall be provided for the building. The intent is to provide design data along with a means of testing the facility in its completed form so that the facility can be operated in an energy efficient manner as intended by this Article.

(b) Other Specific Control Requirements.

See the following articles for specific control requirements for specific systems and equipment:

Section 12-6.9 - Electric Power and Distribution Systems

Section 12-6.10 - Lighting Systems

Section 12-6.12 - HVAC Systems

Section 12-6.13 - HVAC Equipment

Section 12-6.14 - Service Water Heating Systems and Equipment

(c) General Requirements.

(1) Public utility meter.

Each public utility energy service meter provided shall be located or arranged so that the meter can be monitored. Monitoring of utility company meters and the installation of submetering or checkmetering shall be in compliance with the utility company regulations.

(2) Building energy measurement system.

(A) Each distinct building energy service shall have a measurement system provided to accumulate a record or indicator reading of the overall amounts of the energy being delivered.

(B) Exception.

A building of 5000 ft^2 gross floor area or less in a complex of buildings may have its measurement system included with another building in the same complex.

(3) Equipment energy measurement.

All equipment used for heating or cooling and HVAC delivery systems of greater than 20 kVA or 60,000 Btu/h energy input shall be arranged so that the inputs and

outputs such as flow, temperature and pressure can be individually measured to determine the equipment energy consumption, the installed performance capabilities and efficiencies, or both. The intent of this requirement is to provide physical access or other provisions in the equipment or layout that will allow these measurements in the future if so desired. Installation of the measurement equipment is not required for compliance with this code. (Ord. No. 95, September 5, 1956; Sec. 4, C.O. 1971; Ord. No. 158, May 2, 1972; Ord. No. 268, October 8, 1975; Chapter 12, R.C.O. 1976; Ord. No. 357, February 2, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 484, February 18, 1986; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Sec. 12-6.16 Building Energy Cost Budget Method

(a) Purpose.

This Division provides criteria for the design of energy efficient buildings that allow greater design flexibility than the other compliance paths of this Article, while providing building energy efficiency levels consistent with the other paths. This path provides an opportunity for the building designer to evaluate and take credit for innovative energy efficiency designs, materials, and equipment such as daylighting, heat recovery, better zonal temperature control, and thermal storage, as well as other applications of "off peak" electrical energy that cannot be accounted for in the Prescriptive or System Performance paths. Designers are encouraged to employ the Building Energy Cost Budget method set forth in this section for evaluating proposed design alternatives in preference to using the Prescriptive or System Performance methods.

(b) Scope.

The building energy cost budget method may be used when designs fail to meet either the Prescriptive or System Performance criteria of this Article. It may be employed for evaluating the compliance of all proposed designs (except shell buildings).

(c) General.

Compliance is achieved when the estimated design energy cost (DECOS) is not greater than the energy cost budget (ECB).

(d) Determination of the Annual Energy Cost Budget.

The energy cost budget (ECB) is the summation of the 12 monthly energy cost budgets (ECB_m). Each ECB_m is the product of the monthly budget energy consumption ($BECON_m$) of each type of energy used multiplied by that monthly energy cost ($ECOS_m$) per unit of energy for each type of energy used. The ECB shall be determined in accordance with Equation 13-1 as follows:

Equation 13-1

$$ECB = ECB_{jan} + \ldots ECB_m + \ldots + ECB_{dec}$$

Based on Equation 13-2:

Equation 13-2

$$ECB_m = (BECON_{m1}) x (ECOS_{m1}) + \ldots + (BECON_{mi}) x (ECOS_{mi})$$

Where

ECB = The annual Energy Cost Budget

ECB_m = The monthly Energy Cost Budget

$BECON_{mi}$ = The monthly Budget Energy Consumption of the ith type of energy

$ECOS_{mi}$ = The monthly Energy Cost, per unit of the ith type of energy

The $ECOS_{mi}$ shall be determined using current rate schedules or contract prices available at the building site for all types of energy purchased. These costs shall include demand charges, rate blocks, time of use rates, interruptable service rates, delivery charges, fuel adjustment factors, taxes, and all other charges applicable for the type, location, operation, and size of the proposed building. The $BECON_{mi}$ shall be calculated from the first day through the last day of each month, inclusive.

(1) Reference building.

Each floor shall be oriented exactly as in the proposed design. The form, gross and conditioned floor area of each floor and the number of floors shall be as in the proposed design. All other characteristics such as lighting, envelope and HVAC system shall meet the requirements of Section 12-6.9 through Section 12-6.15.

(2) Calculation procedure and simulation tool.

The reference building shall be modeled using the criteria of Sections 12-6.16(g) and 12-6.16(h). The modeling shall use a climate data set appropriate for both the site and the complexity of the energy conserving features of the design. ASHRAE WYEC weather tapes or bin weather data shall be a default choice.

(e) Design Energy Consumption (DECON) and Design Energy Cost (DECOS). The DECON shall be calculated by modeling the proposed design using the same methods, assumptions, climate data, and simulation tool as were used to establish the ECB, except as explicitly provided in Section 12-6.16(g). The DECOS shall be calculated as provided in Equation 13-3 using

the same rate schedules or contract prices as were used to establish the ECB. If the proposed design includes cogeneration or renewable energy sources designed for the sale of energy off site, the energy cost and income resulting from outside sales shall not be included in the calculation of DECOS. Such systems shall be modeled as operating to supply energy needs of the proposed design only.

Equation 13-3

$$DECOS = DECOS_{jan} + \ldots DECOS_{m} \ldots + DECOS_{dec}$$

Based on Equation 13-4:

Equation 13-4

$$DECOS_{m} = (DECON_{m1}) \times (ECOS_{m1}) + \ldots + (DECON_{mi}) \times (ECOS_{mi})$$

Where

DECOS = The annual Design Energy Cost

$DECOS_{m}$ = The monthly Design Energy Cost

$DECON_{mi}$ = The monthly Design Energy Consumption of the ith type of energy

$ECOS_{mi}$ = The monthly Energy Cost per unit of the ith type of energy (See Section 12-6.16(d) for $ECOS_{mi}$ definitions)

The $DECON_{mi}$ shall be calculated from the first day through the last day of the month, inclusive.

(f) Compliance. The proposed design complies with this Article when the design energy cost (DECOS) is not greater than the energy cost budget (ECB) as provided in Equation 13-5, and all of the basic requirements of Sections 12-6.9(c), 12-6.10(c), 12-6.11(c), 12-6.12(c), 12-6.13(c), 12-6.14(c), and 12-6.15(c) are met.

Equation 13-5

$$DECOS < ECB$$

(g) Standard Calculation Procedure.

The standard calculation procedure consists of methods and assumptions for calculating the ECB for the reference building and the DECON and DECOS of the proposed design. In order to maintain consistency between the ECB and the DECOS, the input assumptions in this section shall be used.

"Prescribed" assumptions shall be used without variation. "Default" assumptions shall be used unless the designer can demonstrate that a different assumption better characterizes the building's use over its expected life. Any modification of a default assumption shall be used in modeling both the reference building and the proposed design unless the designer demonstrates a clear cause to do otherwise. Special procedures necessary for speculative buildings are discussed in subsection 12-6.16(g)(7).

(1) Orientation and shape.

The reference building shall consist of the same number of stories and gross floor area for each story as the proposed design. Each floor shall be oriented exactly as the proposed design. The geometric form shall be the same as the proposed design. Glass area and orientation shall be exactly as the proposed design.

(2) Internal loads.

Internal loads shall be modeled as noted in the following subsections (A) through (C).

(A) Occupancy. Occupancy schedules shall be default assumptions. The same assumptions shall be made in computing design energy consumption as are used in calculating the energy cost budget.

Occupancy levels vary by building type and time of day. Table 13-1, Occupancy Density, establishes the density presented as ft^2/person of conditioned floor area that will be used by each building type. Table 13-5, Building Schedule Percentage Multipliers, establishes the percentage of the people that are in the building by hours of the day for each building type.

(B) Lighting. Interior lighting power allowance (ILPA), for calculating the ECB shall be determined from Section 12-6.10. The lighting power used to calculate the DECOS shall be the actual adjusted power of the proposed lighting design. If the lighting controls in the proposed design are more effective at saving energy than those required by Section 12-6.10(c), the actual installed lighting power shall be used along with the schedules reflecting the action of the controls to calculate the DECOS. This "actual installed lighting power" shall not be adjusted by the power adjustment factors listed in Table 6-4.

Lighting levels in buildings vary based on the type of uses within buildings, by area and by time of day. Table 13-5 contains the lighting energy profiles which establish the percentage of the lighting load that is ON in each reference building by hour of the day. These profiles are default assumptions and can be changed if required when calculating the ECB to provide, for example, a 12 hour rather than an 8-hour work day.

(C) Receptacle. Receptacle loads and profiles are default assumptions. The same assumptions shall be made in calculating design energy consumption as were used in calculating the energy cost budget.

Receptacle loads include all general service loads that are typical in a building. These loads should include additional process electrical usage, but exclude HVAC primary or auxiliary electrical usage. Table 13-2, Receptacle Power Densities, establishes the density in W/ft^2 to be used. The receptacle energy profiles shall be the same as the lighting energy profiles in Table 13-5. This profile establishes the percentage of the

receptacle load that is ON by hour of the day and by building type.

(3) Envelope

(A) Insulation and Glazing. The insulation and glazing characteristics of the reference building envelope shall be determined from Section 12-6.11(d). In the calculation of the DECON of the proposed design, the envelope characteristics of the proposed design shall be used. The reference building shall not have an overhang. The reference building shall be modeled with a glazing material with a constant shading coefficient equal to the Relative Solar Heat Gain requirements in Section 12-6.11(d)(3).

(B) Infiltration.

(i) For reference buildings, infiltration assumptions shall use the prescribed assumptions for calculating the ECB and default assumptions for the DECON. Infiltration shall impact only perimeter zones. When the HVAC system is ON, no infiltration shall be assumed to occur. When the HVAC system is OFF, the infiltration rate for buildings with or without operable windows shall be assumed to be 0.038 cfm/ft^2 of the gross exterior wall.

(ii) Exception.

Hotels/motels and residential buildings shall have infiltration rates of 0.038 cfm/ft^2 of gross exterior wall area at all times.

(C) Envelope and Ground Absorptivities. Absorptivity assumptions shall be prescribed assumptions for the reference building and default assumptions for the proposed design. The solar absorptivity of opaque elements of the building envelope shall be assumed to be 70%. The solar absorptivity of ground surfaces shall be assumed to be 80% (20% reflectivity).

(D) Window management. If the plans and specifications show interior shading devices which perform better than a medium-colored venetian blind, then those shading devices may be modeled in the proposed design, and the reference building shall be modeled with medium-colored venetian blinds. Otherwise, interior shading shall be modeled identically in the proposed and reference buildings, either with medium-colored venetian blinds or without interior shades.

If the simulation tool has a window management algorithm, then manually operated shades shall be assumed to close when solar gain exceeds 30 Btu/h-ft^2. Otherwise, assume that half the blinds are closed continuously. If the proposed design includes special controls for interior shading devices then they may be modeled, and the blinds in the reference building shall be assumed to close when solar gain exceeds 30 Btu/h-ft^2.

(E) Shading. For reference buildings and the proposed design, shading by permanent structures, terrain, and vegetation may be taken into account for computing energy consumption, whether or not these features are located on the building site. A permanent fixture is one that is likely to remain for the life of the proposed design.

(4) HVAC systems and equipment.

The HVAC system and equipment type in the reference building shall be the same as the proposed design, but the system and equipment in the reference building shall exactly meet the requirements of Sections 12-6.12 and 12-6.13. Special energy cost reducing features of the proposed design need not be included in the reference building if they are not required in Sections 12-6.12 and 12-6.13. If the HVAC system type in the proposed design is not allowed under the requirements of Section 12-6.12(d), then a reasonably similar complying system shall be modeled in the reference building.

(A) HVAC zones.

For multi-family buildings, the reference building shall have one zone per dwelling unit. The proposed design shall have one zone per unit unless zonal thermostatic controls are provided within units; in this case, two zones per unit shall be modeled.

In all other building types, HVAC zones for calculating the ECB and the DECOS shall be exactly the same. The zones in the simulation shall correspond to the zones provided by the controls in the proposed design.

Building types such as assembly or warehouse may be modeled as a single zone if there is only one space. Thermally similar zones, such as those facing one orientation on different floors, may be grouped together for the purposes of either the DECOS or ECB simulation.

(B) Equipment Sizing and Redundant Equipment. Process loads should be modeled in calculating both the ECB and the DECOS. If process loads are modeled, the equipment shall be sized in accordance with the methods of Section 12-6.12 to include the capacity to meet the process loads. The designer shall document the installation of process equipment and the size of process loads.

If process loads are not modeled, then for calculating the ECB of reference buildings HVAC equipment shall be sized to meet the requirements of Section 12-6.12(d)(1) without utilizing any of the exceptions.

For calculating the DECOS, actual air flow rates and installed equipment size shall be used in the simulation, except that excess capacity provided to meet process loads need not be modeled if the process load was not modeled in setting the ECB. Equipment sizing in the simulation of the

proposed design shall correspond to the equipment actually selected for the design and the designer shall not use equipment sized automatically by the simulation tool.

Redundant and/or emergency equipment need not be simulated if it is controlled such that it will not be operated during normal operations of the building.

(5) Service water heating.

The service water heating loads for reference buildings are defined in terms of Btu/person-hour in Table 13-3. The service water heating loads from Table 13-3 are prescribed for multi-family buildings and default for all other buildings. The same service water heating load assumptions shall be made in calculating DECOS as were used in calculating the ECB.

The service water heating system, including piping losses, for the reference building shall be modeled using the methods of the ASHRAE Handbook, 1991 HVAC Applications, using a system that meets all requirements of Section 12-6.14.

The service water heating equipment type for the reference building shall be an electric resistance storage water heater if the proposed building uses electric water heating or shall be a utility gas storage water heater if the proposed building uses gas water heating.

(6) Controls.

(A) Conditioned and unconditioned spaces.

(i) All occupied spaces in the reference and proposed buildings shall be simulated as being air conditioned. When no cooling system is shown on the plans for the proposed design, reasonable assumptions shall be made about the HVAC system type, and the same assumptions shall be made for the proposed and reference buildings.

(ii) Exception

Unconditioned spaces which meet the envelope requirements of Section 12-6.11(d) or 12-6.11(e) may be omitted from the thermal model in the proposed and reference designs.

(B) Space temperature controls.

(i) Space temperature controls for the reference building except multi-family shall be set at 75°F for space cooling. The system shall be OFF during off-hours according to the appropriate schedule in Table 13-3.

(ii) Exceptions.

Setback shall not be modeled in determining either the ECB or DECOS if setback is not realistic for the proposed design such as a facility being operated 24 hours/day.

(C) For multi-family buildings, the thermostat schedule for the dwelling units shall be as in Table 13-4. The reference building shall use the single zone schedule. The proposed design shall use the two-zone schedule only if zonal thermostatic controls are provided. The thermostat assumptions for multi-family buildings are prescribed assumptions.

(D) When providing for outdoor air ventilation when calculating the ECB, controls shall be assumed to close the outside air intake to reduce the flow of outside air to 0 cfm during "setback" and "unoccupied" periods. Ventilation using inside air may still be required to maintain scheduled setback temperature. Outside air ventilation, during occupied periods, shall be as required by ASHRAE Standard 62-1989 or the proposed design, whichever is greater.

(E) If dehumidification requires subcooling of supply air, then reheat for the reference building shall be from recovered waste heat such as condenser waste heat.

(7) Speculative buildings

(A) Lighting. The interior lighting power allowance (ILPA) for calculating the ECB shall be determined from Table 6-5. The DECOS may be based on an assumed adjusted lighting power for future lighting improvements.

The assumption about future lighting power used to calculate the DECOS shall be documented so that the future installed lighting systems may be in compliance with this assumption. Documentation shall be provided to enable future lighting systems to use either the Prescriptive method of Section 12-6.10(d) or the Systems Performance method of Section 12-6.10(e). Documentation for future lighting systems that use the Prescriptive method of Section 12-6.10(d) shall be stated as a maximum adjusted lighting power for the tenant spaces. The adjusted lighting power allowance for tenant spaces shall account for the lighting power provided for the common areas of the building.

Documentation for future lighting systems that use the Systems Performance method of Section 12-6.10(e) shall be stated as a required lighting adjustment. The required lighting adjustment is the whole building lighting power assumed in order to calculate the DECOS minus the ILPA value from Table 6-5 that was used to calculate the ECB. When the required lighting adjustment is less than zero, a complete lighting design shall be developed for one or more representative tenant spaces, demonstrating

acceptable lighting within the limits of the assumed lighting power limit.

(B) HVAC Systems and Equipment.

If the HVAC system is not completely specified in the plans, the DECOS shall be based on reasonable assumptions about the construction of future HVAC systems and equipment. These assumptions shall be documented so that future HVAC systems and equipment may be in compliance with this assumption.

(h) The Simulation Tool.

(1) Annual energy consumption should be simulated with a multizone, 8760 hours per year building energy program. The tool should account for:

(A) The dynamic heat transfer of the building envelope, including the effects of solar and internal gains;

(B) Equipment efficiencies as a function of load and climate;

(C) Lighting and HVAC system controls and distribution systems by simulating the whole building;

(D) The operating schedule of the building including night setback during various times of the year;

(E) Energy consumption information at a level necessary to determine the ECB and DECOS via the appropriate utility rate schedules.

(2) While analysis tools should simulate an entire year on an hour-by-hour basis (8760 hours per year), tools that approximate this dynamic analysis procedure or provide equivalent results are acceptable.

Table 13-1
Occupancy Density

Building Type	Conditioned Floor Area Sq ft/Person
1. Assembly	50
2. Office	275
3. Retail	300
4. Warehouse	15,000
5. School	75
6. Hotel/Motel	250
7. Restaurant	100
8. Health/Institutional	200
9. Multi-family	0[a]
10. Light Manufacturing	750

Heat generation: Btu/person-hour: 230 sensible and 190 latent

a. See notes for multi-family high-rise in Table 13-5.

Table 13-2
Receptacle Power Densities

Building Type	Watts/ft^2 of Conditioned Floor Area
1. Assembly	0.25
2. Office	0.75
3. Retail	0.25
4. Warehouse	0.1
5. School	0.5
6. Hotel/Motel	0.25
7. Restaurant	0.1
8. Health	1.0
9. Multi-family	0[a]
10. Light Manufacturing	0.2[b]

a. See notes for multi-family high-rise in Table 13-5.
b. Non-process load.

Table 13-3
Service Hot Water Quantities

Building Type	Btu/Person-hour[a]
1. Assembly	215
2. Office	175
3. Retail	135
4. Warehouse	225
5. School	215
6. Hotel/Motel	1,110
7. Restaurant	390
8. Health	135
9. Multi-family	1,700[b]
10. Light Manufacturing	225[c]

a. This value is the number to be multiplied by the percentage multipliers of the building profile schedules in Table 13-5. See Table 13-1 for occupancy levels.
b. Total hot water use per dwelling unit for each hour shall be 3400 Btu/h times the multi-family Service Water Heating (SWH) system multiplier from Table 13-5.
c. Non-process load.

Table 13-4

Building Cooling Thermostat Setpoint Schedule

Hour of Day

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Assembly																								
Weekday	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	OFF
Weekend	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	OFF
Office																								
Weekday	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	OFF	OFF
Sat.	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	75	75	75	OFF	OFF	OFF	OFF	OFF	OFF
Sun.	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Retail																								
Weekday	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	OFF	OFF	OFF
Sat.	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	OFF	OFF
Sun.	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Warehouse																								
Weekday	OFF	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	75	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Sat.	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Sun.	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
School																								
Weekday	OFF	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	OFF	OFF
Sat.	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Sun.	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Hotel																								
All Days	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
Restaurant																								
Weekday	75	75	75	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
Sat.	75	75	75	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
Sun.	75	75	75	OFF	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	75	75	75	75	75
Health																								
All Days	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75

Multi-family

One-Zone																								
All Days	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
Two-Zone																								
Bedrooms & Bathrooms																								
All Days	78	78	78	78	78	78	78	78	78	85	85	85	85	85	85	85	85	78	78	78	78	78	78	78
Other Rooms																								
All Days	85	85	85	85	85	85	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78

Light Manufacturing

Weekday	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	OFF	OFF
Sat.	OFF	OFF	OFF	OFF	OFF	OFF	75	75	75	75	75	75	75	75	75	75	75	75	OFF	OFF	OFF	OFF	OFF	OFF
Sun.	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Table 13-5

Building Schedule Percentage Multipliers[a,b,c]

Hour of Day

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Assembly																								
Occupancy																								
Weekday	0	0	0	0	0	0	0	0	20	20	20	80	80	80	80	80	80	80	20	20	20	20	10	0
Sat	0	0	0	0	0	0	0	0	20	20	20	60	60	60	60	60	60	60	60	60	60	80	10	0
Sun	0	0	0	0	0	0	0	0	10	10	10	10	10	70	70	70	70	70	70	70	70	70	20	0
Lighting																								
Weekday	0	0	0	0	0	0	40	40	40	75	75	75	75	75	75	75	75	75	75	75	75	75	25	0
Sat	0	0	0	0	0	0	0	30	30	50	50	50	50	50	50	50	50	50	50	50	50	50	0	0
Sun	0	0	0	0	0	0	0	30	30	30	30	30	65	65	65	65	65	65	65	65	65	65	0	0
HVAC																								
Weekday	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF
Sat	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF
Sun	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF

Service Hot Water

Weekday	0	0	0	0	0	0	0	0	0	5	5	35	5	5	5	5	5	0	0	0	0	0	0	0
Sat	0	0	0	0	0	0	0	0	0	5	5	20	0	0	0	0	0	0	0	65	30	0	0	0
Sun	0	0	0	0	0	0	0	0	0	5	5	10	0	0	0	0	0	0	0	65	30	0	0	0

Office

Occupancy

Weekday	0	0	0	0	0	0	0	10	20	95	95	45	45	95	95	95	95	95	30	10	10	10	0	0
Sat	0	0	0	0	0	0	0	10	10	30	30	30	30	10	10	10	10	10	0	0	0	0	0	0
Sun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Lighting

Weekday	0	0	0	0	0	0	10	30	90	90	90	90	80	90	90	90	90	90	30	30	20	20	0	0
Sat	0	0	0	0	0	0	10	10	30	30	30	30	15	15	15	15	15	15	0	0	0	0	0	0
Sun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

HVAC

Weekday	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF
Sat	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
Sun	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Service Hot Water

Weekday	0	0	0	0	0	0	0	15	30	35	35	45	55	50	30	30	40	20	20	10	15	5	0	0
Sat	0	0	0	0	0	0	0	10	10	20	15	20	15	15	10	10	10	0	0	0	0	0	0	0
Sun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Retail

Occupancy

Weekday	0	0	0	0	0	0	0	10	20	50	50	70	70	70	70	80	70	50	50	30	30	0	0	0
Sat	0	0	0	0	0	0	0	10	20	50	60	80	80	80	80	80	80	60	20	20	20	10	0	0
Sun	0	0	0	0	0	0	0	0	0	10	20	20	40	40	40	40	40	20	10	0	0	0	0	0

Lighting

Weekday	0	0	0	0	0	0	0	20	50	90	90	90	90	90	90	90	90	90	60	60	50	0	0	0
Sat	0	0	0	0	0	0	0	10	30	60	90	90	90	90	90	90	90	90	50	30	30	10	0	0
Sun	0	0	0	0	0	0	0	0	0	10	40	40	60	60	60	60	60	40	20	0	0	0	0	0

HVAC																								
Weekday	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF
Sat	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF
Sun	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
Service Hot Water																								
Weekday	0	0	0	0	0	0	0	10	20	30	40	55	60	60	45	40	45	45	40	30	30	0	0	0
Sat	0	0	0	0	0	0	0	15	20	25	40	50	55	55	45	45	45	45	40	35	25	20	0	0
Sun	0	0	0	0	0	0	0	0	0	10	25	30	35	35	30	30	35	30	20	0	0	0	0	0

Warehouse

Occupancy																								
Weekday	0	0	0	0	0	0	0	15	70	90	90	90	50	85	85	85	20	0	0	0	0	0	0	0
Sat	0	0	0	0	0	0	0	0	20	20	20	20	10	10	10	10	0	0	0	0	0	0	0	0
Sun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lighting																								
Weekday	0	0	0	0	0	0	0	40	70	90	90	90	90	90	90	90	90	0	0	0	0	0	0	0
Sat	0	0	0	0	0	0	0	0	10	25	25	25	10	10	10	10	0	0	0	0	0	0	0	0
Sun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HVAC																								
Weekday	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Sat	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Sun	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Service Hot Water																								
Weekday	0	0	0	0	0	0	0	5	25	35	35	45	55	40	35	40	15	0	0	0	0	0	0	0
Sat	0	0	0	0	0	0	0	0	0	10	10	15	0	0	0	0	0	0	0	0	0	0	0	0
Sun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

School

Occupancy																								
Weekday	0	0	0	0	0	0	0	5	75	90	90	80	80	80	80	45	15	5	15	20	20	10	0	0
Sat	0	0	0	0	0	0	0	0	10	10	10	10	10	0	0	0	0	0	0	0	0	0	0	0
Sun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Lighting

Weekday	0	0	0	0	0	0	0	30	85	95	95	95	80	80	80	70	50	50	35	35	35	30	0	0
Sat	0	0	0	0	0	0	0	0	15	15	15	15	15	0	0	0	0	0	0	0	0	0	0	0
Sun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

HVAC

Weekday	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF
Sat	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Sun	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Service Hot Water

Weekday	0	0	0	0	0	0	0	5	30	55	60	70	75	80	60	60	5	5	15	20	20	20	0	0
Sat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sun	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Hotel

Occupancy

Weekday	90	90	90	90	90	90	70	40	40	20	20	20	20	20	20	30	50	50	50	70	70	80	90	90
Sat	90	90	90	90	90	90	70	50	50	30	30	30	30	30	30	30	30	50	60	60	60	70	70	70
Sun	70	70	70	70	70	70	70	70	50	50	50	30	30	20	20	20	30	40	40	60	60	80	80	80

Lighting

Weekday	20	15	10	10	10	20	40	50	40	40	25	25	25	25	25	25	25	25	60	80	90	80	60	30
Sat	20	20	10	10	10	10	30	30	40	40	30	25	25	25	25	25	25	25	60	70	70	70	60	30
Sun	30	30	20	20	20	20	30	40	40	30	30	30	30	20	20	20	20	20	50	70	80	60	50	30

HVAC

Weekday	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Sat	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Sun	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON

Building Schedule Percentage Multipliers

Hour of Day

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Service Hot Water																								
Weekday	20	15	15	15	20	25	50	60	55	45	40	45	40	35	30	30	30	40	55	60	50	55	45	25
Sat	20	15	15	15	20	25	40	50	50	50	45	50	50	45	40	40	35	40	55	55	50	55	40	30
Sun	25	20	20	20	20	30	50	50	50	55	50	50	40	40	30	30	30	40	50	50	40	50	40	20

Restaurant

Occupancy																								
Weekday	15	15	5	0	0	0	0	5	5	5	20	50	80	70	40	20	25	50	80	80	80	50	35	20
Sat	30	25	5	0	0	0	0	0	0	5	20	45	50	50	35	30	30	30	70	90	70	65	55	35
Sun	20	20	5	0	0	0	0	0	0	0	10	20	25	25	15	20	25	35	55	65	70	35	20	20
Lighting																								
Weekday	15	15	15	15	15	20	40	40	60	60	90	90	90	90	90	90	90	90	90	90	90	90	50	30
Sat	20	15	15	15	15	15	30	30	60	60	80	80	80	80	80	80	80	90	90	90	90	90	50	30
Sun	20	15	15	15	15	15	30	30	50	50	70	70	70	70	70	70	60	60	60	60	60	60	50	30
HVAC																								
Weekday	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Sat	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Sun	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Service Hot Water																								
Weekday	20	15	15	0	0	0	0	60	55	45	40	45	40	35	30	30	30	40	55	60	50	55	45	25
Sat	20	15	15	0	0	0	0	0	0	50	45	50	50	45	40	40	35	40	55	55	50	55	40	30
Sun	25	20	20	0	0	0	0	0	0	0	50	50	40	40	30	30	30	40	50	50	40	50	40	20

Health

Occupancy																								
Weekday	0	0	0	0	0	0	0	10	50	80	80	80	80	80	80	80	80	50	30	30	20	20	0	0
Sat	0	0	0	0	0	0	0	10	30	40	40	40	40	40	40	40	40	10	10	0	0	0	0	0
Sun	0	0	0	0	0	0	0	0	5	5	5	5	5	5	5	5	0	0	0	0	0	0	0	0

Building Schedule Percentage Multipliers

Hour of Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Lighting																								
Weekday	0	0	0	0	0	0	0	50	90	90	90	90	90	90	90	90	90	30	30	30	30	30	0	0
Sat	0	0	0	0	0	0	0	20	40	40	40	40	40	40	40	40	40	40	10	0	0	0	0	0
Sun	0	0	0	0	0	0	0	0	10	10	10	10	10	10	10	10	0	0	0	0	0	0	0	0

HVAC																								
Weekday	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Sat	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Sun	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Service Hot Water																								
Weekday	0	0	0	0	0	0	0	15	55	65	75	80	70	80	75	70	60	40	15	15	15	5	0	0
Sat	0	0	0	0	0	0	0	0	15	25	25	25	20	20	20	20	20	5	0	0	0	0	0	0
Sun	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	0	0	0	0	0	0	0	0	0

Multi-Family

Service Hot Water																								
Weekday	0	0	0	5	5	5	80	70	50	40	20	20	25	25	50	50	70	70	35	20	15	15	5	0
Sat	0	0	0	0	0	0	20	45	50	50	35	30	30	30	70	90	70	65	55	35	30	25	5	0
Sun	0	0	0	0	0	0	0	20	25	25	15	20	25	35	55	65	70	35	20	20	20	20	5	0
HVAC Systems																								
Weekday	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Sat	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Sun	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
One-zone Dwelling Unit																								
Occupancy[d]																								
All Days	67	67	67	67	67	67	67	49	21	21	21	21	21	21	21	21	21	67	67	67	67	67	67	67
Lighting[e]																								
All Days	0	0	0	0	0	0	95	85	0	0	0	0	0	0	0	0	0	0	0	90	90	90	90	90
Equipment[f]																								
All Days	22	22	22	22	22	22	36	76	34	36	36	64	64	36	36	36	36	87	97	43	43	43	31	31
Two-zone Dwelling Unit Bedrooms and Bathrooms																								
Occupancy[d]																								
All Days	67	67	67	67	67	67	45	27	0	0	0	0	0	0	0	0	0	0	0	21	21	33	67	67
Lighting[e]																								
All Days	0	0	0	0	0	0	66	23	0	0	0	0	0	0	0	0	0	0	0	31	31	47	63	63
Equipment[f]																								
All Days	3	3	3	3	3	3	6	6	3	3	3	3	3	3	3	3	3	3	3	9	9	20	12	12

Other Rooms																								
Occupancy[d]																								
All Days	0	0	0	0	0	0	21	21	21	21	21	21	21	21	21	21	21	67	67	45	45	33	0	0
Lighting[e]																								
All Days	0	0	0	0	0	0	29	59	0	0	0	0	0	0	0	0	0	0	0	63	63	47	31	31
Equipment[f]																								
All Days	19	19	19	19	19	19	30	70	34	34	34	61	61	34	34	34	34	84	94	34	34	23	19	19

Notes for Table 13-5:

(a) Reference: Recommendations for Energy Conservation Standards and Guidelines for New Commercial Buildings, Vol. III, App. A. Pacific Northwest Laboratory, PNL-4870-8, 1983.

(b) Table 13-5 contains multipliers for converting the nominal values for building occupancy (Table 13-1), receptacle power density (Table 13-2), service hot water (Table 13-3), and lighting energy (section 12-6.10) into time series data for estimating building loads under the Standard Calculation Procedure. For each standard building profile there are three series--one each for weekdays, Saturday, and Sunday. There are 24 hours per series. These represent the multiplier that should be used to estimate building loads from 12 a.m. to 1 a.m. (hour #1) through 11 p.m. to 12 a.m. (hour #24). The estimated load for any hour is simply the multiplier from the appropriate standard profile multiplied by the appropriate value from the tables cited above.

(c) The building HVAC system schedule listed in Table 13-5 lists the hours when the HVAC system shall be considered ON or OFF in accordance with Section 12-6.16(g)(3)(B).

(d) People. Assumes two people per dwelling unit. Maximum heat generation per person = 420 Btu/h (230 Btu/h sensible, 190 Btu/h latent heat).

(e) Lighting. Maximum Installed = 300 Watts.

(f) Equipment. Sensible Heat Gain = [(833 Btu/unit*Number of Living Units) + (0.625 Btu/h-ft^2 * Floor Area of Zone)].

Latent Heat Gain = (0.2 * Sensible Heat Gain).

(Ord. No. 369, July 19, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8, 1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

ARTICLE 7. PUBLIC SWIMMING POOLS.

Section 12-7.1 Applicability.

(a) These provisions are applicable to the design and construction of public swimming and wading pools.

(b) Those pools covered by these regulations include municipal, institutional, hotel, apartment and pools of similar type usage; and hydrotherapy spas, therapeutic pools and special pools of similar type usage. Not covered are swimming pools, spas and hot tubs for one-family and two-family dwelling, and similar type pools; and ornamental pools.

(c) All provisions of the building, electrical and plumbing codes shall be applicable unless indicated otherwise in this article. Although exempted from this article, private residential pools shall also comply with the building, electrical and plumbing codes. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-7.2 General.

(a) Building Permit Required. No person shall install any swimming pool on any land within the County, or cause the foregoing to be done, without first obtaining a building permit.

(b) Plans and Specifications. Plans, specifications and other data shall be submitted as required in Section 106.3.2, Article 2. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-7.3 Construction Details.

(a) Materials.

(1) All pools and all appurtenances thereto shall be constructed of impervious and durable materials which are nontoxic, which can withstand the design stresses, and which will provide a watertight structure with a smooth and easily cleaned surface.

(2) The surfaces within the pool intended to provide footing for bathers shall be designed to provide a slip-resistant surface.

EXCEPTION: Tile, manufactured rock, stone or similar materials may be applied over the pool structure as a decoration treatment. Materials to be allowed under this exception shall conform to other provisions of this section except they need not be impervious or watertight.

(b) Water Depth.

(1) Swimming pools shall have a minimum depth of water in the shallow end of three feet. Wading pools shall have a maximum water depth of 24 inches. The water depth at the perimeter of wading pools shall not exceed 18 inches. Exceptions to depth requirements may be made for hydrotherapy spas, therapeutic pools and other special condition pools as approved by the building official.

(2) The depth of water in feet and inches shall be plainly marked above the water surface on the vertical pool wall and/or on top of the deck edge within 18 inches of the water edge at all major

deviations of pool depth. Depth marking shall have a four-inch minimum height, be slip-resistant and spaced at not more than 25-foot intervals.

(c) Slope of Pool Floor. The slope of the pool floor from the shallow end wall towards the deep end shall no exceed one in 10 (1:10) to the point of the first slope change. The slope of the floor from the first slope change to the deep end shall not exceed one in three (1:3).

(d) Pool Shape. No limits are specified for the shape of swimming pools except that consideration shall be given to the shape from the standpoint of safety and adequate circulation of the swimming pool water. There shall be no protrusions, means of entanglement or other obstructions in the swimming pool which can cause the entrapment of the bather.

(e) Handholds, Egress and Entry.

(1) All swimming pools shall be provided with handholds (coping edge, rings, ledges, secured rope or similar devices) around the perimeter installed in areas where depths exceed three feet six inches, no further apart than four feet and not greater than 12 inches above the waterline. Where perimeter overflow systems are not provided, a handhold, cantilevered deck edge or materials equivalent in strength and durability with rounded, slip-resistant edges shall be provided.

(2) Adequate means of entry to and egress from swimming pools shall be provided utilizing stairs, ladders, ledges, recessed steps or other approved means.

(f) Decks, Walkways, and Ramps. Decks, walkways, ramps and similar surfaces shall be slip-resistant and sloped to provide adequate drainage away from the pool. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-7.4 Illumination.

Illumination of the pool interior shall be provided for night use with not less than 0.50 watts per square foot of pool surface area. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-7.5 Filtration and circulation.

(a) All pools shall be provided with a recirculation system adequate in its design to provide uniform circulation of the water and rated flows for proper filtration.

(b) At least one drain shall be provided at the lowest point of pool floor and shall be of the anti-vortex type or otherwise designed to prevent being blocked by a bather.

(c) The materials utilized in the recirculation system shall be of nontoxic material, resistant to corrosion and able to withstand operating pressures.

(d) The recirculation and filtration equipment for swimming pools shall be sized to turn over the entire pool water capacity at least once every six hours. The equipment for wading pools shall be sized for a two-hour turnover. The equipment for hydrotherapy spas, therapeutic pools and special pools of similar type usage shall be sized for a 30-minute turnover.

(e) A pressure gauge and rate of flow indicator as a means of indicating system condition shall be provided in the circulation system at easily readable locations.

(f) An overflow collection system (gutters), automatic surface skimmers or other approved collection systems shall be installed on all pools covered by these regulations.

(g) Filtration backwash water shall be discharged to sanitary sewer, dry well or injection well. Pool drain water shall be discharged to storm drain, dry well, injection well or surface areas within owner's property. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-7.6 Chemical feeding and regulating equipment.

(a) All swimming pools shall be provided with adequate and appropriate chemical feeding and regulating equipment capable of precisely feeding the required quantity of disinfecting agent to the pool water. Chemical feeders shall be installed downstream of the pool filtration and heating equipment and shall be electrically wired so they cannot operate unless the pool recirculating pump is running.

(b) When compressed chlorine gas is used, the chlorine cylinders and chlorine mechanical proportioning equipment shall be housed in a separate, corrosion-resistant, mechanically-vented enclosure, which is reasonably resistant to gas leakage. Access to the chlorination room shall be from the exterior. The mechanical ventilation system shall exhaust at least four CFM per square foot of floor space with exhaust intake at floor level. Automatic louvers near the top and bottom of the room for admitting air shall be provided. The chlorine exhaust vent shall terminate at least 10 feet above the ground and pool deck area. Electrical switches for the control of artificial lighting and ventilation equipment shall be located on the outside of the enclosure adjacent to the door. Gas masks approved by the National Institute for Occupational Safety and Health shall be accessible outside the chlorine enclosure. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-7.7 Lifesaving equipment.

One unit of lifesaving equipment shall be provided for each 2,000 square feet of swimming pool area and shall consist of:

(a) A ring buoy with a minimum outside diameter of 24 inches to which shall be attached a length of one-quarter-inch rope not less than one and one-half times the maximum width of the pool.

(b) A shepherd's crook with minimum length handle of 12 feet.

(c) Where no lifeguard is provided, a warning sign shall be placed in plain view and shall state "Warning - No Lifeguard on Duty" with letters at least four inches high. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-7.8 Heaters.

Heaters shall comply with the electrical and plumbing codes and shall be installed in accordance with the manufacturer's instructions. Water heaters exceeding 200,000

Btus per hour shall comply with Chapters 220-223, Title 12, Boiler and Pressure Vessel Code, State of Hawaii. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-7.9 Fences and other protective devices.

(a) Every person in possession of land, either as owner, lessee, tenant or licensee, upon which is situated a swimming or wading pool which contains water 18 inches or more in depth at any point shall erect and maintain thereon a fence, wall, building or other enclosure completely surrounding such pool or the property on which the pool is situated, sufficient to make the pool inaccessible to small children. Such fence, wall or other enclosure, including gates, shall be at least four and one-half feet high.

EXCEPTION: The provisions of this section shall not apply to any swimming, dipping, or wading pool on the premises of a hotel as defined in Comprehensive Zoning Ordinance, Chapter 8, Kauai County Code 1987, as amended.

(b) All gates or doors must be self-closing and equipped with a self-latching device capable of keeping such gate or door securely closed, with latches placed at least four feet above ground or otherwise made inaccessible from the outside to small children. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-7.10 Violations and Penalties.

For violations and penalties, see Section 103, Article 2. (Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

CHAPTER 13

ELECTRICAL CODE

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ARTICLE 1. GENERAL PROVISIONS

Sec. 13-1.1 Purpose.

The purpose of this Code is to reduce the hazards to persons and property arising from faulty electrical work. To accomplish this purpose, the requirements set forth herein are

intended to provide minimum standards for electrical work in the County of Kauai. (Ord. No. 104, June 3, 1959; Sec. 5, C.O. 1971; Sec. 13-1.1, R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-1.2 Title.

This Chapter shall be known as the Electrical Code of the County of Kauai and may be cited as the "Electrical Code." (Ord. No. 104, June 3, 1959; Sec. 5, C.O. 1971; Sec. 13-1.1, R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-1.3 Scope.

(a) The provisions of this Code shall apply to all new construction, relocated buildings and to any additions, alterations, repairs or reconstruction within the property lines of the premises except the following:

(1) Electrical work on buildings or premises owned by or under the direct control of the United States or the State of Hawaii.

(2) Electrical work by an electrical utility or serving agency supplying electricity, operating under a franchise or charter granted by the State of Hawaii on the following:

(A) Any generating plant, receiving station, switching station or distributing station, under the control of such activity or serving agency;

(B) Any electrical wiring for supply lines or mains under the control of such utility or serving agency; and

(C) Any electrical wiring for overhead service drops, or underground or station service supply conductors under the control of such utility or serving agency.

(3) Electrical work by a public telephone or telegraph communication system subject to regulation by the Public Utilities Commission of the State of Hawaii.

(4) The physical placement and reassembly of an x-ray equipment or household appliance.

(5) Existing electrical installations which complied with the laws, ordinances and regulations in effect when the electrical work thereon was performed, provided that such installations shall be subject to the provisions of Article 2, Section 13-2.8.

(6) Electrical work in accordance with the laws, ordinances and regulations in effect prior to the effective date of this Code under a permit therefor issued prior to such date.

(7) Electrical work related to work regulated by Chapter 397, Hawaii Revised Statutes, as amended, relating to the Elevator Code, but not including

electrical work for the supply of power to the control panels of elevators, dumbwaiters, escalators, moving walks and manlifts.

(8) Replacement or repair of devices and apparatus of air conditioning and refrigeration systems, except electrical work on overcurrent devices, which are not physically attached to, or physically mounted on, such systems.

(9) Any street light or traffic signal light work being performed under the control of the County of Kauai or the Department of Transportation, State of Hawaii.

(b) Interpretation - Same Subject Matter. If there are two or more provisions in this Code or any other ordinances or statutes, covering the same subject matter, the provisions which provide the greater safety to life or limb, property or public welfare shall prevail. (Ord. No. 360, February 23, 1979; Ord. No. 440, November 10, 1982; Ord. No. 483, November 21, 1985; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-1.4 Definitions.

"Administrative Authority." Whenever the term "Administrative Authority" is used in this Code, it shall be construed to mean the County Engineer of Kauai County, Department of Public Works or his authorized representative.

"Assistants." Whenever the term "assistants" is used in this Code, it shall be construed to mean the authorized representatives of the Administrative Authority.

"Authorized Representatives." When the term "Authorized Representatives" is used in this Code, it shall be construed to mean all electrical inspectors and their supervisors designated as subordinate officers to the Administrative Authority.

"Board." The Board of Appeals as specified in Chapter 12, Building Code, Kauai County Code, 1987, as amended.

"County." The County of Kauai.

"Department." The Department of Public Works of the County of Kauai.

"Duly Licensed Electrician." Any person licensed as an electrician under the provisions of Chapter 448E, Hawaii Revised Statutes.

"Electrical Contractor." Any person that is licensed under the provisions of Chapter 444, Hawaii Revised Statutes, and possesses a valid unexpired and unrevoked license qualifying him to perform electrical work.

"Electrical Work." The installation, alteration, reconstruction or repair of electrical wiring.

"Electrical Wiring." Any conductor, material, device, fitting, apparatus, appliance, fixture or equipment, constituting a part of or connected to any electrical installation, attached or fastened to any building, structure or premises and which installation or portion thereof is

designed, intended or used to generate, transmit, transform or utilize electrical energy within the scope and purpose of the National Electrical Code referred to in Section 13-4.1 of this Code.

"Emergency Electrical Work." Repair of electrical wiring to restore electrical service to a building following a fire, remedy a power failure and protect persons and property against short circuiting and open circuits.

"Maintenance Work." The keeping in repair and operation of any electrical installation, apparatus, fixtures, appliance or equipment.

"Person." Any individual, firm, partnership, association, corporation or utility company including each and every owner of any whole or fractional interest in the property concerned, whether in fee, any lesser freehold or tenancy at will.

"State." The State of Hawaii.

"Temporary Electrical Service." Service for enterprises or activities which are temporary in character or where it is known in advance that service will be of a limited duration and service which is for operations, the permanency of which has not been established. (Ord. No. 104, June 3, 1959; Sec. 13-1.3, R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

ARTICLE 2. ADMINISTRATION AND ENFORCEMENT

Sec. 13-2.1 Duties Of The Administrative Authority

The Administrative Authority shall maintain public office hours necessary to efficiently administer the provisions of this Code and amendments thereto and shall perform the following duties:

(1) Require submission of, examine and check plans and specifications, drawings, description, and/or diagrams necessary to show clearly the character, kind and extent of work covered by applications for a permit and upon approval thereof shall issue a permit applied for.

(2) Administer and enforce the provisions of this Code in a manner consistent with the intent thereof and shall inspect all equipment and electrical work authorized by any permit to assure compliance with provisions of this Code or amendments thereto approving or condemning said work or in part as conditions require.

(3) Issue upon request a Certificate of Occupancy and/or a Certificate of Inspection for any work approved by him.

(4) Condemn and reject all work done or being done or materials used or being used which do not in all respects comply with the provisions of this Code and amendments thereto.

(5) Order changes in equipments and/or materials essential to obtain compliance with all provisions of this Code.

(6) Investigate any installation or work regulated by this Code and issue such notices and orders as required.

(7) Keep a complete record of all essential transactions of his office. (Sec. 13-4.1 et seq., R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.2 To Whom Permits May Be Issued.

An electrical permit is required to perform work covered by this Code and will be issued only to:

(1) An electrical contractor holding a valid unexpired license under Chapter 444, HRS and who can present evidence that he is also licensed under Chapter 448E, HRS or has under his employment an electrician complying to the provisions of Chapter 448E, HRS.

(2) A firm, partnership, association or corporation other than an electrical contractor complying to the provisions set forth in Chapter 444, HRS and who has under his employment a supervising electrician holding a valid unexpired license, complying to provisions set forth in Chapter 448E, HRS.

(3) Federal, State and County governments. With the agencies having under their employment a licensed supervising electrician complying to provisions set forth in Chapter 448E, HRS.

(4) A homeowner who performs electrical work on his own single family dwelling, provided such homeowners is holding a valid unexpired license under Chapter 448E, HRS.

This does not preclude the homeowner who is licensed under Chapter 448E, HRS to do electrical maintenance work for building he owns. (Sec. 13-4.1 et seq., R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.3 Application For An Issuance Of Permit.

(1) Permit Required. No person, firm, partnership, association or corporation shall erect, construct, enlarge, repair, move, improve, remove, alter or convert any building or structure in the County of Kauai which requires electrical work or cause the same to be done, without first obtaining a separate electrical permit for such building or structure from the Administrative Authority.

Exception: Permit not required for work in connection with meter and service wires installed by or performed by those electric and power service companies

operating under franchise as public utilities and telephone installations. Work performed for any Federal or State agency, except where permits are specifically requested by said agency.

(2) Application. Any person legally entitled to apply for and receive a permit shall make an application on forms provided for that purpose. He shall give a description of the character of the work to be done and the location, ownership, occupancy and use of the premises in connection therewith. The Administrative Authority may require plans, specifications or drawings and such other information as he may deem necessary.

(3) Plans Required. Applications for electrical permits for any commercial, industrial or public building, hotel, apartment building or any single family dwelling shall be accompanied by a minimum of three (3) sets of drawings for approval of the Administrative Authority. One set shall be retained by the Administrative Authority, one set returned to the applicant for their file records and the final set returned to the applicant which shall be kept on such building or jobsite at all times during which the work authorized thereby is in progress. The Administrative Authority may waive the requirement for submission of drawings when he deems it unnecessary.

All electrical work shall be designed by a licensed electrical engineer registered in Hawaii when the total load exceeds 40 K.V.A. for private residences and 35 K.V.A. for all other buildings or structures.

(4) Issuance. If the Administrative Authority determines that the plans, specifications, drawings, descriptions or information furnished by the applicant is in compliance with this Code, he shall issue the permit applied for upon payment of the required fee as hereinafter fixed. Payment for any permit fee shall be paid prior to the issuance of such permit.

A fee of $10.00 (ten dollars) shall be imposed and collected for the reproduction of any electrical permit card, for which a permit was issued by the Administrative Authority.

(5) Validity. The issuance or granting of a permit or approval of plans, specifications and computations shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this Code or of any other ordinance of the jurisdiction. No permit presuming to give authority to violate or cancel the provisions of this Code shall be valid.

The issuance of a permit based upon plans, specifications and other data shall not prevent the Administrative Authority from thereafter requiring the correction of errors in said plans, specifications and other data, or from preventing electrical work being carried on thereunder when in violation of this Code or of any other ordinances of this jurisdiction.

(6) Performance. A licensed electrician holding a valid license complying to the provisions set forth in Chapter 448E,

HRS, shall be at the site at all times during any performance, direction or supervision of any electrical work authorized by a permit, as provided for in said Chapter and Administrative Rules promulgated thereunder. The enforcement for compliance of Chapter 448E and the Administrative Rules shall be the responsibility of the State of Hawaii.

(7) Expiration. Every permit issued by the Administrative Authority under the provisions of this Code shall expire by limitation and become null and void if the work authorized by such permit is not commenced within 180 days from the date of such permit or if the construction or work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period of 180 days, providing further, that a permit issued for work on a project having a valid building permit shall remain valid and expire only when such building permit expires.

When a permit expires, been suspended or abandoned, a new permit shall be first obtained by the permittee, his agent, or his successor in interest, and a new permit fee equal to one-half the amount required for a new permit rounded off to the nearest dollar shall be paid, provided no changes have been made or will be made to the original plans and specifications for such work; and provided, further, that such permit has not exceeded a period one year from the date of permit issuance or the date of suspension or abandonment of work authorized whichever is later.

Any permitted, his agent or his successor in interest holding an unexpired permit, who is unable to commence work, may apply for an extension. Upon written request by the permittee, the Administrative Authority may in writing, extend the permit for a period of 180 days, however, in the event of strikes or other causes beyond the control of the electrical contractor or permittee, the Administrative Authority may extent the permit for the duration of the event. No permit shall be extended more than once.

For electrical permits issued prior to July 1, 1984, the Administrative Authority shall not activate and reissue a permit. If a permittee, his agent, or his successor in interest, desires to have the permitted electrical work certified that it was done in compliance with all County of Kauai or State of Hawaii laws, codes and ordinances at the time the original permit was issued, and that the electrical work does not violate any laws, codes and ordinances, he may hire a duly registered professional licensed electrical engineer or architect as required by Chapter 464 Hawaii Revised Statutes as amended, to provide such certification.

The Administrative Authority may activate and reissue an expired permit for the purpose of continuing the work on an incompleted building or to secure all inspections required by this Code. All work that was started on an expired electrical permit and completed according to the approved building plans prior to the reissuance of such permit shall remain valid under the Electrical Code it was issued. Any new

work shall conform to the current Electrical Code. The Administrative Authority may require the submission of building plans.

When an electrical permit is activated or reissued, a permit fee therefor shall be required as provided in this section.

(8) Suspension and Revocation. The Administrative Authority may, in writing, suspend or revoke a permit issued under provisions of this Code whenever the permit is issued in error or on the basis of incorrect information supplied, or in violation of any ordinance or regulation or any of the provisions of this code.

(9) Transferability of Electrical Permit. Any assignment and/or transfer of any substantial interest in any electrical permit shall be subject to the approval and consent of the Administrative Authority. Such approval and consent shall not be unreasonably withheld provided that the assignee and/or transferee agrees in writing to the following.

(A) To comply with the plans and specifications upon which the electrical permit was issued in the absence of any subsequent amendments to any applicable existing laws and ordinances as indicated in (B) below; or

(B) To comply with the terms and provisions of any subsequent amendments to the Building Code, Electrical Code, as well as all relevant laws, ordinances, and rules and regulations which would affect either the development's height, floor area, lot coverage, fire safety and/or land use.

(C) The stricter requirements prescribed in subsection (B) hereinabove shall not be applicable in situations where the permit holder can offer documented evidence to the Department of Public Works that he has made, in good faith, a substantial and material change in position in reliance upon the issuance of the electrical permit.

Upon approval by the Administrative Authority he shall issue a transferability permit and receive payment of the required non-refundable fee as hereinafter fixed.

(10) Refund of Fees.

(A) The Administrative Authority shall refund an amount equal to 50 percent of the permit fee paid under the provisions of this Code where a permittee, due to a material change in circumstance or financial difficulties, is unable to commence work authorized by the permit issued therefor; provided that written application for refund shall he made on forms furnished by the Administrative Authority, not later than 15 days after the expiration date.

Notwithstanding the foregoing provisions, no refund shall be made in any case where a new permit has been obtained under the provisions of Article 2, Section 13-2.3(7), for the

purpose of recommencing the same work, or where the amount to be refunded is less than Fifteen Dollars ($15.00).

All permits upon which refunds have been made in accordance with the foregoing provisions shall thereafter be null and void.

(B) Where more than one permit has been erroneously issued by the Administrative Authority for the same construction work, the Administrative Authority shall approve one permit and refund the total amount of fees paid less the permit issuing fee for the other permits upon the surrender thereof; provided that no refund shall be made on any permit which has been surrendered after [120] 180 days from the date of issuance of such permit, or where the amount to be refunded is less than fifteen dollars ($15.00). (Ord. No. 104, June 3, 1959; Sec. 5, C.O. 1971; Sec. 13-4.1, R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 734, April 5, 1999; Ord. No. 774, October 5, 2001)

Sec. 13-2.4 Permit Fees.

Schedule of Fees

For issuing each permit, application fee of $10.00

A separate permit shall also be issued for each service equipment installed.

In Addition:

Service Installations (single and three phase)

For required size of service equipment

Not over 100 amperes (including meter loop)	$ 8.00
Over 100 but not over 200 amperes (including meter loop)	9.00
Over 200 but not over 400 amperes (including meter loop)	10.00
Over 400 but not over 600 amperes (including meter loop)	12.00
Over 600 but not over 800 amperes (including meter loop)	15.00
Over 800 but not over 1000 amperes (including meter loop)	18.00
Over 1000 but not over 1200 amperes (including meter loop)	20.00
Over 1200 amperes	24.00

For each feeder conductor ..... $ 6.00

Wiring Circuits In Or About Buildings

For each branch circuit including spare circuits .... $ 6.00

High Potential Gas Tube Lighting And Signs

For each erection, construction, enlargement, relocation, improvement, alteration, conversion, assembly, reassembly or installation of any illuminated sign, decorative outline tubing, gas or fluorescent lighting and flasher in connection with a sign $10.00

Temporary Lights

Not over 50 lamps	$ 8.00
Over 50 and not over 100 lamps	12.00
Each succeeding 100 or fraction thereof	6.00
Decorative lighting and footlights, borders and strips in theaters, where 100 or less sockets are installed	10.00
Additional 50 sockets or fraction thereof	6.00

Portable Electric Signs

A portable electric sign shall mean to be a small advertising contrivance operated with electricity and used in interior of buildings only, which is capable or being moved or removed at will without damaging or altering the structure or finish at or adjacent to the location thereof, and which is not attached or fastened in place by nails, screws, bolts, conductors, wiring enclosures, or in any manner, except approved temporary fastenings.

No fee shall be required for such portable electric signs when the outlet and circuit to which it is attached has been installed under a permit and the required fee paid for.

Transformers And Generators (Fixed)

Not more than 5 KVA	$ 8.00
Over 5 KVA but not over 15 KVA	15.00
Over 15 KVA but not over 50 KVA	30.00
Over 50 KVA but not over 100 KVA	40.00
Over 100 KVA	50.00

Temporary Electrical Power For Construction

All service for temporary electrical power shall require a separate permit, inspection and approval prior to service connection. A temporary power pole shall be equip with a single or three phase service and a maximum of two branch circuits $15.00

Reinspection of temporary electrical power pole equipment when moved from one location to another $15.00

Motors (Fixed)

Not over 1 HP	$ 5.00
Over 1 HP but not over 3 HP	6.00
Over 3 HP but not over 10 HP	9.00
Over 10 HP but not over 25 HP	12.00
Over 25 HP but not over 50 HP	15.00
Over 50 HP but not over 100 HP	23.00
Over 100 HP but not over 150 HP	30.00
Over 150 HP but not over 200 HP	40.00
Over 200 HP	50.00

No fee shall be required for moving any temporary construction motor from one place to another when such temporary motors are

attached to outlets or circuits for which a permit has been issued and the permit fee therefor has been once paid.

Miscellaneous

For conduit and raceway installation for each 500 square feet of floor area or any fraction thereof $10.00

For carnivals, circuses, farm fairs, religious activities, outdoor plays at parks, sporting events, rallies etc. all inclusive a flat rate $50.00

For any transferability of electrical permit as herein provided, a transfer fee is required $40.00

Repairs, Alterations, Addition

Permit fees for additions, alterations, or repairs of existing work shall be the same as for new work.

Permit fees for additions, alterations, repairs, installation or for work which a permit is required but for which no fee is herein provided $10.00

Reinspection Fees

Reinspection fees assessed under provision of

Section 13-2.11 ..... $25.00

Exception: The County of Kauai and its agencies and contractors thereof shall he exempt from the requirement to pay any fee. (Ord. No. 104, June 3, 1959; Sec. 5, C.O. 1971; Sec. 13-4.7, R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.5 Posting Of Electrical Permit.

Work requiring a permit shall not commence until the electrical permit card is conspicuously posted on the building or structure where the work is to be done to allow the Administrative Authority to conveniently make the required entries regarding inspection of the work. The electrical permit card shall be posted, maintained and made available by the permit holder until final inspection has been completed by the Administrative Authority. (Sec. 13-4.1 et seq., R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.6 Relocation Of Buildings and Structures.

All buildings and structures moved or relocated on any land within the County shall comply with all requirements of this Code for new buildings. A separate electrical permit shall be obtained from the Administrative Authority for such building or structure.

A fee for each electrical permit shall be paid to the Administrative Authority as provided in Section 13-2.4. (Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.7 Factory Built Housing and Structure.

No person shall install or relocate any factory built housing structure or trailer home on any land within the County of Kauai which requires electrical work or cause the same to be done, without first obtaining a separate electrical permit or such building or structure from the Administrative Authority.

All such work shall comply to all requirements set forth in this Code, and any material, method of construction or work not specifically prescribed by this Code may be authorized by the Administrative Authority.

The Administrative Authority may approve any such work, provided he finds that the proposed design is satisfactory and complies with the provisions of this Code and that the materials, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this Code in suitability, strength, effectiveness, durability, safety and sanitation.

A fee for each electrical permit shall be paid to the Administrative Authority as provided in Section 13-2.4 of this Code. (Ord. No. 565, February 16, 1990; Ord. No. 687, May 20, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.8 Defective Electrical Installations.

(a) Any portion of an electrical system found by the Administrative Authority to be unsafe shall be so declared and made safe.

(b) Whenever brought to the attention of the department having jurisdiction that any unsafe condition exists or that any installation or work regulated by this Code is dangerous and unsafe investigation by the Administrative Authority who, upon determining such information to be fact, shall order any person, firm or corporation using or maintaining any such condition or responsible for the use or maintenance thereof to discontinue the use or maintenance thereof until made safe.

Every such order shall be in writing, addressed to the owner, agent or person responsible for the premises in which such condition exists and shall specify the date or time for compliance with such order.

(c) Refusal, failure or neglect to comply with any such notice or order shall be considered a violation of this Code.

(d) When any electrical system is maintained in violation of this Code or where a nuisance exists in any building or on a lot on which a building is situated, the Administrative Authority shall institute any appropriate action or proceeding in any court of competent jurisdiction to prevent, restrain, correct, or abate the violation or nuisance. (Ord. No. 104, June 3, 1959; Sec. 5, C.O. 1971;

Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.9 Right Of Entry.

Upon presentation of proper credentials, the Administrative Authority or his duly authorized representatives may enter at reasonable times any building structure or premises in the County of Kauai to perform any duty imposed upon him by this Code, provided that if such building or premises be occupied, he shall first present proper credentials and demand entry; and if such building or premises be unoccupied, he shall first make a reasonable effort to locate the owner or other persons having charge or control of the building or premises and demand entry. If such entry is refused, the Administrative Authority or his assistants shall have recourse to every remedy provided by law to secure entry. (Ord. No. 104, June 3, 1959; Sec. 5, C.O. 1971; Sec. 13-5.5, R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.10 Violation and Penalties.

(a) General. It shall he unlawful for any person, firm, or corporation to install, alter, repair, remove, replace or maintain any electrical work or any fixture, or cause the same to be done, contrary to or in violation of any of the provisions of this Code.

(b) Notice of violation. Whenever any person, firm or corporation violates any provision of this Code, the Administrative Authority shall serve a notice of violation to the party responsible for the violation to make the building or structure or portion thereof comply with the requirements of this Code. Such notice of violation shall include:

(1) The date of the notice;

(2) The name and address of the person noticed, and the location of the violation;

(3) The section number of the ordinance, code or rule which has been violated;

(4) The nature of the violation; and

(5) The deadline for compliance with the notice.

(c) Any person, firm or corporation violating any of the provisions of this Code shall be deemed guilty of a misdemeanor, and each such person shall be deemed guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this Code is committed, continued, or permitted, and upon conviction of any such violation such person shall be punishable by a fine of not more than $2,000 or by imprisonment for not more than one year, or by both such fine and imprisonment.

It shall be the duty of each and every person, firm or corporation as defined herein to prevent any and all

violations of this Code and upon the occurrence of any violation, each and every person, firm or corporation, shall be deemed guilty of a misdemeanor as set out herein.

(d) Whenever any work for which a permit is required by this Code has been commenced without, first obtaining said permit, a special investigation shall be made before a permit may be issued for such work.

An investigation fee, in addition to the permit fee, shall be collected whether or not a permit is then subsequently issued. The investigation fee shall be equal to the amount of the permit fee fixed by Section 13-2.4 for such work. However, in all such cases, there shall be a minimum combined amount for investigation and permit fees of two hundred dollars ($200.00) for any such work commenced without a permit.

In the event it is discovered by the Administrative Authority that a required investigation fee was not collected, the Administrative Authority shall not performed any additional inspection of the work until the required investigation fee have been paid.

The payment of such investigation fee shall not exempt any person from compliance with all other provisions of this Code, nor from any penalty prescribed by law. (Ord. No. 104, June 3, 1959; Sec. 5, C.O. 1971; Sec. 13-8.1, R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.11 All Work To Be Inspected.

(a) All electrical systems shall be inspected by the Administrative Authority to ensure compliance with all the requirements of this Code for which a permit is obtained. No portion of any system shall be concealed, enclosed or covered until such system or work has been inspected and approved by the Administrative Authority.

(b) Notification. It shall be the duty of the permittee performing the work authorized by the permit to notify the Administrative Authority, orally or in writing, that said work is ready for inspection.

It shall be the duty of the permittee performing the work authorized by the permit to ensure that the work complies with this Code, before requesting inspection.

The Administrative Authority, upon receipt of notification shall make the following inspection:

1. All services for temporary electrical power.
2. The rough installation of any electrical wiring or portion thereof, shall not be covered or concealed until it has first been inspected, and has been completed and approval granted.
3. The rough installation of any electrical conductors and service equipment, or portion thereof that connect to the supply of electricity.

4. Final inspection shall be made after all electrical systems are completed and the building is ready for occupancy. All electrical service equipment shall be in place and all electrical fixtures, devices, covers and cover plates shall be installed. All electrical systems shall be capable to receive power.

5. Other Inspections. In addition to the inspections specified above, the Administrative Authority may make or require other inspections of any electrical work to ascertain compliance with the provisions of this code and other laws which are enforced by the Administrative Authority.

(c) Workmanship. Any inspection[s] required of the Administrative Authority shall be solely for the purpose of ascertaining compliance with the plans, specifications and code requirements as they relate to the electrical integrity of the building and as they relate to health and safety. The inspections shall not be for the purpose of validating the workmanship of the electrical; such validating, if desired, shall be the responsibility of the building's owner and shall be done by a special inspector, hired and paid for by the builder, owner or respective party.

(d) Reinspections. A reinspection fee shall be assessed for each reinspection when such portion of work for which required inspection is called for and not completed or when corrections are called for and not made.

To obtain reinspection, the permit holder shall file an application thereof in writing on a form furnished by the Administrative Authority and pay the reinspection fee of twenty-five dollars ($25.00) for each additional reinspection.

Where reinspection fees have been assessed, no additional inspection of the work shall be performed until the required fees have been paid. (Sec. 13-5.1 et seq., R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.12 Certificate of Inspection.

(a) Upon satisfactory completion of all electrical work in accordance with the provisions of this Chapter and the electrical code and standards adopted, a certificate of inspection shall be issued upon request in triplicate by the Administrative Authority, the original of which shall be sent to the electrical contractor who installed the work.

(b) It shall be unlawful for any person to use or supply electrical energy to any electrical installation on which electrical work was or is being performed under a permit issued pursuant to the provision of this Chapter, before the Administrative Authority issues a certificate certifying that such installation has been inspected and approved by the Administrative Authority.

The Administrative Authority may disconnect any electrical installation or equipment which has been connected

before the approval for the use of or supply of electrical energy has been granted.

(c) The Administrative Authority, upon the disconnection of any electrical installation or wiring found illegally connected, as provided in paragraph (b) of this Section, shall attach a notice thereto which shall state that the wiring or apparatus has been disconnected by the order of the Administrative Authority, and any person removing the notice or reconnecting the wiring or apparatus before it has been approved by the Administrative Authority shall be liable to the penalties herein provided.

(d) In all such cases where the use of and supply of electrical energy required for emergency electrical work to remedy a power failure and for which no electrical permit was obtained, the Administrative Authority may authorize use of and the supply of electrical energy to such installation before issuance of such certificate when the use of and the supply of electrical energy to, such installation will not endanger life or property and there is good cause for making such exception.

In all such cases, all persons responsible for the performance of any emergency electrical work to remedy a power failure shall obtain an electrical permit on the working day immediately following the day on which the work was performed. All such work shall be inspected, approved and certified by the Administrative Authority to assure compliance to all provisions of this Chapter. All persons who fail to obtain an electrical permit shall be subject to the penalties herein provided. (Ord. No. 104, June 3, 1959; Sec. 5, C.O. 1971; Sec. 13-5.4, R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.13 Building Occupancy.

After final inspection and a determination that the building or structure complies with the provisions of this Code and other laws which are enforced by the code enforcement agency, the Administrative Authority shall issue a Certificate of Occupancy, as provided herein Chapter 12, Building Code, Kauai County Code, 1987, as amended. (Sec. 13-5.4, R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.14 Liability.

The Administrative Authority or any employee charged with the enforcement of this Code, acting for the County in good faith and without malice in the discharge of his duties, shall not thereby render himself liable personally and he hereby is relieved from all personal liability for any damage that may occur to persons or property as a result of any act required, or by reason of any act of omission, in the discharge of his duties. Any suit brought against the Administrative Authority

or employees, because of such act of omission performed by him in the enforcement of any provisions of this Code, shall be defended by the legal department of the County until final termination of the proceedings. (Sec. 13-5.6, R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.15 Unconstitutionality.

If any section, subsection, sentence, clause or phrase of this Ordinance is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this Ordinance. The Legislative Body hereby declares that it would have passed this Ordinance, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional. (Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.16 Appeals And Petitions.

Any appeal from the decision of the Administrative Authority in the administration of the County of Kauai Electrical Code involving any denial of the use of new or alternate materials, types of construction, equipment, fixtures, devices, or appliances, or any petition for varying the application of the Electrical Code may be submitted to the Board of Appeals for hearing and determination as specified in Chapter 12, Building Code, Kauai County Code 1987, as amended. (Sec. 13-7.1, R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-2.17 Temporary Electrical Service.

All services for temporary electrical power shall be used for construction purposes only, for construction sites, field offices, equipment and other construction usage.

All installation for temporary electrical power shall comply with all requirements of this Code and the utility company furnishing such power.

All service for temporary electrical power shall require a separate electrical permit, inspection and approval prior to service connection. A permit shall not be issued unless a valid building permit has been or is being processed.

The Administrative Authority may in his discretion authorize services for temporary electrical power other than construction purposes. (Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

ARTICLE 3. QUALIFICATION OF PERFORMERS OF WORK UNDER THE ELECTRICAL CODE

Sec. 13-3.1 General Provisions.

(a) It shall be unlawful for any person to perform any work covered by this Code in violation of those provisions of the Hawaii Revised Statutes relating to the licensing of electricians and plumbers. A homeowner may do repairs (except to service equipment metering), involving retail material cost of less than $1,000.00 to his own home electrical lines and appurtenances personally, provided the homeowner complies to provisions of Chapter 448E HRS. In such cases, a permit shall not be required.

(b) No person shall do or cause to be done any electrical work which does not comply with the provisions of this Code. No person shall perform any work covered by this Code in violation of the provisions of Chapters 444 and 448E, HRS. (Ord. No. 108, June 7, 1960; Sec. 13-4.2, R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

ARTICLE 4. INSTALLATION REQUIREMENTS NATIONAL ELECTRICAL CODE

Sec. 13-4.1 Electrical Code To Govern.

The NATIONAL ELECTRICAL CODE, 1999 EDITION, as copyrighted and published in 1998, by the National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269, is hereby adopted by reference and made a part hereof, subject to the amendments hereinafter set forth as the standard for electrical work covered by this Code. (Ord. No. 104, June 3, 1959; Sec. 5, C.O. 1971; Ord. No. 210, April 3, 1974; Ord. No. 222, August 7, 1974; Ord. No. 247, May 9, 1975; Sec. 13-2.1, R.C.O. 1976; Ord. No. 360, February 23, 1979; Ord. No. 440, November 10, 1982; Ord. No. 483, November 21, 1985; Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 721, March 24, 1998; Ord. No. 774, October 5, 2001)

ARTICLE 5. ELECTRICAL WORK WITHIN FLOOD HAZARD AREA

Sec. 13-5.1 General Provisions.

(a) The provisions contained herein are applicable to the construction of all new electrical systems, renovations and major alterations, additions, or reconstruction of existing electrical systems within Flood Hazard District as established on the Flood Boundary and Floodway Maps and Flood Insurance Rate Maps, and any amendments by the Federal Emergency Management Agency, on file with the Engineering Division, Department of Public Works, County of Kauai.

These provisions shall also apply to developments adjacent to drainage facilities outside the Flood Hazard District which are determined to be within a floodway area or a flood fringe area in accordance with Kauai County Code, 1987 as amended.

(b) Existing Electrical Systems. Any electrical system thereof which was lawful before the effective date of this Article but which is not in conformity with the provisions of this Article may be continued subject to the provisions of Kauai County Code 1987 as amended.

(c) Exemption. The provisions contained herein shall not apply:

(1) To electrical systems serving buildings and structures exempted from the Flood Hazard District Provisions under Chapter 15, Kauai County Code, 1987 as amended.

(2) To electrical systems serving buildings and structures which have been granted a Flood Hazard Variance under provisions of Chapter 15, Kauai County Code, 1987 as amended. (Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-5.2 Definitions.

(a) For the purpose of this Article, the following terms shall be as defined in Chapter 15, Kauai County Code 1987, as amended.

(1) Base Flood
(2) Base Flood Elevation
(3) Coastal High Hazard Area
(4) Flood or Flooding
(5) Flood Boundary and Flood Maps
(6) Flood Fringe Area
(7) Floodway
(8) General Flood Plain Area
(9) Habitable Floor
(10) Lowest Floor
(11) Special Flood Hazard
(12) Tsunami

(b) For the purpose of this Article, the following words and terms are also defined:

(1) Ground-Fault Protector (GFP). A device or equipment which disconnects all ungrounded conductors of the faulted circuit system to protect wiring and equipment form damages.

(2) Ground-Fault Circuit Interrupter (GFCI). A device or equipment which disconnects all ungrounded conductors of the faulted circuit to protect people from electrical shocks. (Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-5.3 Electrical Work In The Flood Hazard Districts.

For electrical work on projects subject to the provisions of this Article, the provisions of this section shall supplement the requirements of Section 13-4.1.

(a) Main Power Service. The incoming main commercial power service equipment, including all metering equipment, shall be located above the regulatory flood elevation or in a waterproof enclosure or barrier with GFP on the main disconnecting means.

(b) Stationary and Portable Equipment. Switchgear, control centers, transformers, distribution and power or lighting panels shall be located above the regulatory flood elevation or in a waterproof enclosure or barrier with GFP on the main disconnecting means. Stationary and portable or movable electrical equipment shall be permitted to be located below the regulatory flood elevation provided that the circuit and equipment shall he protected with GFCI, except sump pump and its circuit may be without GFCI. In cases where GFCI cannot be installed because of amperage size or usage, GFP shall be installed.

(c) Normal and Emergency Light Circuits. All normal lighting circuits extending into areas below the regulatory flood elevation shall be energized from a common distribution panel located above the regulatory flood elevation or in a waterproof enclosure or barrier with GFP. All emergency lighting circuits into areas below the regulatory flood elevation shall be energized from an independent distribution panel also located above the regulatory flood elevation or in a waterproof enclosure or barrier with GFP.

(d) Emergency Lighting Requirements. All components of emergency lighting systems installed below the regulatory flood elevation shall be so located that no component of the emergency lighting system is within reach of personnel working at floor level in the areas where emergency lighting systems are utilized unless the emergency lighting circuits are provided with GFCI. The emergency lighting may be furnished by a storage battery, prime mover-generator system, a separate commercial power supply system, the same commercial power system, or a combination thereof, subject to the following provisions:

(1) Storage Battery (including battery operated lighting units). Battery operated lighting units shall be completely self contained and shall indicate the state of charge of the battery at all times. Lighting units shall automatically provide light when the normal source of lighting in the areas is de-energized.

(2) Separate Commercial Power Supply System. This source of energy shall have a degree of reliability satisfactory to the Administrative Authority. A system fed from a transformer other than that used for the regular supply and not on the same poles (except service pole) as the regular supply is deemed to have the required degree of reliability. A secondary circuit fed

from the same primary circuit as the regular supply shall be regarded as a separate system.

(3) Same Commercial Power Supply System. The system shall be an underground secondary system and a separate service shall be connected on the line side of that service switch or breaker of the regular service.

(e) Receptacle Circuit Below Regulatory Flood Elevation. Receptacle circuits shall be permitted to be installed below the regulatory flood elevation, provided that these circuits shall be protected with GPCI. (Ord. No. 565, February 16, 1990; Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

ARTICLE 6. ENERGY CONSERVATION

Sec. 13-6.1 General Provisions

The purposes of this article are to:

(a) Set minimum requirements for the energy-efficient design of new buildings so that they may be constructed, operated, and maintained in a manner that minimizes the use of energy without constraining the building function or the comfort or productivity of the occupants; and

(b) Provide criteria for energy-efficient design and provide methods for determining compliance with these criteria. (Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

Sec. 13-6.2 Applicability

(a) All electrical requirements and criteria of Article 6, Chapter 12, Building Code, Kauai County Code, 1987, as amended, relating to Energy Conservation, shall be part of this Code. These requirements shall be inspected and enforced as part of the Electrical Code. (Ord. No. 687, May 10, 1995; Ord. No. 774, October 5, 2001)

PLUMBING CODE

Article 1.	General Provisions
Sec. 14-1.1	Title And Purpose
Sec. 14-1.2	Scope
Sec. 14-1.3	Existing Installations
Article 2.	Administration And Enforcement
Sec. 14-2.1	Duties Of The Administrative Authority
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Sec. 14-2.6	Application For And Issuance Of Permit
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Article 3.	Qualification Of Performers Of Work Under Plumbing Code
Sec. 14-3.1	General Provisions
Article 4.	Installation Requirements
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Article 5.	Plumbing Work Within Flood Hazard Districts And Developments Adjacent To Drainage Facilities
Sec. 14-5.1	Applicability
Sec. 14-5.2	Definitions
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Article 6.	Energy Conservation
Sec. 14-6.1	General Provisions
Sec. 14-6.2	Applicability

ARTICLE 1. GENERAL PROVISIONS

Section 14-1.1 Title and Purpose.

(a) Title. This ordinance shall be known as the "Plumbing Code", may be cited as such, and will be referred to herein as "this Code".

(b) Purpose, The purpose of this Code is to provide for the protection of the public health and safety by establishing minimum regulations for the installation, alteration or repair of plumbing and drainage systems, and the inspection thereof. (Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-1.2 Scope.

The provisions of this Code shall apply to all new construction, relocated buildings, and to any additions, alterations, repairs or reconstruction within the property lines of the premises, except as provided for otherwise in this Code.

Exception: Plumbing work on building or premises owned by or under the direct control of the United States or the State of Hawaii.

(Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 686, May 10, 1995; Ord. No. 775, October 5, 2001)

Section 14-1.3 Existing installations.

(a) Any plumbing system lawfully installed prior to the effective date of this code may have its existing use, maintenance or repair continued if the use, maintenance or repair is in accordance with the original design and location and no hazard to the public health, safety or welfare has been created by such system.

(b) The owner or the owner's designated agent shall be responsible for the maintenance of the plumbing system in a safe and sanitary condition. (Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

ARTICLE 2. ADMINISTRATION AND ENFORCEMENT

Section 14-2.1 Duties of the Administrative Authority.

The Administrative Authority shall maintain public office hours necessary to efficiently administer the provisions of

this Code and amendments thereto and shall perform the following duties:

(1) Require submission of, examine and check plans and specifications, drawings, descriptions, and/or diagrams necessary to show clearly the character, kind and extent or work covered by applications for a permit and upon approval thereof shall issue the permit applied for.

(2) Administer and enforce the provisions of this Code in a manner consistent with the intent thereof, and shall inspect all plumbing systems authorized by any permit to assure compliance with provisions of this Code or amendments thereto, approving or condemning said work in whole or in part as conditions require.

(3) Issue, upon request, a Certificate of Inspection and or a Certificate of Occupancy for any Work approved by him.

(4) Condemn and reject all work done or being done, or materials used or being used, which do not in all respect comply with the provisions of this Code and amendments thereto,

(5) Order changes in equipment and/or materials essential to obtain compliance with all provisions of this Code.

(6) Investigate any construction or work regulated by this Code and issue such notices and orders as provided in Sections 14-2.3.

(7) Keep a complete record of all the essential transactions of his office. (Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-2.2 Right of Entry

Upon presentation of proper credentials, the Administrative Authority or his assistants may enter at reasonable times, any building, or premises in the County of Kauai to perform any duty imposed upon him by this Code; provided that if such building or premises be occupied, he shall first present proper credentials and demand entry; and if such building or premises be unoccupied, he shall first make a reasonable effort to locate the owner or other persons having charge or control of the building or premises and demand entry. If such entry is refused, the Administrative Authority or his assistants shall have recourse to every remedy provided by law to secure entry. (Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-2.3 Dangerous and Insanitary Construction.

(a) Any portion of a plumbing system found by the Administrative Authority to be insanitary as defined herein is hereby declared to be a nuisance.

(b) Whenever brought to the attention of the department having jurisdiction that any insanitary conditions exist or that any construction or work regulated by this Code is dangerous, unsafe, insanitary, a nuisance or a menace to life, health or property or otherwise in violation of this Code, the said department may request an investigation by the Administrative Authority who, upon determining such information to be fact, shall order any person, firm or corporation using or maintaining any such condition or responsible for the use or maintenance thereof to discontinue the use or maintenance thereof or to repair, alter, change, remove or demolish same as the Administrative Authority may consider necessary for the proper protection of life, health or property; and in the case of any gas piping or gas appliance may order any person, firm or corporation, supplying gas to such piping or appliance to discontinue supplying gas thereto until such piping or appliance is made safe to life, health or property,

Every such order shall be in writing, addressed to the owner, agent or person responsible for the premises in which such compliance exists, and shall specify the date or time for compliance with such order.

(c) Refusal, failure or neglect to comply with such notice or order shall be considered a violation of this Code.

(d) When any plumbing system is maintained in violation of this Code and in violation of any notice issued pursuant to the provisions of this section, or where a nuisance exists in any building or on a lot on which a building is situated the, Administrative Authority shall institute any appropriate action or proceeding in any court of competent jurisdiction to prevent, restrain, correct, or abate the violation or nuisance. (Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-2.4 Violations and Penalties.

(a) General. It is unlawful for any person, firm or corporation to install, alter, repair, remove, replace or maintain any-plumbing, gas or drainage piping work or any fixture, gas appliance or water heating or treating equipment, or cause or permit the same to be done in violation of this code.

(b) Notice of violation, Whenever any person, firm or corporation violates any provision of this code, the Administrative Authority shall serve a notice of violation to

the party responsible for the violation to make the building or structure or portion thereof comply with the requirements of this code. Such notice of violation shall include:

(1) The date of the notice;

(2) The name and address of the person noticed, and the location of the violation;

(3) The section number of the ordinance, code or rule which has been violated;

(4) The nature of the violation; and

(5) The deadline for compliance with the notice.

(c) Any person, firm, or corporation violating any of the provisions of this Code shall be deemed guilty of a misdemeanor, and each such person shall be deemed guilty of a separate offenses for each and every day or portion thereof during which any violation of any of the provision of this Code is committed, continued, or permitted, and upon conviction of any such violation such person shall be punishable by a fine of not more than $2,000 or by imprisonment for not more than one year, or by both such fine and imprisonment.

It shall be the duty of each and every person, firm or corporation as defined herein to prevent any and all violations of this Code and upon the occurrence of any violation, each and every person, firm or corporation, shall be deemed guilty of a misdemeanor as set out herein.

(d) Whenever any work for which a permit is required by this Code has been commenced without first obtaining said permit, a special investigation shall be made before a permit may be issued for such work.

An investigation fee, in addition to the permit fee, shall be collected whether or not a permit is then subsequently issued. The investigation fee shall be equal to the amount of the permit fee fixed by Section 14-2.7 for such work. However, in all such cases, there shall be a minimum combined amount for investigation and permit fees of two hundred dollars ($200.00) for any such work commenced without a permit.

In the event it is discovered by the Administrative Authority that a required investigation fee was not collected, the Administrative Authority shall not perform any additional inspection of the work until the required investigation fee have been paid.

The payment of such investigation fee shall not exempt any person from compliance with all other provisions of this Code, nor from any penalty prescribed by law. (Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-2.5 To Whom Permits May Be Issued.

A plumbing permit is required to perform work covered by this Code and will be issued only to:

(1) A Plumbing Contractor holding a valid unexpired license under Chapter 444, HRS and who can present evidence that he is also licensed under Chapter 448E, HRS or has under his employment a plumber complying to the provisions of Chapter 448E, HRS.

(2) A firm, partnership, association or corporation other than a plumbing contractor complying to the provisions set forth in Chapter 444, HRS and who has under his employment a master plumber holding a valid unexpired license, complying to provisions set forth in Chapter 448E, HRS.

(3) A Gas Utility Company for doing gas piping work.

(4) County, Federal and State governments. With the agencies having under their employment a licensed master plumber complying to provisions setforth in Chapter 448E, HRS.

(5) A homeowner who performs plumbing work on his own single family dwelling, provided such homeowner is holding a valid unexpired license under Chapter 448E, HRS.

This does not preclude the homeowner who is licensed under Chapter 448E, HRS, to do plumbing maintenance work for buildings he owns. (Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 566, March 13, 1990; Ord. No. 629, July 15, 1993; Ord. No. 686, May 10, 1995; Ord. No. 775, October 5, 2001)

Section 14-2.6 Application for and Issuance of Permit.

(a) Permit Required. No person, firm, partnership, association or corporation shall erect, construct, enlarge, repair, move, improve, remove, alter or convert any building or structure in the County of Kauai which requires plumbing work or cause the same to be done without first obtaining a separate plumbing permit for such building or structure from the Administrative Authority.

Exception: Permits are not required for the clearing of stoppages or the repairing of leaks in drains, soil, waste or vent pipes and water supply lines. Work performed for any Federal of State government agency, except where permits are requested by said agency.

(b) Application. Any person legally entitled to apply for and receive a permit shall make such application on forms provided for that purpose. He shall give a description of the character of the work proposed to be done and the location, ownership, occupancy and use of the premises in connection therewith. The Administrative Authority may require plans,

specifications or drawings and such other information as he may deem necessary,

(c) Plans Required. Applications for plumbing permits for any commercial, industrial or public building, hotel, apartment building or any single family dwelling shall be accompanied by a minimum of three (3) sets of drawings for approval by the Administrative Authority. One set shall be retained by the Administrative Authority, one set returned to the applicant for their file records and the final set returned to the applicant which shall be kept on such building or jobsite at all times during which the work authorized thereby is in progress. The Administrative Authority may waive the requirements for submission of drawings when he deems it unnecessary.

(d) Issuance. If the Administrative Authority determines that the plans, specifications, drawings, descriptions or information furnished by the applicant is in compliance with this Code, he shall issue the permit applied for upon payment of the required fee as hereinafter fixed. Payment for any permit shall be paid prior to the issuance of such permit.

A fee of $10.00 (ten dollars) shall be imposed and collected for the reproduction of any plumbing permit card, for which a permit was issued by the Administrative Authority.

(e) Validity. The issuance or granting of a permit or approval of plans, specifications and computations shall not be construed to be a permit for, or an approval of any violation of any of the provisions of this Code, or of any other ordinance of the jurisdiction. No permit presuming to give authority to violate or cancel the provisions of this Code shall be valid.

This issuance of a permit based upon plans and specifications and other data shall not prevent the Administrative Authority from thereafter requiring the correction of errors in said plans, specifications and other data, or from preventing plumbing work being carried on thereunder when in violation of this Code or of any other ordinances of this jurisdiction.

(f) Performance. A licensed plumber holding a valid license complying to the provisions set forth in Chapter 448E, HRS, shall be at the site at all times during any performance, direction or supervision of any plumbing work authorized by a permit, as provided for in said Chapter and Administrative Rules promulgated thereunder. The enforcement for compliance of Chapter 448E and the Administrative Rules shall be the responsibility of the State of Hawaii.

(g) Expiration. Every permit issued by the Administrative Authority under the provisions of this Code shall expire by limitation and become null and void, if the work authorized by such permit is not commenced within 180 days from the date of such permit, or if the construction or work authorized by such permit is suspended or abandoned at any time after the work is commenced for a period of 180 days;

providing further, that a permit issued for work on a project having a valid building permit, shall remain valid and expire only when such building permit expires.

When a permit expires, is suspended or abandoned, a new permit shall be first obtained by the permittee, his agent, or his successor in interest, and a new permit fee equal to one-half the amount required for a new permit rounded off to the nearest dollar shall be paid, provided no changes have been made or will be made to the original plans and specifications for such work; and provided, further, that such permit has not exceeded a period of one year from the date of permit issuance or the date of suspension or abandonment of work authorized, whichever is later.

Any permittee, his agent or his successor in interest holding an unexpired permit, who is unable to commence work, may apply for an extension. Upon written request by the permittee, the Administrative Authority may in writing, extend the permit for a period of 180 days, however, in the event of strikes or other causes beyond the control of the plumbing contractor or permittee, the Administrative Authority may extend the permit for the duration of the event. No permit shall be extended more than once.

For plumbing permits issued prior to July 1, 1984, the Administrative Authority shall not activate and reissue a permit. If a permittee, his agent, or his successor in interest, desires to have the permitted plumbing work certified that it was done in compliance with all County of Kauai or State of Hawaii laws, codes and ordinances at the time the original permit was issued, and that the plumbing work does not violate any laws, codes and ordinances, he may hire a duly registered professional licensed mechanical engineer or architect as required by Chapter 464 Hawaii Revised Statutes as amended, to provide such certification.

The Administrative Authority may activate and reissue an expired permit for the purpose of continuing the work on an incompleted building or to secure all inspections required by this Code. All work that was started on an expired plumbing permit and completed according to the approved building plans prior to the issuance of such permit shall remain valid under the Plumbing Code it was issued. Any new work shall conform to the current Plumbing Code. The Administrative Authority may require the submission of building plans.

When a plumbing permit is activated or reissued, a permit fee therefor shall be required as provided.

(h) Suspension or Revocation. The Administrative Authority may, in writing, suspend or revoke a permit issued under provisions of this Code whenever the permit is issued in error or on the basis of incorrect information supplied, or in violation of any ordinance or regulation or any of the provisions of this Code.

(i) Transferability of Plumbing Permit. Any assignment and/or transfer of any substantial interest in any plumbing permit shall be subject to the approval and consent of the

Administrative Authority. Such approval and consent shall not be unreasonably withheld provided that the assignee and/or transferee agrees in writing to the following:

(1) To comply with the plans and specifications upon which the plumbing permit was issued in the absence of any subsequent amendments to any applicable existing laws and ordinances as indicated in (2) below; or

(2) To comply with the terms and provisions of any subsequent amendments to the Building Code, Plumbing Code, as well as all relevant laws, ordinances, and rules and regulations which would affect either the development's height, floor area, lot coverage, fire safety and/or land use.

(3) The stricter requirements prescribed in subsection (2) hereinabove shall not be applicable in situations where the permit holder can offer documented evidence to the Department of Public Works that he has made, in good faith, a substantial and material change in position in reliance upon the issuance of the plumbing permit.

Upon approval by the Administrative Authority, he shall issue a transferability permit and receive payment of the required non-refundable fee as hereinafter fixed.

(j) Posting of Plumbing Permit Card. Work requiring a permit shall not commence until the plumbing permit card is conspicuously posted on the building or structure where work is to be done to allow the Administrative Authority to conveniently make the required entries regarding inspection of the work. The plumbing permit card shall be posted, maintained and made available by the permit holder until final inspection has been completed by the Administrative Authority. (Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 686, May 10, 1995; Ord. No. 735, April 5, 1999; Ord. No. 775, October 5, 2001)

Section 14-2.7 Schedule of Permit Fees.

SCHEDULE OF FEES

For issuing each permit, an application fee of $10.00

In addition--

For each plumbing fixture or trap
(including drainage and vent piping) 5.00
For installation, addition, alteration, repair of
each building sewer or building drainage system ... 15.00

For each industrial waste, grease, sand or dirt interceptors and sewage ejector, including its trap and vent 10.00

For installation, addition, alteration or repair of water piping and/or water treating equipment 5.00

For vacuum breakers or backflow protective devices installed subsequent to the installation of the piping or equipment served 10.00

For each vacuum breakers or backflow protective devices installed to hosebibbs 5.00

For each lawn sprinkler system on any one valve including backflow protection devices therefor ... 10.00

For each electric, oil, gas or solar water heater and/or vent 5.00

For each new installation, altering or repairing of gas piping system, house piping and/or exterior piping for lamps, luau torches and other misc. equipment 10.00

For each gas appliance 5.00

For medical gas piping first five inlet(s) or outlet(s) for a specific gas 10.00
for each additional 5 inlets or outlets or fraction thereof 5.00

For each swimming pool with drainage connection 10.00

For any transferability of plumbing permit as herein provided, a transfer fee is required 40.00

Reinspection Fees assessed under provisions of Section 14-2.9 ..... 25.00

For each foundation work only, the first 10 plumbing fixtures 10.00
for each 5 additional plumbing fixtures or fraction thereof 5.00

Exception: The County of Kauai and all its agencies and contractors thereof shall be exempt from the requirement to pay any fee.

(Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord.

No. 629, July 15, 1993; Ord. No. 686, May 10, 1995; Ord. No. 775, October 5, 2001)

Section 14-2.8 Refund of Fees.

(a) The Administrative Authority shall refund an amount equal to 50 percent of the permit fee paid under the provisions of this Code where a permittee, due to a material change in circumstance or financial difficulties, is unable to commence work authorized by the permit issued therefor; provided that written application for refund shall be made an forms furnished by the Administrative Authority. If the Administrative Authority has extended the expiration date of the original permit, application for refund shall be made not later than 15 days after the new expiration date.

Notwithstanding the foregoing provisions, no refund shall be made in any case where a new permit has been obtained under the provisions of Article 2 Section 14-2.6(g), for the purpose of recommencing the same work, or where the amount to be refunded is less than fifteen dollars ($15.00).

All permits upon which refunds have been made in accordance with the foregoing provisions shall thereafter be null and void.

(b) Where more than one permit has been erroneously issued by the Administrative Authority for the same construction work, the Administrative Authority shall approve one permit and refund the total amount of fees paid less the permit issuing fee for the other permits upon the surrender thereof; provided that no refund shall be made on any permit which has been surrendered after 180 days from the date of issuance of such a permit, or where the amount to be refunded is less than fifteen dollars ($15.00). (Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-2.9 All Work To Be Inspected.

(a) All plumbing and drainage systems shall be inspected by the Administrative Authority to insure compliance with all the requirements of this Code for which a permit is obtained. No portion of any system shall be concealed, enclosed or covered until such system or work has been inspected and approved by the Administrative Authority.

(b) Notification. It shall be the duty of the permittee performing the work authorized by the permit to notify the Administrative Authority, orally or in writing, that such work is ready for inspection.

It shall be the duty of the permittee performing the work authorized by the permit to ensure that the work complies with this Code, before requesting inspection.

The Administrative Authority, upon receipt of notification shall make the following required inspections:

1. The rough installation of any water supply system or portion thereof, shall not be covered or concealed until it has first been tested, inspected and has been completed and approval granted.

2. The rough installation of any plumbing or drainage system, building sewer or part thereof, shall not be covered, concealed or put into use until it has first been tested, inspected has been completed and approval granted.

3. Final inspection shall be made after all plumbing systems are completed and the building is ready for occupancy. All piping shall be completed and in place, and plumbing fixtures installed and capable of operation. Water supply shall be operative, and the sewage disposal system connected and in operation.

4. Fuel piping installation, alteration or repair as required in Section 1204.0, Chapter 12, Article 2 of this Code.

5. The installation, alteration or repair of medical gas and vacuum piping systems as required in Section 1322.0, Chapter 13, Article 2 of this Code.

6. Other Inspections. In addition to the inspections specified above, the Administrative Authority may make or require other inspections of any plumbing work to ascertain compliance with the provisions of this code and other laws which are enforced by the Administrative Authority.

(c) Workmanship. Any inspection required of the Administrative Authority shall be solely for the purpose of ascertaining compliance with the plans, specifications and code requirements as they relate to the plumbing integrity of the building and as they relate to health and safety. The inspections shall not be for the purpose of validating the workmanship of the plumbing. Such validation, if desired, shall be the responsibility of the building's owner and shall be done by a special inspector, hired and paid for by the builder, owner or respective party.

(d) Reinspections. A reinspection fee shall be assessed for each reinspection when such portion of work for which required inspection is called for and not completed or when corrections are called for and not made.

To obtain reinspection, the permit holder shall file an application thereof in writing on a form furnished by the Administrative Authority and pay the reinspection fee of twenty-five dollars ($25.00) for each additional reinspection.

Where reinspection fees have been assessed, no additional inspection of the work shall be performed until the required fees have been paid. (Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 414,

September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-2.10 Certificate of Inspection.

Upon satisfactory completion of all plumbing work in accordance with the provisions of this Chapter and the Plumbing Code and Standards adopted, a certificate of inspection shall be issued upon request in triplicate by the Administrative Authority, the original of which shall be sent to the plumbing contractor who installed the work. (Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-2.11 Building occupancy.

After final inspection when it is found that the building or structure complies with the provisions of this Code and other laws which are enforced by the code enforcement agency, the Administrative Authority shall issue a Certificate of Occupancy, as provided herein Chapter 12, Building Code, Kauai County Code 1987, as amended. (Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-2.12 Liability.

The Administrative Authority or any employee charged with the enforcement of this Code, acting for the County in good faith and without malice in the discharge of his duties, shall not thereby render himself liable personally and he hereby is relieved from all personal liability for any damage that may occur to persons, or property as a result of any act required, or by reason of any act of omission, in the discharge of his duties. Any suit brought against the Administrative Authority or employees, because of such act or omission performed by him in the enforcement of any provisions of this Code, shall be defended by the legal department of the County until final termination of the proceedings. (Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-2.13 Unconstitutionality.

If any section, subsection, sentence, clause or phrase of this Ordinance is, for any reasons, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this Ordinance. The Legislative Body hereby declares that it would have passed this Ordinance, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, and phrases be declared unconstitutional. (Ord. No. 358, February 2, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-2.14 Appeals and Petitions.

Any appeal from the decision of the Administrative Authority in the administration of the County of Kauai Plumbing Code involving any denial of the use of new or alternate materials, types of construction, equipment, fixtures, devices, or appliances, or any petition for varying the application of the Plumbing Code may be submitted to the Board of Appeals for hearing and determination as specified in Chapter 12, Building Code, Kauai County Code 1987, as amended. (Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-2.15 Factory Built Housing and Structures.

No person shall install or relocate any factory built housing, structures or trailer home on any land within the County of Kauai which requires plumbing work or cause the same to be done, without first obtaining a separate plumbing permit for such building or structure from the Administrative Authority.

All such work shall comply to all requirements set forth in this Code, and any material, method of construction or work not specifically prescribed by this Code may be authorized by the Administrative Authority.

The Administrative Authority may approve any such work, provided he finds that the proposed design is satisfactory and complies with the provisions of this Code and that the materials, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in suitability, strength, effectiveness, durability, safety and sanitation.

A fee for each plumbing permit shall be paid to the Administrative Authority as provided in Section 14-2.7 of this Code. (Ord. No. 560, March 13, 1990; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-2.16 Relocation of Buildings and Structures

All buildings and structures moved or relocated on any land within the County shall comply with all requirements of this Code for new buildings. A separate plumbing permit shall be obtained from the Administrative Authority for such building or structure.

A fee for each plumbing permit shall be paid to the Administrative Authority as provided in Section 14-2.7 of this Code. (Ord. No. 775, October 5, 2001)

ARTICLE 3. QUALIFICATION OF PERFORMERS OF WORK UNDER PLUMBING CODE

Section 14-3.1 General Provisions.

(a) It shall be unlawful for any person to perform any work covered by this code in violation of those provisions of the Hawaii Revised Statutes relating to the licensing of electricians and plumbers. A homeowner may do repairs (except

to sewer lines, drainage lines, and gas lines), involving retail material cost of less than $1,000.00 to his own home water lines and appurtenances personally, provided the homeowner complies with the provisions of Chapter 448E, HRS. In such cases, a permit shall not be required.

(b) No person shall do or cause to be done any plumbing work which does not comply with the provisions of this code. No person shall perform any work covered by this code in violation of the provisions of Chapters 444 and 448E, HRS. (Ord. No. 160, June 7, 1972; Ord. No. 289, July 8, 1976; Ord. No. 358, February 2, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

ARTICLE 4. INSTALLATION REQUIREMENTS

Section 14-4.1 Uniform Plumbing Code.

Except for "Chapter 1, Administration", that certain plumbing code known and designated as "International Association of Plumbing and Mechanical Officials Uniform Plumbing Code, 1997 Edition" published by the International Association of Plumbing and Mechanical Officials, 20001 Walnut Drive South, Walnut, California 91789-2825, including its appendices, is hereby adopted by reference and made a part hereof, subject to the amendments hereinafter set forth as the standard for plumbing work covered by this Code.

(1) Amending Section 203.0. Section 203.0 is amended as follows:

The third paragraph of Section 203.0 is amended to read:

"Administrative Authority - Whenever the term "Administrative Authority" is used in this Code it shall be construed to mean the County Engineer of Kauai County, Department of Public Works or his authorized representative."

The following paragraphs are added after the definition of "Aspirator".

"Assistants - Whenever the term "assistants" is used in this Code it shall be construed to mean the authorized representatives of the Administrative Authority."

"Authorized Representatives - When the term "Authorized Representatives" is used in this Code it shall be construed to mean all plumbing inspectors and their supervisors designated as subordinate officers to the Administrative Authority in the enforcement of this Code."

(2) Amending Section 204.0. Section 204.0 is amended as follows:

Amending definition of "Bathroom" is amended to read:

"Bathroom - An area including a basin with one or more of the following: a toilet, a tub, or a shower."

The following paragraph is added before the definition of "Boiler Blowoff".

"Board - The Board of Appeals as specified in Chapter 12, Building Code, Kauai County Code 1987, as amended.

The definition "Building Drain" is amended by deleting the word "two (2) feet (.6m)" and inserting in lieu thereof the words "five (5) feet (1.5m)".

(3) Amending Section 205.0. Section 205.0 is amended as follows:

The following paragraphs are added after the definition of "Continuous Waste"

"Control Valve (Water) - A control valve is any type of valve which can change the flow rate of water, which includes compression stop valves."

"County - The County of Kauai."

(4) Amending Section 206.0. Section 206.0 is amended as follows:

The following paragraph is added after the definition "Dead End".

"Department - The Department of Public Works of the County of Kauai."

The following paragraph is added following the definition of "Drainage System".

"Duly Licensed Plumber - Any person licensed as a plumber under the provisions of Chapter 448E, Hawaii Revised Statutes."

(5) Amending Section 210.0. Section 210.0 is amended as follows:

The following paragraph is added after the definition of "Hangers".

"Health Officer - Health Officer shall mean the Director of Health of the Department of Health, State of Hawaii, or his authorized agent."

The following paragraph is added after the definition of House Sewer".

"Household Aerobic Sewage Treatment System - An aerobic process of treating sewage which produces a stabilized effluent, which effluent can be disposed of into seepage pits or sub-surface disposal fields."

(6) Amending Section 215.0. Section 215.0 is amended as follows:

The following paragraph is added before the definition of "May".

"Maintenance Work - The keeping in repair and operation of any plumbing installation, apparatus, fixtures, appliance or equipment."

(7) Amending Section 218.0. Section 218.0 is amended as follows:

The third paragraph of Section 218.0 is amended to read:

"Person - Any individual, firm, partnership, association, corporation or utility company including each and every owner of any whole or fractional interest in the property concerned, whether in fee, any lesser freehold or tenancy at will."

The following paragraph is added before the definition of "Plumbing Fixture".

"Plumbing Contractor - Any person that is licensed under the provisions of Chapter 444, Hawaii Revised Statutes, and possesses a valid unexpired and unrevoked license qualifying him to perform plumbing work."

The following paragraph is added before the definition of "Pollution."

"Plumbing Work - The installation, alteration, reconstruction or repair of plumbing systems."

The definition "Private Sewage Disposal System" is amended by adding the words "A cesspool used for an interim period, a septic tank or an individual household aerobic sewage treatment system" in lieu of the words "A septic tank" appearing in the first line thereof.

(8) Amending Section 221.0. Section 221.0 is amended as follows:

The definition "Seepage Pit" is amended by adding the words "or a household aerobic sewage treatment unit" between the words "tank" and "so" appearing in the second line thereof.

The following paragraph is added after the definition of "Single Family Dwelling".

"Single-stack System - A single stack system is a specially designed plumbing system wherein a common stack serves as a drainage pipe as well as a vent pipe."

The following paragraph is added after the definition of "Storm Drain".

"State - The State of Hawaii."

(9) Adding Section 301.3. Section 301.3 is added to read:

"301.3 International Plumbing Code. The 1997 edition of the International Plumbing Code (IPC) maybe used in lieu of the Uniform Plumbing Code when approved by the Administrative Authority. A written request by a Hawaii licensed and registered mechanical engineer with the concurrence of the building or project owner must be made to the Administrative Authority. The details of this approval shall be recorded and entered into the files of the Administrative Authority. Plans submitted shall be stamped by the Hawaii licensed and registered mechanical engineer. This section shall apply only to a new building or project and shall not be applied in conjunction with an existing building. Provisions of the Uniform Plumbing Code and the International Plumbing Code shall not be combined or interchanged unless approved by the Administrative Authority. Plans submitted shall clearly state on the plumbing and/or mechanical sheets that the International Plumbing Code was used as the basis of design."

(10) Amending Section 311.4. Section 311.4 is amended by deleting the last sentence:

"Also, single stack drainage and venting systems, with unvented branch lines are prohibited."

(11) Deleting Section 311.6. Section 311.6 is deleted.

(12) Amending Section 313.2. Section 313.2 is amended by changing the second sentence to read:

"No piping shall be directly embedded in concrete or masonry unless provision are made to protect the piping from damage resulting from expansion, contraction and structural settlement."

(13) Amending Section 313.4. Section 313.4 is amended to read:

313.4 No building sewer or other drainage piping or part thereof, constructed of materials other than those approved for use under or within a building, shall be installed under or within five (5) feet (1.5m) of any building or structure, or less than one (1) foot (.3m) below the surface of the ground or as approved by the Administrative Authority.

(14) Deleting Section 314.8. Section 314.8 is deleted and the following is added to read:

"(See Table 3-2, which requires only one support within eighteen inches or the joint.)"

(15) Adding Section 314.9. Section 314.9 is added to read:

"314.9 Seismic Supports. Where earthquake loads are applicable in accordance with the building code, plumbing piping supports shall be designed and installed for the seismic forces in accordance with the building code."

(16) Deleting Sections 318 and 319. Section 318 and 319 are deleted. (The requirements of Section 318 and 319 are covered in the Laws and Administrative Rules of the Department of Health, State of Hawaii regarding Food Establishment Sanitation).

(17) Amending Section 402.1. Section 402.1 is amended by adding to the end of the sentence "but shall not exceed the requirements of Section 402.3."

(18) Deleting Section 402.2. Section 402.2 is deleted and Section 402.3 is redesignated as Section 402.2.

(19) Adding Section 402.3. Section 402.3 is added to read:

"Section 402.3. Water Conservation.

402.3.1 Water supply faucets or valves shall be provided with approved flow control devices which limit flow to a maximum of three gallons per minute; provided that shower heads and kitchen faucets shall be provided with approved flow control devices which limit flow to a maximum of 2.5 gallons per minute at 80 psi and lavatory faucets shall be provided with such flow control devices

which limit flow to a maximum of 2.5 gallons per minute at 80 psi.

Exceptions:

(1) Hose bibbs or valves not used for a designated fixture or equipment.

(2) Hose bibbs, faucets, or valves serving fixed demand, timing or water level control appliances, equipment or holding structures such as pools, automatic washers and other similar equipment.

(3) Emergency showers.

402.3.2 Tank-type water closets and flushometer valve toilets shall have volume limiting devices or methods which will limit the discharge to 1.6 gallons per flush and urinals shall have volume limiting devices or methods which will limit the discharge to 1 gallon per flush. When a satisfactory performance of the water closet or urinal cannot be obtained with 1.6 gallons or less per flush, or 1 gallon or less per flush, respectively , the Administrative Authority may approve a larger discharge. For those places where toilets are heavily used by the public, as determined by the Administrative Authority, including but not limited to arenas, airports, shopping centers and malls, auditoriums, theatres, convention halls, and the public areas of hotels, flushometer toilets with blowout action may be used and need not comply with the 1.6 gallons per flush requirement herein.

402.3.3 Any new installation using potable water for cooling equipment at a rate exceeding one gallon per minute, or operating more than 10 hours in a 24-hour period, shall be designed to recirculate or reuse the cooling water.

402.3.4 Any new decorative water feature using potable water shall be designed to recirculate the water used for the feature."

(20) Deleting Section 412.2. Section 412.2 Location of Floor Drains is deleted.

(21) Amending Sections 413.1 through 413.5. Sections 413.1 through 413.5 are amended as follows:

a. Section 413.1 is amended to read:

413.1 Fixture Count. Plumbing fixtures shall be provided for the type of building occupancy and in the minimum number as specified in Chapter 12, Building Code, Kauai County Code, 1987, as amended. Table 4-1 is deleted.

b. Sections 413.2 through 413.5 are deleted.

(22) Amending Section 420.0. Section 420.0 is amended by adding an "Exception" to read:

"Exception: Tub-mounted hand-held shower heads do not require an anti-scald valve."

(23) Amending Section 501.0. Section 501.0 is amended by adding a second paragraph to read:

"Provisions in NFPA (National Fire Protection Association) Standard No. 211-1996, Chimneys, Fireplaces, Vents and Solid Fuel Burning Appliances, and Part 7, Venting of Equipment, in the National Fuel Gas Code, NFPA 54-1996, may be used in lieu of the provisions in this chapter covering the same subject and as guidelines for design, construction and workmanship."

(24) Deleting Section 503.0. Section 503.0 is deleted.

(25) Adding Section 504.3. Section 504.3 is added to read:

"504.3 A vacuum relief valve, dip tube with perforated inlet or an approved method shall be provided to prevent siphoning in any water heater tank or hot water boiler tank."

(26) Adding Section 506.3. Section 506.3 is added to read:

"506.3 A vacuum relief valve, dip tube with perforated inlet or an approved method shall be provided to prevent siphoning in any water heater tank or hot water boiler tank."

(27) Amending Section 507.3.1. Section 507.3.1 is amended by adding to the end thereof:

"The upper combustion air duct shall extend horizontally or upwards to the outside of the enclosure."

(28) Amending Section 507.3.3. Section 507.3.3 is amended by changing the first word "Openings" to "Ducts".

(29) Amending Section 507.3.5. Section 507.3.5 is amended by changing the first word "Openings" to "Ducts".

(30) Amending Section 510.1. Section 510.1 is amended by adding an "Exception" note at the end thereof to read:

"Exception:
1. Water heaters may be installed at floor level in carports having 100% opening on one side and 50% net opening on another side or the equivalent of such

openings on two or more sides, provided the adjacent ground level is at or below the floor level of the carport.

2. Fuel burning water heaters having sealed combustion chambers maybe installed at floor level.

3. Electric water heaters in garages maybe installed at floor level."

(31) Amending Section 510.5. Section 510.5 is amended to by adding:

"Kauai is in Seismic zone 1."

(32) Amending Section 511.2. Section 511.2 is amended by changing the first sentence to read:

"Every attic, roof, mezzanine, or platform more than 16 feet (4.9 meters) above the ground or floor level shall be accessible by a stairway or ladder permanently fastened to the building."

(33) Amending Section 511.4. Section 511.4 is amended by deleting the second and third sentences.

(34) Adding Sections 512.9 and 512.10. Sections 512.9 and 512.10 are added to read:

"512.9 Listed gas fired water heaters need not be provided with a vent to the exterior when installed in a parking garage or carport under the following conditions:

(1) Such garage or carport shall comply with the openings provisions of the Building Code for open parking garages or carports.

(2) Floor mounted heaters shall be installed in the garage or carport so that the bottom of the combustion chamber is at least eighteen inches above the floor and outside grade level.

(3) Heaters shall be protected against mechanical damage as provided in Section 510.3.

(4) An acceptable vent cap shall be provided unless not required by the heater's listing or the manufacturer's instructions.

(5) When location of the heater may result in unsatisfactory dispersions of combustion products, venting by means of a mechanical draft system to the exterior wall line or to other approved point of termination shall be provided.

(6) Installation of heaters under these provisions shall be approved by the Administrative Authority and the serving gas supplier.

512.10 Listed single and two-family gas fired water heaters rated at less than 55,000 Btuhs need not be

provided with a vent extended through the roof of the building or enclosure when installed outside of the exterior walls of the building unenclosed or in approved enclosures. Protection of such water heaters from the weather shall be provided either by the appliances design itself or by an approved enclosure, when climatic or safety conditions warrant. In addition, such installations shall meet the following:

(1) Adequate openings and clearances shall be provided by the enclosure in accordance with Sections 507 and 508.

(2) Enclosure openings or vent caps shall be located in accordance with Section 517.5.

(3) Section 517.2 is not applicable unless required by the heater manufacturer.

(4) Vents extending through the roof of an enclosure adjacent to a one or two-family dwelling must comply with Table 5-2 but may be located less than 8 feet from an adjacent vertical wall."

(35) Adding Section 601.4. Section 601.4 is added to read:

"601.4. Private Water Systems. Owners of private water systems are responsible for maintaining the potability of their water systems.

Note: Public water systems must meet the requirements of Department of Health, State of Hawaii, Chapter 20, Rules Relating to Potable Water System.

Public water system means a system, which provides to the general public piped water for human consumption, with at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily for a minimum of sixty days out of the year. Such term includes (1) any collection, treatment, storage, and distribution facilities under the control of the operator of such system and used primarily in connection with such system, and (2) any such collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. A public water system may be privately or publicly owned or operated."

(36) Amending Section 603.1. Section 603.1 is amended by adding a third and fourth paragraphs thereof to read:

"All installations treating, handling, manufacturing or using liquids, chemicals, or waste products which may be a pollutant, dangerous to health or toxic, or having a non-potable auxiliary water supply shall obtain from the Department of Water the requirements for an approval of the backflow prevention assembly to be installed between the building supply and the public water supply system. It shall be the duty of

the person or persons having control of such assemblies to obtain from the Department Water the requirements for approved devices before preliminary plans, specifications, and drawings are prepared.

All installation of cross-connection control devices or assemblies required by the Department of Water shall receive all its certifications, inspections and approvals from the Department of Water."

(37) Amending Section 603.3.2. Section 603.3.2 is amended to read:

"603.3.2 The owner of the property or responsible person shall have the backflow prevention assembly tested by a certified backflow assembly tester at the time of installation, repair, or relocation or when required by the Administrative Authority. Backflow prevention assemblies which are required by the Department of Water shall be certified, tested and inspected by that department and in consultation with the Department of Health."

(38) Amending Section 603.3.3. Section 603.3.3 is amended by deleting the last sentence:

"Installations elevated more than five (5) feet (1.52 M) above the floor or grade shall be provided with a permanent platform capable of supporting a tester or maintenance person."

(Note: Section 603.4.6 Protection from Lawn Sprinklers and Irrigation Systems does not allow a double check valve assembly to be an approved device.)

(39) Amending Section 603.4.4.1. Section 603.4.4.1 is amended to read:

"603.4.4.1. Heat Exchangers. Heat exchangers utilizing an essentially toxic transfer fluid shall be separated from the potable water by double-wall construction. An air gap open to the atmosphere shall be provided between the two walls. Heat exchangers utilizing an essentially nontoxic transfer fluid shall be permitted to be of single-wall construction.

On every heat exchanger or heat pump, there shall be posted a readily visible, durable sign stating: "Potable water heating system. Check heat exchanger for leaks before adding refrigerant.

603.4.4.1.1. Essentially Nontoxic Transfer Fluids. Fluids having a Gosselin rating of 1, including: propylene glycol; mineral oil; polydimethylsiloxane, hydrochlorofluorocarbon, chlorofluorocarbon and hydrofluorocardon refrigerants; and FDA-approved boiler water additives for steam boilers.

603.4.4.1.2. Essentially Toxic Transfer Fluids. Soil, waste or gray water and fluids having a Gosselin rating of 2 or more including ethylene glycol, hydrocarbon oils, ammonia refrigerants and hydrazine."

(40) Adding Section 603.4.12.1. Section 603.4.12.1 is added to read:

"603.4.12.1 Labeling of nonpotable pipes. When nonpotable water is furnished to a property, the pipes shall be labeled "nonpotable water" above and below ground and at all outlets. Above ground piping shall be labeled at 8 feet minimum intervals. Below ground piping shall be continuously labeled except for irrigation piping."

(41) Amending Section 603.4.13. Section 603.4.13 is amended to read:

"603.4.13 Potable water supply to carbonators shall be protected by a listed reduced pressure principle backflow preventer or double check valve with intermediate atmospheric vent as approved by the Administrative Authority for the specific use."

(42) Amending Section 603.4.18.1. Section 603.4.18.1 is amended to read:

"603.4.18.1 Except as provided under Sections 603.4.18.2 and 603.4.18.3 below, potable water supply to fire protection systems, including but not limited to standpipes and automatic sprinkler systems, shall be protected from back-pressure and back-siphonage by a double check valve assembly or a reduced pressure backflow preventer.

Exceptions:

(1) Systems with alarm check valve assembly
(2) Systems with detector check assembly
(3) One and two family dwellings and mobile homes
(4) Systems with booster pumps and check valve assembly"

(43) Amending Section 604.1. Section 604.1 is amended to read:

604.1 Water pipe and fittings shall be of brass, copper, cast iron, galvanized steel or other approved materials. CPVC, PE, PEX, PEX-AL-PEX or PVC water pipe manufactured to recognized standards may be used for cold water distribution systems outside a building. CPVC, PEX and PEX-AL-PEX water pipe and tubing may be used for hot and cold water distribution systems within a building. All materials used in the water

supply system, except valves and similar devices shall be of a like material, except where otherwise approved by the Administrative Authority."

(44) Amending Section 605.3. Section 605.3 is amended by deleting the last sentence of the paragraph and adding at the end of the paragraph:

"Exception: When a supply riser serves not more than one (1) plumbing fixture in each dwelling unit, the fixture supply stop may, be used in lieu of the fullway valve as its isolating shutoff valve. In such an installation, the supply riser shall be properly located and provided with an accessible fullway valve at the foot or the top of the riser so that the valves will isolate not more than twenty (20) dwelling units. The fixture supply stop shall be an angle valve or stop, straightway stop, screw stop, ball valve, corporation cock, butterfly valve, plug valve or similar valve. Valves shall not have slip joints on the valve inlet side."

(45) Adding Section 606.2.4. Section 606.2.4 is added to read:

"606.2.4 Copper or copper-alloy tubing to galvanized steel pipe. Joints between copper or copper-alloy tubing and galvanized steel pipe shall be made with a brass converter fitting or dielectric fitting. The copper tubing shall be soldered to the fitting in an approved manner, and the fitting shall be screwed to the threaded pipe. When dielectric fittings are located below grade, they shall be wrapped as provided under Section 609.3.1."

(46) Adding Section 607.1. Section 607.1 is added to read:

"No gravity tank shall be directly connected to the county water main, but shall be provided with an over-the-rim-filler, the orifice or outlet of which must be elevated a distance of six inches (152.4mm) above the overflow. A drain shall be provided at the bottom of the tank."

(47) Amending Section 608.1. Section 608.1 is amended by adding a new sentence at the end to read:

"The tank and pump installations shall be in accordance with the provisions of Sections 603 and 607 of this code and with pertinent rules and regulations of the Department of Health, the Department of Water or other governmental agency having jurisdiction."

(48) Amending Section 608.3. Section 608.3 is amended by deleting the third paragraph of the section.

(49) Amending Section 609.1. Section 609.1 is amended by deleting the last two sentences of the section and adding at the end a paragraph to read:

"The minimum cover shall be 12 inches below finish grade or as approved by the Administrative Authority."

(50) Amending section 609.2. Section 609.2 is amended as follows:

Section 609.2 is amended by changing "as" to "with" in the first line.

Section 609.2.1 is amended to read:

"Section 609.2.1 The water pipe at all points, shall be at least eighteen (18) inches above or below the sewer or drain line."

Section 609.2.2 is amended to read:

"Section 609.2.2 The water pipe shall be placed on a solid shelf excavated at one side of the common trench with a minimum clear horizontal distance of at least eighteen (18) inches from the sewer or drain line.

Water pipes crossing sewer or drainage piping constructed of clay or materials which are not approved for use within a building shall be laid a minimum of eighteen (18) inches above or under the sewer or drain pipe, unless the sewer line is jacketed with reinforced concrete for a minimum of five feet on both sides of the point of crossing and with a minimum thickness of the jacket measured from outside of the barrel or the pipe shall be ten (10) inches for all sizes of pipes. Concrete jacket shall conform to Water System Standard, Department of Water, County of Kauai."

(51) Amending Section 609.6. Section 609.6 is amended by changing "609.6" to "609.7" in the text.

(52) Amending Table 6-4 Water Supply Fixture Units (WSFU) and Minimum Fixture Branch Pipe Sizes. Table 6-4 is amended as follows:

"1. Deleting the figures under "3 or more Dwellings" and "Heavy-Use Assembly".

2. Change the values for the individual fixtures listed:

Individual Fixture	Private Individual Dwelling	Public General Use
Bathtub of Combination Bath/Shower		2.5
Clotheswasher	2.0	4.0
Kitchen Sink	1.6	3.2
Lavatory	0.6	1.2
Shower	1.6	3.2
Urinal, 1.0 GPF	1.7	2.8
Water Closet, 1.6 GPF Gravity Tank	1.7	2.8
Water Closet, 1.6 GPF Flushmeter Tank	1.7	2.8
Water Closet, 1.6 GPF Flushmeter Valve	3.4	5.6
Whirlpool Bath or Combination Bath/Shower	2.5"	

(53) Amending Table 6-5. Table 6-5 is amended by adding a footnote to read:

"Final sizes to be governed by rules and regulations of the Department of Water."

(54) Amending Section 609.10 Water Hammer. Section 609.10 is amended by changing the first sentence to read:

"All building water supply systems in which quick-acting valves are installed should be provided with devices to absorb high pressures resulting form the quick closing of these valves."

(55) Amending Section 610.8. Section 610.8 is amended by adding at the end of the first paragraph a sentence to read:

"Meter and water service sizes shall be subject to approval of the Department of Water under their rules and regulations."

(56) Deleting Sections 610.12 and 610.13. Sections 610.12 and 610.13 are deleted.

(57) Deleting Section 701.1.2. Section 701.1.2 is deleted. (Plastic DWV piping has no height restrictions.)

(58) Amending Section 701.3. Section 701.3 is amended by changing the third sentence to read:

"For flashings or vents terminals - not less than 2.5 pounds per square foot (12.2 Kg/square meter)."

(59) Amending Table 7-3 Drainage Fixture Unit Values (DFU). Table 7-3 is amended as follows:

"1. Delete figures under "3 or more Dwellings" and Heavy Use Assembly.

2. Change the value for Individual Fixtures as listed:

Individual Fixtures	Private Individual Dwelling	Public General Use
Bathtub or Combination Bath/Shower	2.0	
Urinal, 1.0 GPF		2.0
Urinal, greater than 1.0 GPF		3.0
Urinal, 1-1/2" trap		2.0"

(60) Amending Section 703.2. Section 703.2 is amended by adding an "Exception" provision to read:

"Exception: When approved by the Administrative Authority, other tables of loading limits based on engineered studies and testings may be used in the sizing of drainage and vent piping. The Administrative Authority may require supporting data, prepared and stamped by a registered professional mechanical engineer as required by Chapter 464 of the Hawaii Revised Statutes, as amended, submitted for each project. The use of higher loading limits extracted from different tables for the same project or drainage system is not permitted."

(61) Deleting Section 704.3. Section 704.3 is deleted.

(62) Amending Table 7-5. Table 7-5 is amended by adding at the end of Note 4: "or four 1.6 gallons per flush water closets on any horizontal branch or drain."

(63) Amending Section 707.4. Section 707.4 Exception: (1) is amended to read:

"(1) Cleanouts may be omitted on a horizontal drain line less than five (5) feet (1.5m) in length."

(64) Adding Section 707.15. Section 707.15 is added to read:

"707.15 All cleanouts located on the ground floor within any residential occupancy shall be extended outside of or below the building or shall be extended above the floor at least six (6) inches (152.4mm) above the flood level rim of the lowest fixture."

(65) Amending Section 710.1. Section 710.1 is amended to read:

"710.1 Drainage piping serving fixtures which have flood level rims located below the elevation of the next

upstream manhole cover of the public or private sewer serving such drainage piping shall be protected from backflow of sewage by installing an approved type backwater valve. Where such upstream manhole cover does not exist, an approved backwater valve shall be installed if the fixtures have flood level rims below the connecting sewer lateral. Fixtures above such elevation shall not discharge through the backwater valve."

(66) Adding Section 710.3.4. Section 710.3.4 is added to read:

"710.3.4 Macerating or grinder type sump pumps shall have a minimum pipe size of 1-1/4 inches."

(67) Amending Section 710.6. Section 710.6 is amended by adding to the end of the last sentence of the first paragraph: "or other approved compartment".

(68) Amending Section 711.0. Section 711.0 is amended by deleting "Bathtubs," from the second sentence and capitalizing the initial letter of "laundries" therein.

(69) Amending Section 713.6. Section 713.6 is amended by deleting the "Exception".

(70) Adding Section 713.7. Section 713.7 is added to read:

"713.7 (a) Permit required. It shall be unlawful for any person to connect to or to aid another in connecting to, or to cause a connection to be made to, or to make use of, the public sewer system of the County of Kauai without first having filed an application in writing and having obtained the written approval of the Division of Wastewater Management, Department of Public Works and the Administrative Authority,"

(b) Sewer Inspection. All installation of public sewer system connections, control devices or assemblies required by the Division of Wastewater Management shall receive all its certifications, tests, inspections and approvals from that division."

(71) Adding Section 713.8. Section 713.8 is added to read:

"713.8 Building sewer construction shall conform to the requirements for main line sewers as set forth in the Sewer Ordinance, County of Kauai when either of the following conditions exist:

(1) Where the Administrative Authority requires such construction because of the character or quantity of the sewage or industrial waste to be discharged.

(2) Where the sewer construction is designed to be, or it is apparent that it may be dedicated to the County of Kauai at this or any future time."

(72) Adding Section 713.9. Section 713.9 is added to read:

"713.9 Sewer lateral connections shall be installed according to the Kauai County Code-1987, Chapter 25, Sewers, Article 9, Laterals, Administration, Management and Construction.

(73) Amending Section 715.1. Section 715.1 is amended by deleting the words "two (2) feet (.6m)" and inserting the words "five (5)feet (1, 5m)".

(74) Deleting Section 716.0. Section 716.0 is deleted.

(75) Amending Section 717.0. Section 717.0 is amended to read:

"717.0. Size of Building Sewers.
The minimum size of any building sewer shall be determined on the basis of the total number of fixture units drained by such sewer, in accordance with Table 7-8, except that collection sewers under applicable conditions may be sized by recognized engineering design practices when approved by the Administrative Authority. No building sewer shall be smaller than the building drain unless approved by the Administrative Authority."

(76) Amending Section 718.1. Section 718.1 is amended to read:

"718.1 Building sewers shall run in practical alignment and at a uniform slope of not less than one fourth (¼) of an inch per foot (20.9mm per m) toward the point of disposal. Where it is impractical due to the depth of the street sewer or to the structural features or to the arrangement of any building or structure to obtain a slope of one-fourth (¼) of an inch per foot (20.9mm per m), any such pipe or piping four (4) inches (101.6mm) or larger may have a lesser slope when approved engineering methods have been used to design the system and when such a system has first been approved by the Administrative Authority."

(77) Amending Section 718.3. Section 718.3 is amended by deleting "two (2) feet (.6m)" and inserting in lieu thereof "five (5)feet (1.5m)". At the end of the last sentence add: "or as approved by the Administrative Authority".

(78) Amending Section 719.1. Section 719.1 is amended to read:

"719.1 Cleanouts shall be placed inside the building near the connection between the building drain and building sewer or installed between the exterior wall line and five (5) feet (1.5m) outside the building at the lower end of a building drain and extended to grade. An approved type of two-way cleanout fitting installed outside a building or a sewer manhole may be substituted for this cleanout requirement.

Additional building sewer cleanouts shall be installed at intervals not to exceed one hundred (100) feet in straight runs and for each aggregate change in direction exceeding one hundred and thirty-five (135) degrees."

(79) Adding Section 719.7. Section 719.7 is added to read:

"719.7 Cleanouts shall be installed immediately upstream of the connection of the County sewer system in accordance with the Rules and Regulations of the Division of Wastewater Management. Cleanouts in sidewalk and driveway areas shall be flush with surface and shall be of cast iron or brass body with brass plug. The entire cleanout shall be installed within the private property and at the expense of the property owner."

(80) Amending Section 720.0. Section 720.0 is amended by changing "as" to "with" in the third line of the first paragraph.

(81) Amending Section 720.0. Section 720.0 items (1) (2) and the last paragraph are amended to read:

"(1) The water pipe at all points, shall be at least eighteen (18) inches above or under the sewer or drain line.

(2) The water pipe shall be placed on a solid shelf excavated at one side of the common trench with a minimum horizontal distance of at least eighteen (18) inches from the sewer or drain line.

Water pipes crossing sewer or drainage piping constructed of clay or materials which are not approved for use within the building shall be laid a minimum of eighteen (18) inches above or under the sewer or drain pipe, unless the sewer line is jacketed with reinforced concrete for a minimum of five feet on both sides of the point of crossing and with a minimum thickness of the jacket measured from outside of the barrel or the pipe shall be ten (10) inches for all pipe sizes. Concrete jacket shall conform to Water System Standard, Department of Water, County of Kauai."

(82) Amending Section 721.1. Section 721.1 is amended to read:

"721.1 No building sewer or private sewage disposal system or parts thereof shall be located in any lot other than the lot which is the site of the building or structure served by such sewer or private disposal system. Provided, however, a building sewer or private disposal system may be located on an abutting lot when specifically required by the Health Officer or other department having jurisdiction over sewer disposal and provided further that a legal easement over the abutting lot is first obtained and the plans are approved by the Administrative Authority."

(83) Amending Section 722.2. Section 722.2 is amended by adding and "Exception" at the end:

Exception: An abandoned cesspool may be used as an overflow receptor for a sewage sump with pump discharge when approved by the Department of Health, State of Hawaii

(84) Amending Section 722.3. Section 722.3 is amended to read:

"722.3 The top cover, access cover or arch over the cesspool, septic tank, or seepage pit shall be removed before filling and the filling shall not extend above the top of the vertical portions of the sidewalls or above the level of any outlet pipe until inspection has been called and the cesspool, septic tank, or seepage pit has been inspected. After such inspection, the cesspool, septic tank, or seepage pit shall be filled to the level of the top of the ground."

(85) Adding Section 724.0. Section 724.0 is added to read:

"Section 724.0. Private Sewage Disposal (General). Where permitted by Section 713.0, the building sewer or private sewer may be connected to a private sewage disposal system complying with the requirements of the Department of Health, State of Hawaii and all regulations governing private sewage disposal system."

(86) Deleting Table 7-7. Table 7-7 is deleted.

(87) Amending Section 801.2.1. Section 801.2.1 is amended by deleting the last clause of the first sentence:

"and the maximum developed length shall not exceed fifteen (15) feet (4572 mm)."

(88) Amending Section 801.2.3. Section 801.2.3 is amended by deleting the words "or airbreak" at the end of the first sentence.

(89) Amending Section 801.3. Section 801.3 is amended by deleting the last sentence: "The developed length from the fixture outlet to the receptor shall not exceed five (5) feet (1524 mm)."

(90) Amending Section 801.5. Section 801.5 is amended by deleting the last clause of the second sentence: "and shall not exceed fifteen (15) feet (4572 mm)."

(91) Deleting Section 801.7. Section 801.7 is deleted.

(92) Amending Section 803.0. Section 803.0 is amended by adding after the last sentence:

"Indirect waste piping shall be limited to 15 feet unless approved by the Administrative Authority."

(93) Amending Section 804.1. Section 804.1 is amended by adding at the end thereof:

"Indirect drains for air conditioning condensate may be installed in toilet of bathroom areas."

(94) Deleting Section 814.0 Refrigeration Waste. Section 814.0 is deleted.

(95) Deleting Section 815.1 Size. Section 815.1 is deleted.

(96) Adding Section 815.2.3. Section 815.2.3 is added to read:

"815.2.3 Condensate wastes shall not drain over a public way."

(97) Deleting Section 903.1.2. Section 903.1.2 is deleted. (ABS and PVC DWV piping are approved without limitations of building height.)

(98) Amending Section 905.3. Section 905.3 is amended by changing the last sentence to read:

"Vents less than six (6) inches (152.4 mm) above the flood level rim of the fixture shall be installed with sanitary tees or approved drainage fittings, material and grade to the drain."

(99) Amending Section 906.6. Section 906.6 is amended by adding:

"For pre-fabricated flashing--sheet lead shall be at least 2.5 pounds per square foot."

(100) Amending Section 909.0. Amending the forth sentence of Section 909.0 to read:

"The return bend under the drainboard shall be two (2) Inches in pipe size, a one piece fitting or assembly of a forty-five (45) degree (0.79 rad), a ninety (90) degree (1.6 rad) and a forty-five (45) degree (0.79 rad) elbow in the order named."

(101) Amending Section 910.6. Section 910.6 is amended by changing the last sentence to read:

"An accessible cleanout shall be installed in the above floor portion of each vent for the combination waste and vent system."

(102) Adding Section 911.0. Section 911.0 is added to read:

"Section 911.0. Single-stack System.
When approved by the Administrative Authority, a single-stack system based on engineered studies and testings may be used in lieu of other related provisions in this Code. Plans and specifications of such systems shall be prepared, designed, approved and stamped by a duly registered licensed professional mechanical engineer as required by Chapter 464 of the Hawaii Revised Statutes, as amended."

(103) Deleting Sections 1014.8 and 1014.9. Sections 1014.8 and 1014.9 are deleted.

(104) Amending Section 1014.10. Section 1014.10 is amended by adding:

"See Section 1014.1."

(105) Adding Section 1014.11. Section 1014.11 is added to read:

"Each grease trap or interceptor shall have at least twelve (12) inches clearance above the cover for inspection and maintenance."

(106) Deleting Chapter 11. Chapter 11 Storm Drainage is deleted.

(107) Amending Section 1201.0. Section 1201.0 is amended by adding at the end thereof:

"Compliance with the National Fire Protection Association (NFPA) Standard No. 54-1996, National Fuel Gas Code, will be deemed equivalent to meeting requirements of the Uniform Plumbing Code."

(108) Amending Section 1204.3.2. Section 1204.3.2 is amended by adding at the end thereof a sentence to read:

"The Administrative Authority may accept the use of any testings apparatus which has been approved by a nationally recognized testing laboratory in lieu of the foregoing air pressure test."

(109) Adding Section 1204.3.3. Section 1204.3.3 is added to read:

"1204.3. Gas Appliance Installation Inspection:
This inspection shall be made after all gas piping in the system as authorized has been inspected and approved and the connections of such gas fixtures and appliances as authorized by permit have been made to the piping system. This inspection shall include a soap solution test or other approved testing method of detecting any gas leakage occurring in the connection or attachment and shall include a determination that the installation meets the requirements and intent of this Code."

(110) Amending Section 1209.1. Section 1209.1 is amended to read:

"1209.1 All gas meter locations under the control of the gas supplier shall be approved by the supplier. All meter locations shall conform to local fire regulations."

(111) Amending Section 1210.0. Section 1210.0 is amended to read:

"Section 1210.0 Material for Gas Piping.
"1210.1 Pipe: All pipe used for the installation, extensions, alteration, or repair of any gas piping shall be standard weight wrought iron or steel (galvanized or black), threaded copper or brass pipe. Threaded copper or brass pipe is restricted to above ground only. Approved PE pipe may be used in exterior buried piping systems.
1210.2 Tubing: Seamless copper, aluminum alloy, brass or steel tubing may be used in lieu of pipe listed in Section 1210.1 for above ground installations only and shall not be installed in concealed spaces. Copper tubing shall be of type K or L, or equivalent, having a minimum wall thickness of 0.032 inch. Aluminum alloy

shall not be used in exterior locations or where it is in contact with masonry, plaster or building insulation or is subject to corrosive wettings. Approved PE tubing may be used in exterior buried piping systems. Corrugated stainless steel tubing (CSST) shall be tested and listed as to compliance with construction, installation, and performance requirements for use in interior gas piping systems per ANSI/AGA LC1-1991, Interior Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing.

1210.3 All such pipe or tubing shall be either new, or shall previously have been used for no other purpose than conveying gas; it shall be in good condition and free from internal obstructions. Burred ends shall be reamed to the full bore of the pipe or tubing.

1210.4 Fittings, except stopcock or valves, shall be malleable iron or steel or wrought iron, and shall be copper or brass when used with copper or brass pipe or tubing and shall be aluminum alloy when used with aluminum alloy pipe or tubing. PE fittings, mechanical connectors and transition fittings shall be of the approved types when used with PE piping or tubing.

1210.5 Valves: All valves and appurtenances used in connection with the above piping shall be of the type designed and approved for use with fuel gas."

(112) Amending Section 1211.1. Section 1211.1 is amended to read:

"1211.1 All pipe joints in the piping system, unless welded, shall be screwed joints, having approved standard threads. Such screwed joints shall be made up with approved pipe joint material, insoluble in the presence of fuel gas and applied to the male threads only. Tubing joints shall either be made with approved flared gas tubing fittings, or be brazed with a material having a melting point in excess of 1,000 degree F."

(113) Deleting Section 1211.2. Section 1211.2 is deleted.

(114) Amending Section 1211.3. Section 1211.3 is amended by amending the Exception to read:

"Exception: When necessary due to structural conditions, approved type gas piping may be installed in other locations when permission has first been obtained from the Administrative Authority. In non-industrial occupancies, approved machine-wrapped or coated ferrous piping as defined in Section 1211.5 and Section 1211.7 may be embedded in concrete ground floor when encased in at least 1-1/2 inches of concrete or may be encased in an independent concrete jacket with a minimum wall thickness of 1-1/2 inches. The protective

coating shall extend at least one (1) inch above the point of entry into the slab and above the point of exit from the slab for the appliance riser. Such piping shall not be in physical contact with other metallic objects such as reinforcing rods or electrical neutral conductors."

(115) Amending Section 1211.5. Section 1211.5 is amended by changing the third sentence read:

"Plastic gas piping shall have at least 12 inches (.3m) of earth cover or other equivalent protection."

(116) Deleting Section 1211.6. Section 1211.6 is deleted.

(117) Amending Section 1211.10. Section 1211.10 is amended to read:

"1211.10 Ground-joint unions may only be used at exposed fixture, appliance, or equipment connections and in exposed exterior locations immediately on the discharge side of a building shutoff valve. Heavy duty flanged type unions may be used in special cases, when first approved by the Administrative Authority. Bushings shall not be used in concealed locations."

(118) Amending Section 1212.0. Section 1212.0 is amended by adding to the end of Exception condition (5) the following sentence:

"Semi-rigid aluminum tubing shall not be used as an appliance connector."

(119) Amending Section 1214.1. Section 1214.1 is amended to read:

"1214.1 Leaks in gas piping shall be located by applying soapy water to the exterior of the piping, or by use of approved or listed gas detecting devices."

(120) Amending Section 1216.4. Section 1216.4 is amended to read:

"1216.4. The size of the supply pipe outlet for any gas appliance shall be not less than the size of the inlet connection of that appliance.

The minimum size of any piping outlet shall be three-quarter (¾) inch for a free standing gas range using synthetic natural gas and shall be one-half (½) inch for a recessed oven section, a recessed top section, or for a free standing range using L.P.G."

(121) Amending Section 1217.3. Section 1217.3 is amended to read:

"1217.3 For conditions other than those covered by Section 1217.1, such as commercial, industrial and multiple units which require longer runs or great gas demands, the size of each gas piping system shall be determined by standard engineering methods acceptable to the Administrative Authority."

(122) Amending Section 1218.6. Section 1218.6 is amended by amending the first sentence to read:

"Approved engineering methods or Tables 12-5 and 12-6, when corrected for the specific gravity of the gas utilized, may be used to size gas piping systems carrying three (3) or five (5) psig (20.7 or 34.5kPa) gas."

(123) Amending Section 1218.8. Section 1218.8 is amended by deleting the words "eighteen (18) inches (457,2mm)" and inserting in lieu thereof the words "twelve (12) inches (304 .8mm)"

(124) Adding Section 1219.0. Section 1219.0 is added to read:

"Section 1219.0 Allowable Pressure Drop. The design pressure loss in any piping system under maximum probable flow conditions, from the point of delivery to the inlet connection of the gas utilization equipment, shall be such that the supply pressure at the equipment is greater than the minimum pressure required for proper equipment operation."

(125) Amending Table 12-1. Table 12-1 is amended to read:

TABLE 12-1
Demand of Typical Domestic Gas Appliances
In Cubic Feet Per Hour

Appliance	Demand in Cube Ft./Hr. SNG	LPG
Bunsen Burner	3	2
Domestic Full Size Range	65	26
Domestic Apt. Size Range	60	24
Domestic Recessed Oven Section	22	9
Domestic Surface Unit	40	16
Domestic Storage Water Heater up to 30 Gal.	39	16
Domestic Storage Water Heater 40 and 50 Gal.	50	20
Domestic Clothes Dryer	35	14
Domestic Barbecue	50	20
Gas Refrigerator	3	2
Gas Luau Torch	24	10

(126) Amending Section 1303.1. Section 1303.1 is amended by adding:

"Medical Gas Systems conforming to NFPA 99C-1993 Gas and Vacuum Systems shall be deemed equivalent to meeting the requirements of the chapter. (Medical Gas Systems are also governed by Uniform Fire Code Section 74-201.)"

(127) Adding Section 1301.3. Section 1303.3 is added to read:

"Those facilities that do not provide 24 hour patient care shall not be required to provide alarm systems or multiple supply sources for air, vacuum and gas systems."

(128) Amending Section 1318.2. Section 1318.2 is amended to read:

"1318.2 The medical air compressor shall take its source from the outside atmosphere and shall not add contaminants in the form of particulate matter, odor or other gases."

(129) Amending Section 1322.2. Section 1322.2 is amended by deleting the last sentence:

"Such notification shall be given not less than twenty-four (24) hours before the work is to be inspected."

(130) Amending Section 1323.3. Section 1323.3 is amended by adding:

"The duly registered licensed professional mechanical engineer responsible for the design and observation of the system shall provide a statement that the certification tests of Section 1323.2.1 through 1323.2.10, as applicable, has been verified and to the best of his/her knowledge complies with the installation requirements."

(131) Amending Chapter 14 Mandatory Referenced Standards. Chapter 14 is amended by deleting the word "Mandatory".

(132) Deleting Appendix D, Rainwater Systems. Appendix D is deleted.

(133) Deleting Appendix E, Mobile Home Parks. Appendix E is deleted.

(134) Deleting Appendix G, Graywater Systems for Single Family Dwellings. Appendix G is deleted.

(135) Amending Appendix H, Recommended Procedures for Design, Construction and Installation of Commercial Kitchen Grease Interceptors. Appendix H is amended by adding at the end of H101.0 General, the following:

"See Department of Environmental Services, State of Hawaii, Policy for Grease Program Compliance, June 1999, Attachment 2, Grease Interceptor Sizing Criteria."

(136) Deleting Appendix I Installation Standards.

Appendix I Installation Standards are deleted and formally not adopted as part of the code but are included for the convenience of the users.

(137) Deleting Appendix J Reclaimed Water Systems for Non-Residential Buildings. Appendix J is deleted.

(138) Deleting Appendix K Private Sewage Disposal Systems.

Appendix K is deleted. (Private sewage disposal systems are governed by the Administrative Rules and Laws of the Department of Health, State of Hawaii, Wastewater Systems.)

(Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 172, April 19, 1973; Ord. No. 276, March 17, 1976; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 366, June 20, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 686, May 10, 1995; Ord. No. 775, October 5, 2001)

ARTICLE 5. PLUMBING WORK WITHIN FLOOD HAZARD DISTRICTS AND DEVELOPMENTS ADJACENT TO DRAINAGE FACILITIES

Section 14-5.1 Applicability.

(a) General. The provisions contained herein are applicable to the construction of all new plumbing systems, renovations and major alterations, additions or reconstruction of existing plumbing systems within the Flood Hazard District as delineated on the Flood Boundary and Floodway Maps and Flood Insurance Rate Maps, and any amendments by the Federal Emergency Management Agency, on file with the Department of Public Works, County of Kauai.

These provisions shall also apply to developments to drainage facilities outside the Flood Hazard District which are determined to be within a floodway area or a flood fringe area in accordance with Kauai County Code-1987, as amended.

(b) Existing Plumbing Systems, Any plumbing system thereof which was lawful before the effective date of this Article but which is not in conformity with the provisions of

this Article may be continued subject to the provisions of Kauai County Code-1987, as amended.

(c) Exemptions. The provisions contained herein shall not apply:

(1) to plumbing systems serving buildings and structures exempted from the Flood Hazard District provisions under Chapter 15, Article 1. Kauai County Code-1987, as amended.

(2) to plumbing systems serving building and structures which have been granted a Flood Hazard Variance under provisions of Article 1, Chapter 15, Kauai County Code-1987, as amended. (Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 172, April 19, 1973; Ord. No. 276, March 17, 1976; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 366, June 20, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-5.2 Definitions.

(a) For the purpose of this Articles, the following terms shall be as defined in Article 1, Chapter 15, Kauai County Code-1987, as amended:

(1) Base Flood
(2) Base Flood Elevation
(3) Coastal High Hazard Area
(4) Flood or Flooding
(5) Flood Boundary and Flood Maps
(6) Flood Fringe Area
(7) Floodway
(8) General Flood Plain Area
(9) Habitable Floor
(10) Lowest Floor
(11) Special Flood Hazard
(12) Tsunami

(Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 172, April 19, 1973; Ord. No. 276, March 17, 1976; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 366, June 20, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-5.3 Drainage (Plumbing) Systems.

(a) Drainage systems that have openings below the base flood elevation shall be provided with an automatic backwater valve installed in each discharge line passing through a building exterior wall.

(b) Drainage systems for emergency servicing facilities that are required to remain in operation during a flood shall

be provided with a sealed holding tank and the necessary isolation and diversion piping and appurtenances to withhold or postpone sewage discharge to the sewer system during the flood. The holding tank shall be sized for storage of at least 150% of the anticipated demand for a 24-hour period. Vents provided for such holding tank shall terminate at an elevation of at least one (1) foot above the base flood elevation.

(c) All pipes in a plumbing vent system shall terminate at an elevation of at least one (1) foot above the base flood elevation.

(d) All pipe openings through exterior walls below the base flood elevation shall be flood proofed to prevent infiltration of flood water through spaces between pipes and wall construction materials by use of imbedded collars, sleeves, water stops, or other means as may be approved by the Administrative Authority. (Ord. No. 125, November 17, 1965; Ord. No. 126, November 17, 1965; Sec. 7, C.O. 1971; Ord. No. 160, June 7, 1972; Ord. No. 172, April 19, 1973; Ord. No. 276, March 17, 1976; Ord. No. 289, July 8, 1976; Chapter 14, R.C.O. 1976; Ord. No. 358, February 2, 1979; Ord. No. 366, June 20, 1979; Ord. No. 414, September 23, 1981; Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-5.4 Private Sewage Disposal/Treatment.

Individual private sewage disposal systems or treatment facilities may be permitted in a Flood Hazard District or in other floodway or flood fringe area when design and location of such systems are approved by the Department of Health, State of Hawaii, In addition to Administrative Rules, Department of Health, State of Hawaii, all such new and replacement sewage disposal systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters. (Ord. No. 775, October 5, 2001)

Section 14-5.5 Water Supply.

Portable water supply systems that are located in a Flood Hazard District or in other floodway or flood fringe area shall be designed and installed in such a manner as to prevent contamination from flood waters up to the base flood elevation. Location and construction of private water supply wells shall comply with rules and regulations of the Department of Water, County of Kauai.

(1) Portable water supply tanks, filters; softeners, heaters, and all water-supplied appliances and fixtures located below the base flood elevation shall be protected against contamination by covers, walls, copings, or castings. All vent pipes serving the water supply system shall terminate at an elevation of at least one (1) foot above the base flood elevation.

(2) Backflow preventers or devices approved by the Department of Water shall be installed on water service lines as close to the property control valve as possible to protect the public water system from backflow or back siphonage of flood waters or other contaminants in the event of a line break. Devices shall be installed at accessible locations and shall be maintained in good working condition by the owner. The backflow preventers or devices shall be subject to periodic testing and inspection as prescribed in the Rules and Regulations of the Department of Water, County of Kauai.

(3) An approved double check valve assembly shall be used in lieu of any vacuum breaker, permitted or otherwise required under Article 4, when located below the base flood elevation.

(4) Air relief valves are permitted on private pipelines only when installed at least one (1) foot above the base flood elevation. (Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988, Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

Section 14-5.6 Plumbing Systems in Special Flood-Proofed Conditions.

Plumbing piping under buildings constructed on stilts shall be securely anchored against lateral movement and flotation and protected against damage by flood water and debris. Protection shall be provided by the structural enclosure of such piping or by attaching such piping to the downstream side of structural members which are larger enough to provide this protection. (Ord. No. 462, August 6, 1984; Ord. No. 538, March 8, 1988; Ord. No. 629, July 15, 1993; Ord. No. 775, October 5, 2001)

ARTICLE 6. ENERGY CONSERVATION

Section 14-6.1 General Provisions

The purposes of this article are to:

(a) Set minimum requirements for the energy-efficient design of new buildings so that they may be constructed, operated, and maintained in a manner that minimizes the use of energy without constraining the building function or the comfort or productivity of the occupants; and

(b) Provide criteria for energy-efficient design and provide methods for determining compliance with these criteria. (Ord. No. 775, October 5, 2001)

Section 14-6.2 Applicability

(a) All plumbing requirements and criteria of Article 6, Chapter 12, Building Code, Kauai County Code 1987, as amended, relating to Energy Conservation, shall be part of this Code. These requirements shall be inspected and enforced as part of the Plumbing Code. (Ord. No. 775, October 5, 2001)

CHAPTER 15

GENERAL PROVISIONS RELATING TO BUILDING AND CONSTRUCTION REGULATIONS

Article 1.	Flood Plain Management
Sec. 15-1.1	Legislative Findings Of Fact; Purpose And Objectives
Sec. 15-1.2	General Provisions
Sec. 15-1.3	Definitions
Sec. 15-1.4	Administration
Sec. 15-1.5	Construction And Development Standards
Sec. 15-1.6	Development Standards For Subdivision Within The Special Flood Hazard Areas
Sec. 15-1.7	Nonconforming Structures
Sec. 15-1.8	Penalties And Enforcement
Article 2.	Driveway Approaches
Sec. 15-2.1	Purpose
Sec. 15-2.2	Definitions
Sec. 15-2.3	Permit Required; Costs
Sec. 15-2.4	Issuance Of Permit
Sec. 15-2.5	Expiration Of Permit
Sec. 15-2.6	Suspension Or Revocation Of Permit
Sec. 15-2.7	Standards And Specifications For Driveway Approaches
Sec. 15-2.8	Notice Of Completion, Inspection And Approval
Sec. 15-2.9	Referral Of Building Plans
Sec. 15-2.10	Penalties
Article 3.	Numbering Of Houses
Sec. 15-3.1	Purpose
Sec. 15-3.2	Definitions
Sec. 15-3.3	County Engineer To Regulate Numbering
Sec. 15-3.4	Numbering Requirements And Specifications
Sec. 15-3.5	Penalty
Article 4.	Outdoor Signs
Sec. 15-4.1	Purpose
Sec. 15-4.2	Declaration Of Intent
Sec. 15-4.3	Definitions
Sec. 15-4.4	Prohibited Signs
Sec. 15-4.5	Signs Requiring A Permit
Sec. 15-4.6	Signs Not Requiring A Permit
Sec. 15-4.7	Construction And Location Of Signs
Sec. 15-4.8	Permits And Fees
Sec. 15-4.9	Enforcement And Administration
Sec. 15-4.10	Violation and Penalty
Sec. 15-4.11	Appeal
Sec. 15-4.12	Variance

ARTICLE 1. FLOOD PLAIN MANAGEMENT

Sec. 15-1.1 Legislative Findings Of Fact; Purpose And Objectives.

(a) Findings of Fact. Certain areas of the County are subject to periodic flooding caused by heavy rain storms, high wave action, and tsunamis which result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare. These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated or otherwise protected from flood damage also contribute to the flood loss.

(b) Statement of Purpose. It is the purpose of this Article to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

(1) To protect human life and health;

(2) To minimize expenditure of public money for costly flood control projects;

(3) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

(4) To minimize prolonged business interruptions;

(5) To minimize damage to public facilities and utilities located in areas of special flood hazard;

(6) To help maintain a stable tax base by minimizing future flood loss;

(7) To assist in notifying potential buyers that property is in an area of special flood hazard; and

(8) To insure that those who occupy areas of special flood hazard assume responsibility for their actions.

(c) Methods of Reducing Flood Losses. In order to accomplish its purpose, this Article includes methods and provisions for:

(1) Requiring that facilities be protected to minimize flood damage at the time of initial construction;

(2) Controlling filling, grading, dredging, and other development which may increase flood damage;

(3) Controlling the alteration of natural flood plains, stream channels, and natural protective barriers, which help accommodate or channel flood waters; and

(4) Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters

(2) General.

The procedure used in Section 12-6.10(e) is known as the unit power density (UPD) procedure for establishing the interior lighting power allowance for building interiors, based on the type of activity in each area. The interior lighting power allowance shall include both permanently mounted lighting and supplemental or task-related lighting provided by movable or plug-in luminaires.

(3) More than 20% undefined.

When more than 20% of the tasks or interior configurations are undefined, then the lowest value of ULPA in Table 6-5 of the Prescriptive criteria, for the appropriate building type, shall be used until such time as the space use can be defined. The ULPA shall be used instead of the UPD in the input calculations. In such cases, the area factor shall be assumed to be 1.0. The ULPA shall be substituted in only those areas where the tasks or configuration are undefined.

(4) Procedure.

The lighting power budget (LPB) of each interior space shall be determined in accordance with Equation 6-4.

Equation 6-4

$$LPB = (A_r \times UPD_b \times AF) - (70 \times CPR)$$

Where

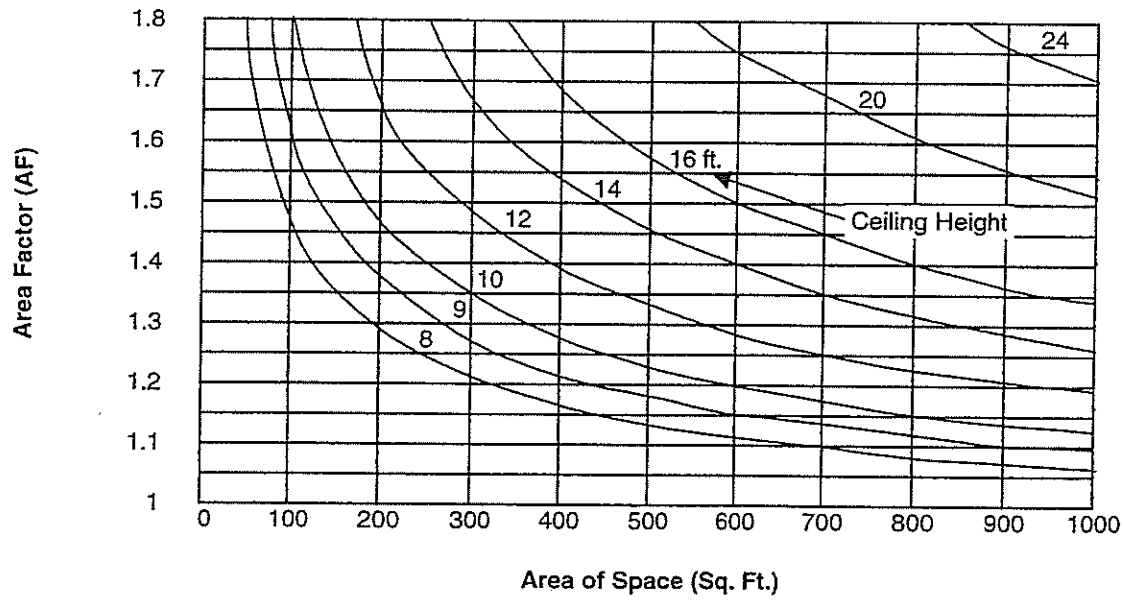
LPB =Lighting Power Budget of the space [W]

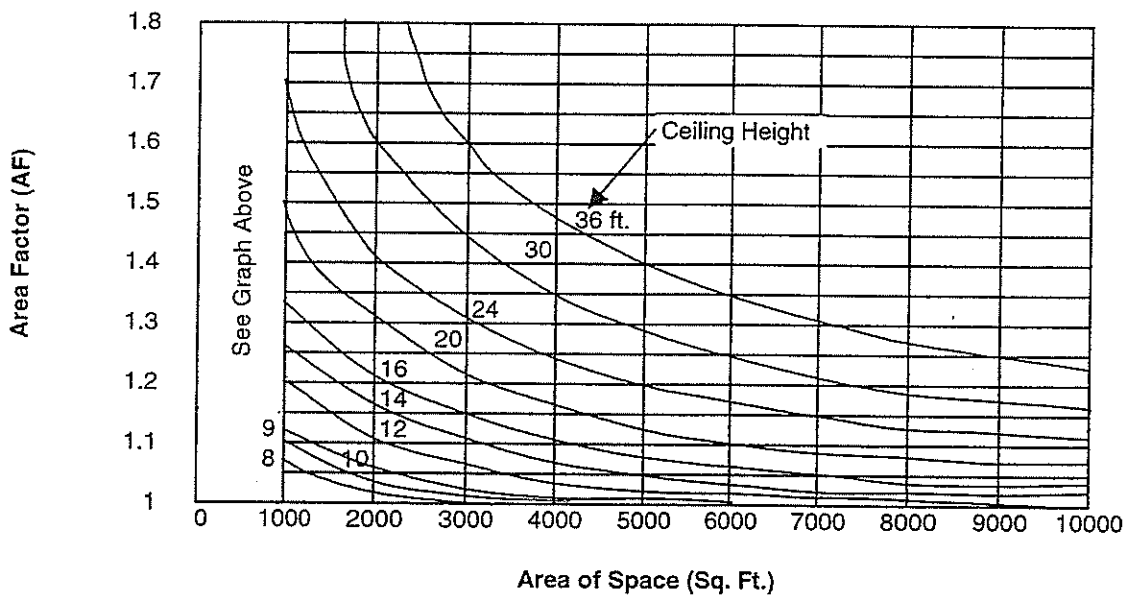
A_r = Area of the room or space [ft^2]. The area shall be calculated from the inside dimensions of the room.

UPD =Unit Power Density [W/ft^2]. The UPD shall be selected from Table 6-6. For applications to areas or activities other than those given, select values for similar areas or activities.

AF = Area Factor of the space. The Area Factor (AF) shall be determined from Figure 6-1 or from Equation 6-5, based on the room area and ceiling height. Rooms of identical ceiling height and activities may be evaluated as a group. The AF of a group of rooms shall be determined from the average area of these rooms.

CPR =Control Points Reduced per Exception in Section 12-6.10(c)(2)(f)(ii).





Equation 6-5 gives the formula used in developing Fig. 6-1.

Equation 6-5

$$AF = 0.2 + 0.8\ (1/0.9^{n})$$

where

$$n = \{10.21(CH - 2.5)/A_r^{1/2}\} - 1$$

AF = Area Factor

CH = Ceiling Height [ft]

A_r = Room Area [ft^2]

If AF < 1.0, then AF = 1.0
If AF > 1.8, then AF = 1.8

(5) Special spaces and activities

(A) Multi-Function Rooms. For rooms serving multiple functions, such as hotel banquet and meeting rooms and office conference and presentation rooms, the UPD may be increased by 50 percent over the appropriate value in Table 6-6 if a supplementary system is actually installed and meets the following conditions.

(i) The installed power for the supplementary system shall not be greater than 33% of the adjusted LPB (calculated with the increased UPD) for that space; and

(ii) Independent controls shall be installed for the supplementary system.

(B) Simultaneous Activities. In rooms containing multiple simultaneous activities, such as a large general office containing separate accounting and drafting areas within the same room, the LPB for the rooms shall be the weighted average of the activities in proportion to the areas being served.

(C) Indoor Sports. The area of indoor sports activities shall be considered as an area 10 ft beyond the playing boundaries of the sport, not to exceed the total floor area of the indoor sports space less the spectator seating area.

(6) Interior lighting power calculations

The system performance interior lighting power allowance (ILPA) shall be calculated in accordance with Equation 6-6. The ILPA shall include a 0.20 W/ft^2 allowance for unlisted spaces.

Equation 6-6

$$ILPA = (LPB_1 + LPB_2 + \ldots + LPB_n) + 0.20\ W/ft^2 \times (\text{Unlisted Space Area})$$

where:

ILPA = Interior Lighting Power Allowance [W/ft^2]

Unlisted Space Area = (GLA - Total Area of Listed Spaces) [ft^2]

GLA = Gross Lighted Area [ft^2]

LPB =Lighting Power Budget [W]

n = The number of spaces for which LPBs have been calculated.

Table 6-6a
System Performance Unit Lighting Power Allowance (UPD)
Common Activity Areas

Area/Activity	UPD W/ft²	UPD 1993 W/ft²	Note
Auditorium	1.6	1.4	a
Corridor	0.8	0.8	b
Classroom/Lecture Hall	2.0	1.0	
Elec/Mech Equipment Room			
General	0.7	0.7	b
Control Rooms	1.5	1.5	b
Food Service			
Fast Food/Cafeteria	1.3	0.8	
Leisure Dining	2.5	1.4	c
Bar/Lounge	2.5	1.3	c
Kitchen	1.4	1.4	
Recreation/Lounge	0.7	0.5	
Stair			
Active Traffic	0.6	0.6	
Emergency Exit	0.4	0.4	
Toilet & Washroom	0.8	0.5	
Garage			
Auto & Pedestrial Circulation	0.3	0.25	
Parking Area	0.2	0.2	
Laboratory	2.3	2.2	
Office Category 1: Enclosed offices, all open plan offices without partitions or with partitions lower than 4.5 ft. below the ceiling.			
Reading, Typing and Filing	1.8	1.3	d
Drafting	2.6	2.2	d
Accounting	2.1	1.8	d
Office Category 2: Open plan offices 900 square feet or larger with partitions 3.5 to 4.5 feet below the ceiling. Offices less than 900 square feet shall use category 1.			
Reading, Typing and Filing	1.9	1.5	b
Drafting	2.9	2.6	b
Accounting	2.4	2.1	b
Office Category 3: Open plan offices 900 square feet or larger with partitions higher than 3.5 feet below the ceiling. Offices less than 900 square feet shall use category 1.			
Reading, Typing and Filing	2.2	1.7	b
Drafting	3.4	3.0	b
Accounting	2.7	2.4	b

❖ Not less than 90% of all work stations shall be individually enclosed with partitions of at least the height described.

Library			
Audio Visual	1.1	1.1	a
Stack Area	1.5	1.5	
Card File & Cataloging	1.6	0.8	
Reading Area	1.9	1.0	
Lobby (General)			
Reception & Waiting	1.0	0.55	
Elevator Lobbies	0.8	0.4	
Atrium (Multi-Story)			
First 3 Floors	0.7	0.4	
Each Additional Floor	0.2	0.15	
Common Activity Areas			
Conference/Meeting Room	1.8	1.3	a
Computer/Office Equipment	2.1	2.1	
Filing, Inactive	1.0	1.0	
Mail Room	1.8	1.8	
Locker Room & Shower	0.8	0.6	
Shop (Non-Industrial)			
Machinery	2.5	2.5	
Electrical/Electronic	2.5	2.5	
Painting	1.6	1.6	
Carpentry	2.3	2.3	
Welding	1.2	1.2	
Storage & Warehouse			
Inactive Storage	0.3	0.2	
Active Storage, Bulky	0.3	0.3	
Active Storage, Fine	1.0	0.9	
Material Handling	1.0	1.0	
Unlisted Space	0.2	0.2	

Table 6-6b
System Performance Unit Lighting Power Allowance (UPD)

Specific Buildings

Area/Activity	**UPD W/ft^2**	**UPD 1993 W/ft^2**	**Note**
Airport, Bus and Rail Station			
Baggage Area	1.0	0.75	
Concourse/Main Thruway	0.9	0.45	
Ticket Counter	2.5	1.3	
Waiting & Lounge Area	1.2	0.6	
Bank			
Customer Area	1.1	0.8	
Banking Activity Area	2.8	2.2	
Barber & Beauty Parlor	2.0	1.6	
Church, Synagogue, Chapel			
Worship/Congregational	2.5	1.3	
Preaching & Sermon/Choir	2.7	1.8	
Dormitory			
Bedroom	1.1	0.6	
Bedroom with Study	1.4	1.3	
Study Hall	1.8	0.9	

Fire & Police Department			
Fire Engine Room	0.7	0.7	
Jail Cell	0.8	0.4	
Hospital/Nursing Home			
Corridor	1.3	0.9	b
Dental Suite/Exam/Treat	1.6	1.4	
Emergency	2.3	2.0	
Laboratory	1.9	1.7	
Lounge/Waiting Room	0.9	0.6	
Medical Supplies	2.4	2.4	
Nursery	2.0	1.6	
Nurse Station	2.1	1.8	
Occu./Physical Therapy	1.6	1.4	
Patient Room	1.4	0.9	
Pharmacy	1.7	1.5	
Radiology	2.1	1.8	
Surgical & O.B. Suites			
General Area	2.1	1.8	
Operating Room	7.0	6.0	
Recovery	2.3	2.0	
Hotel/Conference Center			
Banquet Room/Multipurpose	2.4	1.4	a
Bathroom/Powder Room	1.2	0.6	
Guest Room	1.4	0.7	
Public Area	1.2	0.8	
Exhibition Hall	2.6	1.3	
Conference/Meeting	1.8	1.5	a
Lobby	1.9	1.3	
Reception Desk	2.4	2.4	
Laundry			
Washing	0.9	0.6	
Ironing & Sorting	1.3	1.3	
Museum & Gallery			
General Exhibition	1.9	1.2	
Inspection/Restoration	3.9	3.0	
Storage (Artifacts)			
Inactive	0.6	0.25	
Active	0.7	0.5	
Post Office			
Lobby	1.1	0.8	
Sorting & Mailing	2.1	2.1	
Service Station/Auto Repair	1.0	0.8	
Theater			
Performance Arts	1.5	1.1	
Motion Picture	1.0	0.75	
Lobby	1.5	1.0	
Retail Establishments (Merchandising & Circulation Area) Applicable to all lighting, including accent and display lighting, installed in merchandising and circulation areas.			
Type A	5.6	6.0	e
Type B	4.0	3.5	e
Type C	3.3	2.7	e
Type D	3.1	2.5	e
Type E	2.8	2.4	e
Mall Concourse	1.4	0.6	

Retail Support Areas			
Tailoring	2.1	2.1	
Dressing/Fitting Rooms	1.4	1.1	
Type F	2.7	2.7	e

Table 6-6c
System Performance Unit Lighting Power Allowance (UPD)

Indoor Athletic Areas[f]	**UPD W/ft²**	**UPD 1993 W/ft²**	**Note**
Seating Area, All Sports	0.4	0.4	
Badminton			
Club	0.5	0.5	
Tournament	0.8	0.8	
Basketball/Volleyball			
Intramural	0.8	0.8	
College	1.3	1.3	
Professional	1.9	1.9	
Bowling			
Approach Area	0.5	0.5	
Lanes	1.1	1.1	
Boxing or Wrestling (platform)			
Amateur	2.4	2.4	
Professional	4.8	4.8	
Gymnasium			
General Exercising & Recreation Only	1.0	1.0	
Handball/Racquetball/Squash			
Club	1.3	1.3	
Tournament	2.6	2.6	
Hockey, ice			
Amateur	1.3	1.3	
College or Professional	2.6	2.6	
Skating Rink			
Recreational	0.6	0.6	
Exhibition/Professional	2.6	2.6	
Swimming			
Recreational	0.9	0.9	
Exhibition	1.5	1.5	
Underwater	1.0	1.0	
Tennis			
Recreational (Class III)	1.3	1.3	
Club/College (Class II)	1.9	1.9	
Professional (Class I)	2.6	2.6	
Tennis, Table			
Club	1.0	1.0	
Tournament	1.6	1.6	

Notes for Table 6-6:

a. A 1.5 adjustment factor is applicable for multi-functional spaces.

b. Area Factor of 1.0 shall be used for these spaces.

c. Base UPD includes lighting power required for cleanup purpose.

d. Area Factor shall not exceed 1.55.

e. See Article 3 Definitions for classification of Retail Establishments.

f. Area Factor of 1.0 shall be used for all indoor athletic spaces.

(Ord. No. 369, July 19, 1979; Ord. No. 413, September 23, 1981; Ord. No. 463, August 6, 1984; Ord. No. 537, March 8,

1988; Ord. No. 699, November 21, 1995; Ord. No. 773, October 5, 2001)

Section 12-6.11 Building Envelope

(a) Scope.

(1) The requirements of this Division apply to all buildings or portions of buildings which provide shelter or facilities for human occupancy. The requirements apply to new buildings and to additions which increase the floor space of existing buildings.

(2) Exception.

Buildings or portions of buildings with open walls or other permanently open elements of the building envelope.

(b) General.

(1) Compliance.

The building envelope is in compliance with the requirements of this Division when all of the following conditions are met:

(A) The required Calculation Procedures of Section 12-6.11(c) are used, and the Basic Requirements (air leakage and comfort ventilation) of Section 12-6.11(c) are satisfied;

(B) Opaque roof surfaces are in compliance with the prescriptive criteria, Section 12-6.11(d);

(C) Opaque wall surfaces are in compliance with the prescriptive criteria, Section 12-6.11(d) or, alternatively, the entire wall (including glazing) is in compliance with the system performance criteria, Section 12-6.11(e);

(D) Vertical glazing is in compliance with the prescriptive criteria, Section 12-6.11(d), or alternatively, the entire wall (including opaque) is in compliance with the system performance criteria, Section 12-6.11(e); and

(E) Horizontal glazing is in compliance with the prescriptive criteria, Section 12-6.11(d).

(2) Climate.

If local building site climate data is not available, climate data from a nearby location with a similar climate may be used.

(c) Calculation Procedures and Basic Requirements.

(1) Overall thermal transmittance (U_o)

The overall thermal transmittance of the opaque portion of walls and roofs shall be calculated in accordance with Equation 8-1.

Equation 8-1

$$U_o = \frac{\Sigma U_i A_i}{A_o} = \frac{U_1A_1 + U_2A_2 + \ldots + U_nA_n}{A_o}$$

Where:

U_o = The area-weighted average thermal transmittance of the opaque wall or roof [Btu/h-ft^2-$^\circ$F].

A_o = The gross area of the opaque elements of the wall or roof [ft^2]. (See subsection (c)(3).)

U_i = The thermal transmittance of each individual element of the envelope assembly with a unique U-value [Btu/h-ft^2-^{0}F] (see subsection (c)(2)). Equal to $1/R_i$ (where R_i is the total resistance to heat flow of an individual path through an envelope assembly).

A_i = The area of the element of the envelope assembly which has U-value, U_i [ft^2].

(2) Thermal transmittance (Ui).

The thermal transmittance of each individual element of the envelope assembly shall be determined with due consideration of surface conductances and all major series and parallel heat flow paths.

(3) Gross area of opaque envelope components

(A) The gross area of an opaque roof surface consists of the total surface of the roof assembly exposed to outside air or unconditioned spaces. The opaque roof assembly shall exclude skylight surfaces, service openings, and overhangs.

(B) The gross area of opaque exterior wall surfaces is measured on the exterior and includes between-floor spandrels, peripheral edges of flooring and door areas. The opaque wall surface excludes vents, grilles, pipes and windows.

(4) Relative solar heat gain (RSHG)

(A) The vertical fenestration solar heat gain limits are expressed in terms of maximum relative solar heat gain (RSHG). Relative solar heat gain shall be calculated as determined in this section. When a fenestration system includes an overhang or sidefins, then the RSHG shall be calculated with either Equation 8-2 for an overhang or Equation 8-3 for sidefins. For a single window, either the overhang multiplier, OHM, or the sidefin multiplier, SFM, but not both, may be used for shading credit.

Equation 8-2

$$RSHG_i = SC_{glz,i} \times \frac{IS_{prop,i}}{IS_{def,i}} \times SC_{ext,i} \times OHM_i$$

or

Equation 8-3

$$RSHG_i = SC_{glz,i} \times \frac{IS_{prop,i}}{IS_{def,i}} \times SC_{ext,i} \times SFM_i$$

Where:

$RSHG_i$ = Relative solar heat gain.

$SC_{glz,i}$ = Shading coefficient of the glass alone taken from the manufacturer's literature.

IS_{prop} = Interior and/or integral shade shading coefficient adjustment, based on the proposed type of shade and the type of glass. Equal to the ratio of the shading coefficient with shades to the shading coefficient of the glazing alone (SC_{glz}). As a default, $IS_{prop.}$ may be assumed to equal $IS_{def.}$ (then $IS_{prop.}/IS_{def.}$ = 1.0). (unitless)

IS_{def} = Default shading coefficient adjustment. For a medium-colored venetian blind with the proposed glazing. Equal to the ratio of the shading coefficient of the fenestration with a medium- colored venetian blind to the shading coefficient of the glazing alone. (unitless)

SC_{ext} = Shading coefficient of exterior shade screens or louvers. Default is 1.0. (unitless)

OHM_i = Overhang Multiplier. Calculated as a function of Overhang Projection Factor, OPF. From Equation 8-4 or Table 8-3.

SFM_i = Sidefin Multiplier. Calculated as a function of the Sidefin Projection Factor, *SPF*. From Equation 8-5 or Table 8-4.

The overhang and sidefin multipliers are calculated with the following equations.

Equation 8-4

$$OHM_i = 1 + a_i \times OPF_i + b_i \times OPF_i^2$$

Where:

OHM =Overhang Multiplier.

OPF =Overhang Projection Factor. The maximum value allowed for credit is 1.5. From Equation 8-6.

a, b = Coefficients which depend on orientation. From Table 8-1.

Equation 8-5

$$SFM_i = 1 + c_i \times SPF_i + d_i \times SPF_i^2$$

Where:

SFM =Sidefin Multiplier.

SPF =Sidefin Projection Factor. The maximum value allowed for credit is 1.5. From Equation 8-7.

c, d = Coefficients which depend on orientation. From Table 8-2.

the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

"Flood or Flooding" means a general and temporary condition of partial or complete inundation of normally dry land areas from overflow of inland or tidal water resulting from any source, such as tsunamis, or the unusual and rapid accumulation of runoff or surface waters from any source.

"Flood Fringe Area" means the portion of the flood plain outside the floodway, designated as AE, AO, and AH Zones on the FIRM.

"Flood Insurance Rate Map (FIRM)" means the official map on which the Federal Insurance Administration has delineated the areas of special flood hazards, risk premium zones applicable, base flood elevations, and the floodway.

"Flood Insurance Study" means the official report provided by the Federal Insurance Administration that includes flood profiles, the FIRM, and the water surface elevation of the base flood.

"Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot.

"General Flood Plain Area" means the area consisting of the approximate flood plain area as delineated on the flood maps, identified as A, D and X Zones on the FIRM, where detailed engineering studies have not been conducted by the Federal Insurance Administration to delineate the flood elevations and floodway.

"Lowest Floor" means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this Ordinance.

"Manufactured Home" means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term "manufactured home" does not include a "recreational vehicle".

"Manufactured Home Park or Subdivision" means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

"New Construction" means structures for which the start of construction commences on or after the effective date of this Article and includes subsequent improvements to such structures.

"New Manufactured Home Park or Subdivision" means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by a community.

"Recreational Vehicle" means a vehicle which is: a) built on a single chassis; b) 400 square feet or less when measured at the largest horizontal projection; c) designed to be self-propelled or permanently towable by a light duty truck; and d) designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel or seasonal use.

"Special Flood Hazard" means an area subject to flood and flood-related hazards, identified on the FIRMS or determined by the County Engineer in areas adjacent to drainage facilities not identified by the flood maps.

"Start of Construction" means the first placement of permanent construction of a structure on a site, such as the pouring of slabs or footing or any work beyond the stage of excavation. Permanent construction includes land preparation, such as clearing, grading, and filling, and includes excavation for a basement, footings, piers or foundations or the erection of temporary forms; it also includes installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not as part of the main structure. For a structure without a basement or poured footings, the start of construction includes the first permanent framing or assembly of the structure or any part thereof on its piling or foundation.

"Structure" means a walled and roofed building and includes gas or liquid storage tanks that is principally above ground and include manufactured homes such as mobile homes.

"Substantial Improvement" means any repair, reconstruction, improvement, or addition to a structure, the cost of which equals or exceeds fifty percent (50%) of the market value of the structure either: (a) before the improvement or repair is started, or (b) if the

structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition, substantial improvement is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The value of any substantial improvement shall be determined by the County Engineer or his authorized representative. The term does not, however, include either: a) Any project for improvement of a structure to correct existing violations of a state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or (b) any alteration of a "historic structure," provided that the alteration will not preclude the structure's continued designation as a "historic structure."

"Tsunami" means a great sea wave produced by submarine earth movement or volcanic eruption. (Ord. No. 155, January 7, 1972; Sec. 15-1.1, R.C.O. 1976; Ord. No. 416, October 28, 1981; Ord. No. 630, July 16, 1993)

Sec. 15-1.4 Administration.

(a) Building Permit, Certificate of Occupancy, Grading Permit, Subdivision Approval. No building permit, certificate of occupancy, or grading permit shall be issued or subdivision shall be approved without the approval of the County Engineer or his authorized representative with respect to compliance with the provisions of this Article.

(b) Certificate of Occupancy Required in Special Flood Hazard Areas. Notwithstanding Section 307 of the County Building Code, a certificate of occupancy shall be required before any new construction or substantial improvement in the special flood hazard areas may be used or occupied.

(c) County Engineer. The County Engineer and his authorized representative, with the cooperation and assistance of other County departments, shall administer the provisions of this Article.

(d) Duties and Responsibilities of the County Engineer. The duties and responsibilities of the County Engineer shall include but not be limited to:

(1) Permit Review.

(A) Review all building permits, certificates of occupancy, grading permits, and subdivision proposals to determine whether the requirements of this Article have been satisfied.

(B) See that all other required State and Federal permits have been obtained.

(C) Review permits and proposals to determine that the site is reasonably safe from flooding.

(D) Review permits and proposals to determine that the proposed construction or development will not decrease the flood-carrying capacity of the area of special flood hazard.

(2) Information to be Obtained and Maintained. Obtain and maintain for public inspection:

(A) the Flood Insurance Study and Flood Insurance Rate Maps for the County;

(B) the certified elevation of the lowest floor;

(C) the floodproofing certification for spaces below the base flood level in non-residential structures;

(D) the certified final pad elevation where the site is filled above the base flood level;

(E) the certification that an encroachment in the floodway will not result in any increase in flood levels during base flood discharge; and

(F) the certification of elevation and structural support for structures in the coastal high hazard (i.e., tsunami) area.

(3) Interpretation of Maps. Make interpretations where needed, as to the exact location of the boundaries of the areas of special flood hazards.

(4) Use of Other Base Flood Data. When base flood elevation data has not been provided by the Federal Insurance Administration, the County Engineer shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state, or other sources, in order to administer this Article. (Ord. No. 155, January 7, 1972; Sec. 15-1.1, R.C.O. 1976; Ord. No. 416, October 28, 1981; Ord. No. 630, July 16, 1993; Ord. No. 685, May 10, 1995)

Sec. 15-1.5 Construction and Development Standards.

(a) Flood Fringe. The flood fringe areas are identified on the FIRMS as AE, AO, and AH Zones.

(1) Anchoring. All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.

(2) Construction Materials and Methods.

(A) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(B) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

(C) All electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during the conditions of flooding.

(3) Elevation and Floodproofing.

(A) Residential Structures. All new construction and substantial improvements of residential structures within zones A1-30, AE, and AH Zones on the community's FIRM shall have the lowest floor (including basements) elevated to or above the base flood level. Fully enclosed areas below the lowest floor that are useable solely for parking of vehicles, building access, or storage in an area other than a basement and which are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood waters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria: A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

(B) Non-residential Structures. All new construction and substantial improvements of non-residential structures shall either:

(i) Elevate the lowest floor, including basement, to or above the base flood elevation; or

(ii) Together with attendant utility and sanitary facilities be floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

(C) All manufactured homes, such as mobile homes, must be elevated above the base flood elevation.

(D) No machinery or equipment which service a building such as furnaces, air conditioners, heat pumps, hot water heaters, washers, dryers, elevator lift equipment, electrical junction and circuit breaker boxes, and food freezers, are permitted below the base flood elevation; and

All interior wall, floor and ceiling materials located below the base flood elevation must be unfinished and resistant to flood damage; and

The walls of any enclosed area below the base flood elevation must be constructed in a manner to prevent flotation, collapse, lateral movement of the structure.

(E) Building Height. Notwithstanding the maximum building height limitations as stated in overall building and wall plate height, provided in Paragraph 8-3.7(b)(1) for single-family detached and attached residential dwellings under the Comprehensive Zoning Ordinance and Paragraph 10-2.4(e)(1) for all structures under the North Shore Development Plan Ordinance, the maximum building height in the flood fringe area shall be as follows:

(i) Within the North Shore Planning Area. No structure shall be higher than twenty-five (25) feet from ground level or the base flood elevation plus fifteen (15) feet, whichever is greater at the site, unless a greater height is authorized by the Planning Commission pursuant to a use permit after review and recommendation by the North Shore Improvement Committee.

(ii) Single Family Dwellings Outside the North Shore Special Planning Area. No single family detached and attached dwellings outside the North Shore Special Planning Area shall be higher than thirty (30) feet from ground or the base flood elevation plus fifteen (15) feet, whichever is greater at the site unless otherwise permitted by the Planning Commission.

(4) Water and Sewer.

(A) All new and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from systems into flood waters.

(B) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(5) Certification by Engineer or Architect. Building plans for new construction and substantial

improvements shall be certified by a registered professional structural engineer or architect that the new construction is designed in compliance with the requirements of this Section. Prior to the issuance of the certificate of occupancy, the elevation of the lowest floor shall be certified by a registered professional civil engineer or surveyor.

All new construction and substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyance, be constructed with materials resistant to flood damages and be constructed by methods and practices that minimize flood damages.

(b) Floodway. The floodway, identified on the FIRMs, is the watercourse reserved to discharge the base flood.

(1) Development Standard. Encroachments, including fill, new construction and substantial improvements of structures, are prohibited in the floodway unless certified by a registered professional civil engineer, with supporting data that the encroachment will not cause any increase in base flood elevations during the occurrence of the base flood discharge.

(2) Construction Standards. If permitted pursuant to Paragraph 15-1.5(b)(1), all new construction and substantial improvements shall comply with all applicable requirements prescribed in Subsection 15-1.5(a) and Section 15-1.6.

(3) Certification for Development. A registered professional civil engineer shall certify that the encroachment, including fill, new construction, or substantial improvement will not result in any increase in base flood elevations during the occurrence of the base flood discharges.

(c) Coastal High Hazard (Tsunami). Coastal high hazard areas, more commonly known as tsunami inundation areas, are identified as VE Zones on the FIRMs.

(1) Anchoring and Structural Support.

(A) All new construction and substantial improvements shall be securely anchored on pilings or columns.

(B) Pilings or columns used as structural support shall be designed and anchored so as to prevent flotation, collapse, and lateral movement, due to the effects of wind and water loads acting simultaneously on all building components. The wind and water loading values shall each have a one percent chance of being equalled or exceeded in any given year.

(C) Fill is prohibited for structural support.

(D) Manmade alteration of sand dunes and mangrove stands is prohibited.

(E) All new construction shall be located landward of the reach of mean high tide.

(2) Construction Materials and Methods.

(A) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(B) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

(3) Elevation. All new construction and substantial improvements shall be elevated so that the lowest supporting member of the lowest floor, excluding pilings and columns, is at or above the base flood elevation.

(4) Building Height. Notwithstanding the maximum building height limitations as stated in overall building and wall plate height, provided in Paragraph 8-3.7(b)(1) for single-family detached and attached residential dwellings under the Comprehensive Zoning Ordinance and Paragraph 10-2.4(e)(1) for all structures under the North Shore Development Plan Ordinance, the maximum building height in the coastal high hazard area shall be as follows:

(A) Within the North Shore Planning Area. No structure shall be higher than twenty-five (25) feet from ground level or the base flood elevation plus fifteen (15) feet, whichever is greater at the site, unless a greater height is authorized by the Planning Commission pursuant to a use permit after review and recommendation by the North Shore Improvement Committee.

(B) Single Family Dwellings Outside the North Shore Special Planning Area. No single family detached and attached dwellings outside the North Shore Special Planning Area shall be higher than thirty (30) feet from ground or the base flood elevation plus fifteen (15) feet, whichever is greater at the site unless otherwise permitted by the Planning Commission.

(5) Enclosure of Space Below Lowest Floor with Breakaway Walls. Space below the lowest floor may be enclosed solely for parking of vehicles, building access, or storage; no machinery or equipment which services a building such as furnaces, air conditioners, heat pumps, hot water heaters, washers, dryers, elevator lift equipment, electrical junction and circuit breaker boxes, and food freezers are permitted; however, enclosure must

only be achieved with breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. A breakaway wall shall have a design safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot may be permitted only if a registered professional structural engineer certifies that the design proposed meet the following conditions:

(A) Breakaway wall collapse shall result from a water load less than that which would occur during the base flood; and,

(B) The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and non-structural). Maximum wind and water loading values to be used in this determination shall each have one percent chance of being equalled or exceeded in any given year (100-year mean occurrence interval).

(6) Water and Sewer.

(A) All new and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from systems into flood waters.

(B) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(7) Certification by Engineer or Architect. Building plans for new construction and substantial improvements shall be certified by a registered professional structural engineer or architect that the new construction or substantial improvement is designed and methods of construction to be used are in accordance with accepted standards of practice for meeting the requirements of this Section. Prior to the issuance of the certificate of occupancy, the elevation of the bottom of the lowest structural member of the lowest floor shall be certified by a registered professional civil engineer or surveyor.

All new construction and substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of wind and buoyancy, be constructed with materials resistant to flood damages and be constructed by methods and practices that minimize flood damages.

(8) The placement of mobile homes or manufactured homes in the Coastal High Hazard Flood Zone is prohibited.

(d) General Flood Plain. The general flood plain, identified as A, X and D Zones on the FIRMs, are areas of special flood hazards for which detailed engineering studies were not done by the Federal Insurance Administration to determine the base flood elevations and to identify the floodways.

(1) Determination of Applicable Standards. All new construction and substantial improvements shall satisfy the requirements of Subsection 15-1.5(a), relating to the flood fringe, or Subsection 15-1.5(b), relating to the floodway, whichever Subsection is determined to be applicable by the County Engineer to the construction or improvement. The County Engineer shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state, or other source, including information requested of the applicant, to determine base flood elevations and the location of floodways in the general flood plain.

(2) Construction and Development Standards. Construction and development standards provided in Subsections 15-1.5(a) and 15-1.5(b) shall apply as determined by the County Engineer.

(3) Information to be Provided. The following information shall be provided the County Engineer to evaluate the proposed construction on improvement site:

(A) Project location and site plan showing dimensions.

(B) Relationship to floodway and flood fringe areas as determined by flood study.

(C) Topographic data, contours, or spot elevations based on reference marks on flood maps.

(D) Existing and proposed flood-proofing and flood control measures.

(E) If the State of Hawaii will allow alteration and relocation of streams, the carrying capacity of the altered or relocated stream shall be maintained.

(e) Construction of Development Adjacent to Drainage Facility Outside Identified Special Flood Hazard Areas.

(1) Subject to Review. All new construction and substantial improvements proposed adjacent to a drainage facility outside of the special flood hazard area identified on the FIRMs shall be subject to review and approval of the County Engineer. Upon request by the County Engineer further information concerning base flood, floodway, surface water run-off, existing and proposed drainage patterns, and other information, including flood studies, findings and opinions by a

registered professional civil engineer shall be provided to evaluate potential flooding.

(2) Development and Construction Standards.

(A) The County Engineer shall determine the applicability of the various development and construction standards provided in this Article based upon best information available from a federal, state, or other source, including information provided by the applicant.

(B) No drainage facility shall be modified, constructed, lined, or altered in any way unless approved by the County Engineer. (Ord. No. 155, January 7, 1972; Sec. 15-1.1, R.C.O. 1976; Ord. No. 416, October 28, 1981; Ord. No. 630, July 16, 1993)

Sec. 15-1.6 Development Standards For Subdivision Within The Special Flood Hazard Areas.

(a) Standards. All subdivisions within the special flood hazard areas shall:

(1) Be consistent with the need to minimize flood damage;

(2) Have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage; and

(3) Have adequate drainage provided to reduce exposure to flood damage.

(b) Identification of Special Flood Hazards and Base Flood Elevations.

(1) Subdivision Applications. All subdivision applications shall identify the areas of special flood hazards and base flood elevations on the proposed site. If such information is not provided by the FIRMs, the County Engineer may request and the applicant shall provide such information.

(2) Elevation Information on Approved Plans. All finally approved subdivision plans for subdivisions within the special flood hazard areas shall provide base flood elevations within the lots.

(3) Fill Above Base Flood Elevation. If fill is used to elevate the site of any lot above the base flood elevation, the final ground elevation of the pad shall be certified by a registered professional civil engineer or surveyor. (Ord. No. 155, January 7, 1972; Sec. 15-1.1, R.C.O. 1976; Ord. No. 416, October 28, 1981; Ord. No. 630, July 16, 1993)

Sec. 15-1.7 Nonconforming Structures.

Any nonconforming structure existing on the effective date of this Article, March 31, 1987, may continue subject to the following conditions:

(1) Any repair, reconstruction, improvement, or addition to a nonconforming structure, if it is considered to be substantial improvement, shall comply with the applicable standards for the special flood hazard areas; provided, however, that substantial improvement of a damaged, destroyed, or demolished structure located in a floodway will not be allowed unless a variance from the flood requirements is obtained.

(2) All relocated structures shall comply with the applicable standards for the special flood hazard area. (Ord. No. 416, October 28, 1981; Ord. No. 500, March 31, 1987; Ord. No. 630, July 16, 1993)

Sec. 15-1.8 Penalties and Enforcement.

(a) Any person, firm, or corporation violating any provision of this Article shall be deemed guilty or a misdemeanor and each such person shall be deemed guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this Article is committed, continued, or permitted, and upon conviction of any such violation such person shall be punished by a fine of not more than five hundred dollars ($500) or by imprisonment for not more than ninety (90) days, or by both such fine and imprisonment.

(b) Any building, structure, improvement, or development constructed or maintained contrary to the provisions of this Article is deemed unlawful and a public nuisance. The County may commence a civil action for the abatement, removal, or enjoinment thereof in any manner provided by law.

(c) The remedies provided in this Article are cumulative and nonexclusive. (Ord. No. 416, October 28, 1981; Ord. No. 500, March 31, 1987; Ord. No. 630, July 16, 1993)

ARTICLE 2. DRIVEWAY APPROACHES

Sec. 15-2.1 Purpose.

An ordinance regulating the construction of driveways so as to eliminate traffic hazards and guard against inconvenience to the public. (Ord. No. 170, March 22, 1973;

Sec. 15-2.1, R.C.O. 1976; Sec. 15-2.1, 1978 Cumulative Supplement)

Sec. 15-2.2 Definitions.

When used in this Article the following words or phrases shall have the meaning given in this Section unless it shall be apparent from the context that a different meaning is intended:

(1) "Abandoned Driveway" means a driveway no longer used for egress and ingress purposes by motor vehicles.

(2) "County Engineer" means the County Engineer, Department of Public Works of the County of Kauai.

(3) "Curb" means the raised border of concrete, stone, or similar materials along the edge of the pavement of a street.

(4) "Driveway Approach" means an area, construction or facility between the pavement of a street and any abutting property which is used by motor vehicles for purposes of ingress and egress.

(5) "Owner" means any person holding a title to any private property adjoining any street in the County or lessee thereof holding under a recorded lease.

(6) "Street" means the entire width between boundary lines of every way publicly maintained when any part thereof is open to use of the public for purposes of vehicular travel. (Ord. No. 170, March 22, 1973; Sec. 15-2.2, R.C.O. 1976; Sec. 15-2.2, 1978 Cumulative Supplement)

Sec. 15-2.3 Permit Required; Costs.

(a) No person shall construct, build, or repair any driveway approach, or cut or lower any curb for any purpose in the County without first obtaining a written permit therefor from the County Engineer.

(b) The costs of driveway approaches shall be at the builder's expense. (Res. No. 57, June 15, 1971; Res. No. 179, May 2, 1972; Ord. No. 170, March 22, 1973; Sec. 15-2.3, R.C.O. 1976; Sec. 15-2.3, 1978 Cumulative Supplement)

Sec. 15-2.4 Issuance Of Permit.

(a) Application for a permit to construct, build or repair a driveway approach, or to cut or lower any curb, shall be on forms furnished by the County Engineer.

(b) If the plans submitted with the application comply with the provisions of this Article, the County Engineer shall issue a permit therefor. (Ord. No. 170, March 22, 1973; Sec. 15-2.4, R.C.O. 1976; Sec. 15-2.4, 1978 Cumulative Supplement)

Sec. 15-2.5 Expiration Of Permit.

(a) Every permit issued under the provisions of this Article shall be valid for one (1) year from the date of

issuance of the permit, provided, the County Engineer may extend, in writing, the permit for the period of time not to exceed thirty (30) days for good cause shown, upon application by the permit holder prior to the expiration date of the permit. The application shall be on forms furnished by the County Engineer.

(b) Upon expiration of a permit, no work shall be commenced or continued unless a new permit is first obtained. (Ord. No. 170, March 22, 1973; Sec. 15-2.5, R.C.O. 1976; Sec. 15-2.5, 1978 Cumulative Supplement)

Sec. 15-2.6 Suspension Or Revocation Of Permit.

The County Engineer may suspend or revoke a permit issued under the provisions of this Article whenever the permit is issued in error, or on the basis of incorrect information supplied or in violation of the law. (Ord. No. 170, March 22, 1973; Sec. 15-2.6, R.C.O. 1976; Sec. 15-2.6, 1978 Cumulative Supplement)

Sec. 15-2.7 Standards And Specifications For Driveway Approaches.

(a) Driveway approaches shall be constructed as specified in the "Standard Details For Public Works Construction" dated September 1984, and as may be amended from time to time. Driveway approaches can be constructed of asphalt concrete material or Portland concrete material.

(b) Residential Driveway Approaches.

(1) A minimum of four (4) inch base course and two (2) inch asphaltic concrete wearing surface shall be provided for asphalt concrete approaches and a minimum thickness of four (4) inches shall be provided for concrete approaches. When concrete driveway approaches are constructed, expansion joints shall be provided along the property line.

(2) Driveway approaches shall be normally limited to one (1) per residential lot and shall be of standard

design; provided additional approaches may be permitted when in the discretion of the County Engineer, the additional approaches will not interfere with traffic control, traffic safety or the availability of street parking.

(3) Design of standard approaches shall have a minimum width of nine (9) feet at the property line flaring out to twenty-nine (29) feet at the edge of pavement.

(4) A driveway approach serving a double car garage or two (2) or more residences shall not exceed twenty (20) feet in width at the road boundary and from the road boundary shall be flared out on both sides so that at its intersection with the public street or road the driveway width shall not exceed forty (40) feet.

(5) Where concrete curbing, driveway approaches and concrete sidewalks have been constructed, a driveway approach shall not exceed twenty (20) feet in width at the curb lines.

(c) Commercial Driveway Approaches.

(1) A minimum of four (4) inch base course and two (2) inch asphaltic concrete wearing surface shall be provided for asphalt concrete approaches and a minimum thickness of six (6) inches shall be provided for concrete approaches. When concrete driveway approaches are constructed, expansion joints shall be provided along the property line.

(2) The minimum driveway width shall be fourteen (14) feet for one-way traffic and twenty-four (24) feet for two-way traffic. The maximum width shall be thirty-five (35) feet.

(3) When more than one (1) driveway is to serve a given property frontage the total width of driveways shall not exceed sixty (60) per cent of the frontage where such a frontage is one hundred (100) feet or less. When the frontage is more than one hundred (100) feet, the total driveway width shall not exceed fifty (50) per cent of the frontage. The maximum width of individual driveways shall not exceed thirty-five (35) feet.

(4) When more than one (1) driveway is necessary to serve any commercial property, not less than twenty (20) feet of full height curb shall be provided between driveways. This distance between driveways shall also apply where curbs and gutters are not to be placed. (Ord. No. 170, March 22, 1973; Sec. 15-2.7, R.C.O. 1976; Sec. 15-2.7, 1978 Cumulative Supplement)

Sec. 15-2.8 Notice Of Completion, Inspection And Approval.

(a) Upon completion of the work authorized under any permit, the permit holder shall notify the County Engineer for final inspection.

(b) The County Engineer, upon receipt of notice of completion, shall inspect the driveway and if it conforms to the requirements prescribed in this Article, shall indicate his approval thereof.

(c) The County Engineer shall keep a complete record of all applications made, or permits issued and of approvals given to completed work. (Ord. No. 170, March 22, 1973; Sec. 15-2.8, R.C.O. 1976; Sec. 15-2.8, 1978 Cumulative Supplement)

Sec. 15-2.9 Referral Of Building Plans.

All plans submitted to the Division of Buildings for approval, which include or involve any driveway, shall be referred by the Division of Buildings to the County Engineer for his approval as to the driveway prior to issuance of a Building permit. However, the approval shall not in any way be construed to eliminate the necessity of obtaining a permit prior to the commencement of any work on the driveway. (Ord. No. 170, March 22, 1973; Sec. 15-2.9, R.C.O. 1976; Sec. 15-2.9, 1978 Cumulative Supplement)

Sec. 15-2.10 Penalties.

Any person convicted of violating any provision of this Article shall be punished by a fine not exceeding One Hundred Dollars ($100) for each offense. A separate offense is committed upon each day during or on which a violation occurs or continues. (Ord. No. 170, March 22, 1973; Sec. 15-2.10, R.C.O. 1976; Sec. 15-2.10, 1978 Cumulative Supplement)

ARTICLE 3. NUMBERING OF HOUSES

Sec. 15-3.1 Purpose.

The purpose of this Article is to provide for the numbering of houses and buildings in certain portions of the County of Kauai. (Ord. No. 118, May 25, 1964; Sec. 15-3.1, R.C.O. 1976)

Sec. 15-3.2 Definitions.

When used in this Article the following words or phrases shall have the meaning given in this Section unless it shall be apparent from the context that a different meaning is intended:

(1) "County Engineer" means the County Engineer of the Department of Public Works of the County of Kauai.

(2) "Owner" means any person who has a whole or fractional interest in a house or building, whether in fee, any lesser freehold or tenancy including but not limited to a month to month tenancy, tenancy at will or

tenancy at sufferance. (Ord. No. 118, May 25, 1964; Sec. 15-3.2, R.C.O. 1976)

Sec. 15-3.3 County Engineer To Regulate Numbering.

The County Engineer shall have the power and it shall be his duty to regulate the numbering of all houses and buildings in any portion of the County of Kauai for which a house numbering plan is or may be adopted by the County Council and public notice thereof given. (Ord. No. 118, May 25, 1964; Sec. 15-3.3, R.C.O. 1976)

Sec. 15-3.4 Numbering Requirements And Specifications.

(a) All owners of houses and buildings within the house numbering plan shall within thirty (30) days after adoption of the house numbering plan, install or affix to the house or building the numbers applicable thereto in a manner as to be readily visible from the road. The numbers shall be placed at the entrance of a driveway and on the house or building when the house or building is more than 25 feet from the road. The numbers shall be of a contrasting color from the background on which they are placed, at least three inches in height, securely affixed in a permament manner and shall not be readily effaceable.

(b) Owners of houses and buildings erected or moved to new locations shall be required to be numbered under the provisions of Section 15-3.4(a) and shall within ten (10) days after completion of the construction or moving thereof apply for and install or place numbers applicable thereto in the manner provided for the numbering of existing houses and buildings. (Ord. No. 118, May 25, 1964; Sec. 15-3.4, R.C.O. 1976; Ord. No. 688, June 19, 1995)

Sec. 15-3.5 Penalty.

Any person convicted of violating any provision of this Article shall be punishable by a fine not exceeding twenty-five dollars ($25) for each offense. A separate offense is committed for every thirty (30) days thereafter during or on which a violation occurs or continues. (Ord. No. 118, May 25, 1964; Sec. 15-3.5, R.C.O. 1976)

ARTICLE 4. OUTDOOR SIGNS

Sec. 15-4.1 Purpose.

To regulate and control the location, construction, erection, maintenance and use of outdoor signs; to provide for enforcement of this Article and an appeal procedure; and to specify penalties for any violation of this Article. (Ord. No. 120, September 16, 1964; Sec. 20, C.O. 1971; Sec. 15-4.1, R.C.O. 1976; Sec. 15-4.1, 1978 Cumulative Supplement; Ord. No. 499, March 16, 1987)

Sec. 15-4.2 Declaration Of Intent.

The County Council finds and declares that the people of the County of Kauai have an interest in regulating and controlling the location, construction, erection, maintenance and use of outdoor signs so as to protect the public health, safety and welfare, and the natural and scenic beauty of Kauai, while acknowledging the necessity to identify businesses, organizations or persons through the use of signs. This need for regulation and control stems from the recognition that the indiscriminate location, construction, erection, maintenance, use or illumination of outdoor signs can negatively affect highway and pedestrian safety, firefighting, the natural and scenic beauty of Kauai, and the visitor industry. (Ord. No. 120, September 16, 1964; Sec. 20, C.O. 1971; Sec. 15-4.2, R.C.O. 1976; Sec. 15-4.2, 1978 Cumulative Supplement; Ord. No. 499, March 16, 1987)

Sec. 15-4.3 Definitions.

When used in this Article the following words and phrases shall have the meaning given in this Section unless it shall be apparent from the context that a different meaning is intended:

(1) "Aerial Sign" means any sign or advertising device which uses any type of aircraft or other self-propelled or buoyant airborne object to display in any manner or for any purpose any sign or device. For the purpose of this definition, an aerial sign or advertising device includes, a poster, symbol, or any other form of advertising sign or device.

Exceptions:

(a) The display of an identifying mark, trade insignia, or trademark on the exterior of an aircraft or self-propelled or buoyant airborne object if the display item is under the ownership or registration of the aircraft's or airborne object's owner shall not be prohibited.

(b) The display of a sign or advertising device placed wholly and visible only within the interior of an aircraft or self-propelled or buoyant airborne object shall not be prohibited.

(2) "Authorized Representatives" means all building inspectors, building plans examiners and their supervisors.

(3) "Banner" means a sign made of cloth or similarly pliable material, and supported at its corners and/or edges by rope, wire or similar material.

(4) "County Engineer" means the County Engineer, Department of Public Works, County of Kauai or his authorized representative.

(5) "Directional Sign" means a single- or double-faced sign containing the name of a commercial entity, and either its distance from the sign or a directional symbol.

(6) "Double-faced sign" means any sign with two parallel surfaces which are physically connected to each other.

(7) "Flashing Sign" means any lighted sign, as defined below, which, while in use, changes its light intensity or color.

(8) "Ground Sign" means a single- or double-faced sign which is a completely self-supported structure, permanently attached to the ground, and not attached or affixed in any way to a building or structure.

(9) "Lighted Sign"

(A) "Directly Lighted Sign" means any sign which has characters, letters, figures, designs, itself or its outline illuminated by internal electric lights or lighting, or has lights or lighting as part of the sign.

(B) "Indirectly Lighted Sign" means any sign illuminated with an external light which is directed at the face of the sign or its background.

(C) "Neon Sign" means any sign which has gas-filled, or other types of luminous tubes as part of itself.

(10) "Lighter Box Sign" means any gasoline service station sign, unlighted, or indirectly or directly lighted, as provided by an oil company, not exceeding thirty-six (36) square feet in area and containing only the company logo.

(11) "Marquee" means a canopy or covered structure projecting from and supported by a building when the canopy or covered structure extends beyond the building, building line or property line.

(12) "Marquee Fascia Sign" means a sign attached to or painted on the face of a marquee and not projecting above or beneath said marquee face.

(13) "Marquee Sign" means any sign attached to, or hung from a marquee.

(14) "Moving Sign" means any sign which is designed to exhibit physical movement of itself or its parts.

(15) "Off-Premises Sign" means any sign identifying a business or activity not conducted on the property upon which the sign is located.

(16) "Office Building" means a building which contains only offices in which persons transact business or engage in a stated occupation.

(17) "Pennant" means a series of commonly attached triangular, rectangular or square flags.

(18) "Portable Sign" means any outdoor sign which has no permanent attachment to a building or the ground, including, but not limited to, A-frame signs, pole attachments, search lights and stands.

(19) "Projecting Sign" means any sign which is attached to, supported solely by, and extends more than fifteen (15) inches from a building wall.

(20) "Roof Sign" means a sign located on or over the roof of any building.

(21) "Shopping Center" means an integrated commercial development, planned, developed, owned and managed as a unit, which contains within it businesses such as retail stores and shops, personal services establishments, professional business offices, banks, post offices, restaurants and auditoriums, all sharing common facilities such as off-street customer parking, pedestrian walkways, truck loading and unloading areas, utilities and sanitary facilities.

(22) "Sign" means any structure, billboard, marquee, awning, canopy, street clock, announcement, declaration, demonstration, display, flag, pennant, banner, balloon, illustration, or insignia used to identify, advertise, attract, or promote the interests of any business, organization, or person when such sign is located so as to be visible from any public roadway, park, or other public place. It shall include words or symbols written, drawn, or attached to the inside of windows, which are intended to be seen or read from the outside; provided that a window advertisement, display of merchandise, landscaping, decoration, or description of merchandise for sale shall not be considered to be a sign.

(23) "Wall" means any building surface, at least sixty degrees to the horizontal, which comprises one of the exterior sides of the building, to include columns and other supporting members, and which connects the foundation and roof. The area of a wall shall be measured by its exterior boundaries and shall include windows, doors, and other objects within the exterior boundaries.

(24) "Wall Sign" means any sign affixed to a wall of any building or structure, and which does not project more than fifteen (15) inches from, nor extend above, the building wall or structure.

(25) "Wind Sign" means any moving sign which obtains such movement by wind or air currents. (Ord. No. 120, September 16, 1964; Sec. 20, C.O. 1971; Sec 15-4.3, R.C.O. 1976; Ord. No. 349, July 1, 1978; Sec. 15-4.3, 1978 Cumulative Supplement; Ord. No. 415, September 23, 1981; Ord. No. 433, September 1, 1982; Ord. No. 499, March 16, 1987; Ord. No. 723, March 27, 1998)

Sec. 15-4.4 Prohibited Signs.

It shall be unlawful to erect or maintain:

(1) Any sign which obstructs the vision of drivers, obstructs or detracts from the visibility of any official traffic control device, or is in violation of any provision of this Article;

(2) Any sign which is obscene;

(3) Any aerial, flashing, moving, or roof sign;

(4) Any portable, wind, or off-premises sign; and

(5) Any other sign which is not permitted or not exempted under this Article, except if a variance for such has been obtained pursuant to Section 15-4.12. (Ord. No. 120, September 16, 1964; Sec. 20, C.O. 1971; Sec. 15-4.7, R.C.O. 1976; Ord. No. 349, July 1, 1978; Sec. 15-4.7, 1978 Cumulative Supplement; Ord. No. 499, March 16, 1987; Ord. No. 723, March 27, 1998)

Sec. 15-4.5 Signs Requiring A Permit.

(a) Temporary Signs.

(1) Project Sign. Any sign which contains, among other things, the names of architects, engineers, contractors, financiers or developers involved in the construction, structural alteration or repair of a structure. A project sign shall not exceed thirty-two (32) square feet and only one such sign shall be allowed per street frontage upon which the structure is located. Such sign may be posted upon the commencement of the work and shall be removed within fifteen (15) days after issuance of Certificate of Occupancy.

(2) Subdivision Construction Sign. Any sign which contains information regarding the subdivision and improvement of real property. A subdivision sign shall not exceed thirty-two (32) square feet, and only one such sign shall be allowed for each mile or fraction thereof of subdivision real property which fronts a street or highway. Any subdivision sign shall not be erected prior to the date that all appropriate County agencies have approved commencement of construction of the subdivision, nor remain erected for a period longer than one (1) year from the date of such approval; provided that the Planning Director, after the passage of such one (1) year period, may extend for up to one (1) year, at any one time, the period during which the sign can remain erected; and provided, further, that the sign must be removed upon the selling and recording of ninety percent (90%) of the available lots in the subdivision, or upon the completion of the subdivision site improvements, whichever is later.

(3) Banner. Any banner advertising a special event or promotion may be displayed not more than ten (10) days prior to the date of the event or promotion, and shall be removed within one (1) working day after the event or promotion, provided however, no banner shall be displayed for more than a total of thirty (30) consecutive days. No banner shall exceed thirty-two (32) square feet.

(b) Permanent Signs. Only signs of each type as are prescribed in this Section, and which conform with the provisions of this Article, shall be permitted to be erected or maintained upon any building, lot or parcel of land located in the following zoned districts, as defined by the Comprehensive Zoning Ordinance of the County of Kauai:

(1) Open, Agriculture or Residential R-1 through R-6.

(A) One (1) wall or ground sign, unlighted or indirectly lighted, made of wood or nonreflective metals, not exceeding six (6) square feet in area, containing matters related to a business conducted on the premises. The top of the ground sign shall not be higher than eight (8) feet from the ground.

(B) Subdivision Identification Sign. One (1) unlighted sign of not more than twenty-four (24) square feet in area, or two (2) unlighted signs, each not to exceed twelve (12) square feet, located at each entrance to a subdivision or tract, containing only the subdivision or tract name. The top of the sign shall not be higher than eight (8) feet from the ground.

(C) Directional Sign. One (1) directional sign, not to exceed eight (8) square feet in area and the top of which shall not be higher than four (4) feet from the ground, if the entity to which the sign pertains is not readily visible from a public roadway. The sign must be located on the same parcel of property of which the entity is a part, to include a private access road which is utilized for purposes associated with the entity and is either an integral part of the property upon which the entity is located or an exclusive easement serving such property.

(2) Residential R-10 through R-20 and Resort.

(A) Marquee or Wall Sign. One (1) wall or marquee sign per building wall which faces a street, unlighted or indirectly lighted, not exceeding twenty-four (24) square feet in area, containing only the name and/or nature of the business. The bottom of any marquee sign shall be at least seven and one-half (7-1/2) feet above the ground or any walking area beneath the sign.

(B) Ground Sign. One (1) ground sign, unlighted or indirectly lighted, not exceeding twenty-four (24) square feet in area, not more than eight (8) feet in height from the ground to the top of the sign, identifying a business conducted on the premises.

(C) Directional Sign. One (1) directional sign, not to exceed fifteen (15) square feet in area and the top of which shall not be higher than eight (8) feet from the ground, if the entity to which the sign pertains is not readily visible from a public roadway. The sign must be located on the same parcel of property of which the entity is a part, to include a private access road which is utilized for purposes associated with the entity and is either an

integral part of the property upon which the entity is located or an exclusive easement serving such property.

(D) Subdivision Identification Sign. One (1) unlighted sign of not more than twenty-four (24) square feet in area, or two (2) unlighted signs, each not to exceed twelve (12) square feet, located at each entrance to a subdivision or tract, containing only the subdivision or tract name. The top of the sign shall not be higher than eight (8) feet from the ground.

(3) Commercial.

(A) Any shopping center or office building complex that is identifiable by a single name shall be permitted only one (1) ground, marquee or wall sign, along each street front of the premises, which identifies the shopping center or office building complex. Each sign shall be unlighted, or indirectly or directly lighted, and shall not exceed twenty-four (24) square feet in area. The top of any ground sign shall not be higher than eight (8) feet from the ground and shall be set back a minimum of eight (8) feet from the property line. As an alternative to identifying the shopping center or office building complex, each sign may list the businesses conducted in the shopping center or office building complex, but shall not exceed thirty-two (32) square feet in area.

(B) Any individual business within a shopping center or office building complex:

(i) Only one of the following types of signs shall be permitted along each building wall of the business which is exposed to public view, which merely identifies the business:

(a) Marquee Sign. One (1) sign, unlighted, or indirectly or directly lighted, not exceeding nine (9) square feet in area, attached to the underside of a marquee, provided that the lowest part of the sign shall be at least seven and one-half (7-1/2) feet above the surface of the ground; or one (1) marquee fascia sign not to exceed three (3) feet in height and nine (9) square feet in area for individual businesses conducted in a building.

(b) Projecting Sign. One (1) sign, unlighted, or indirectly or directly lighted, not exceeding nine (9) square feet in area.

(c) Wall Sign for Walls 1,600 square feet or less. One (1) wall sign, unlighted, or indirectly or directly

lighted, not exceeding forty-eight (48) square feet in area or twenty percent (20%) of the area of the wall on which the sign shall be displayed, whichever is less.

(d) Wall Sign for Walls Greater than 1,600 square feet. One (1) wall sign, unlighted, or indirectly or directly lighted, not exceeding three percent (3%) of the area of the wall on which the sign shall be displayed.

(C) Any business not part of a shopping center or office building complex shall be permitted only two (2) signs of the following types on each street frontage of the business:

(i) Any type of sign permissible under Section 15-4.5(b)(3)(B)(i), i.e., a Marquee, Projecting or Wall Sign; and

(ii) A ground sign that is unlighted, or indirectly or directly lighted, not exceeding twenty-four (24) square feet in area nor eight (8) feet in height from the ground to the top of the sign, relating to the business conducted on the premises; and

(iii) Only one of the following types of signs shall be permitted if the conditions allowing these types of signs are met:

(a) Directional Sign. One (1) unlighted directional sign, not to exceed eight (8) square feet in area and the top of which shall not be higher than four (4) feet from the ground, if the entity to which the sign pertains is not readily visible from a public roadway. The sign must be located on the same parcel of property of which the entity is a part, to include a private access road which is utilized for purposes associated with the entity and is either an integral part of the property upon which the entity is located or an exclusive easement serving such property.

(D) Gasoline Service Stations. A gasoline service station may have the following types of signs:

(i) One (1) ground sign, unlighted, or indirectly or directly lighted, as provided by an oil company, not exceeding sixteen (16) feet in height nor thirty-six (36) square feet in area;

(ii) One (1) "lighter box" sign, unlighted, or indirectly or directly lighted, as provided by an oil company, not exceeding

sixteen (16) feet in height nor thirty-six (36) square feet in area and containing only the company logo.

(E) Theaters. Two (2) marquee fascia signs, unlighted, or indirectly or directly lighted, each not exceeding one hundred (100) square feet, which identifies an act, attraction or motion picture being or to be shown at the theater.

(F) Subdivision Identification Sign. One (1) unlighted sign of not more than twenty-four (24) square feet in area, or two (2) unlighted signs, each not to exceed twelve (12) square feet, located at each entrance to a subdivision or tract, containing only the subdivision or tract name. The top of the sign shall not be higher than eight (8) feet from the ground.

(4) Industrial.

(A) Any shopping center or office building complex that is identifiable by a single name shall be permitted only one (1) ground, marquee or wall sign, along each street front of the premises, which identifies the shopping center or office building complex. Each sign shall be unlighted, or indirectly or directly lighted, and shall not exceed twenty-four (24) square feet in area. The top of any ground sign shall not be higher than eight (8) feet from the ground and shall be set back a minimum of eight (8) feet from the property line. As an alternative to identifying the shopping center or office building complex, each sign may list the businesses conducted in the shopping center or office building complex, but shall not exceed thirty-two (32) square feet in area.

(B) Any individual business within a shopping center or office building complex:

(i) Only one of the following types of signs shall be permitted along each building wall of the business which is exposed to public view, which merely identifies the business:

(a) Marquee Sign. One (1) sign, unlighted, or indirectly or directly lighted, not exceeding nine (9) square feet in area, attached to the underside of a marquee, provided that the lowest part of the sign shall be at least seven and one-half (7-1/2) feet above the surface of the ground; one (1) marquee fascia sign not to exceed three (3) feet in height and nine (9) square feet in area for individual businesses conducted in a building.

(b) Projecting Sign. One (1) sign, unlighted, or indirectly or directly

lighted, not exceeding nine (9) square feet in area.

(c) Wall Sign. One (1) wall sign per building wall which faces a street, unlighted, or indirectly or directly lighted, not exceeding twenty-four (24) square feet for each business located therein.

(C) Any business not part of a shopping center or office building complex shall be permitted only two (2) signs of the following types on each street frontage of the business:

(i) Any type of sign permissible under Section 15-4.5(b)(3)(B)(i), i.e. a Marquee, Projecting or Wall Sign; and

(ii) A ground sign that is unlighted, or indirectly or directly lighted, not exceeding twenty-four (24) square feet in area nor eight (8) feet in height from the ground to the top of the sign, relating to the business conducted on the premises; and

(iii) Only one of the following types of signs shall be permitted if the conditions allowing these types of signs are met:

(a) Directional Sign. One (1) unlighted directional sign, not to exceed eight (8) square feet in area and the top of which shall not be higher than four (4) feet from the ground, if the entity to which the sign pertains is not readily visible from a public roadway. The sign must be located on the same parcel of property of which the entity is a part, to include a private access road which is utilized for purposes associated with the entity and is either an integral part of the property upon which the entity is located or an exclusive easement serving such property.

(D) Gasoline Service Stations. A gasoline service station may have the following types of signs:

(i) One (1) ground sign, unlighted, or indirectly or directly lighted, as provided by an oil company, not exceeding sixteen (16) feet in height nor thirty-six (36) square feet in area;

(ii) One (1) "lighter box" sign, unlighted, or indirectly or directly lighted, as provided by an oil company, not exceeding sixteen (16) feet in height nor thirty-six (36) square feet in area and containing only the company logo.

(E) Theaters. Two (2) marquee fascia signs, unlighted, or indirectly or directly lighted, each not exceeding one hundred (100) square feet, which identifies an act, attraction or motion picture being or to be shown at the theater.

(F) Subdivision Identification Sign. One (1) unlighted sign of not more than twenty-four (24) square feet in area, or two (2) unlighted signs, each not to exceed twelve (12) square feet, located at each entrance to a subdivision or tract, containing only the subdivision or tract name. The top of the sign shall not be higher than eight (8) feet from the ground. (Ord. No. 120, September 16, 1964; Sec. 20, C.O. 1971; Sec. 15-4.4 and Sec. 15-4.9, R.C.O. 1976; Ord. No. 349, July 1, 1978; Sec. 15-4.4 and Sec. 15-4.9, 1978 Cumulative Supplement; Ord. No. 415, September 23, 1981; Ord. No. 431, August 17, 1982; Ord. No. 499, March 16, 1987; Ord. No. 638, October 14, 1993; Ord. No. 723, March 27, 1998)

Sec. 15-4.6 Signs Not Requiring A Permit.

The following types of signs are exempt from the permit requirements of this Article, but must comply with the requirements of Section 15-4.4; Section 15-4.7 and Section 15-4.10.

(a) Temporary Signs.

(1) Real Estate Sign. Any sign which contains information regarding the sale, rental or lease of premises and/or the real property upon which the sign is located. A real estate sign shall not exceed six (6) square feet; and only one such shall be allowed per street frontage of the premises or real property.

(2) Political Campaign Sign. Any sign which:

(A) Identifies the headquarters of a political candidate, and shall not exceed the size limitation set forth in Section 15-4.5(b).

(B) Identifies and/or provides information about a political candidate or issue to be voted upon. It shall not be posted within the street right-of-way boundary of any public road or highway and shall not block, obstruct or impede, partially or completely, any public sidewalk or pedestrian walkway and shall not exceed the size limitations set forth in Section 15-4.5(b).

(b) Permanent Signs.

(1) Institutional Sign. Any sign or bulletin board which sets forth or denotes the name of any public, charitable or religious institution. Any institutional sign shall not exceed twenty-four (24)

square feet and shall be located on the premises of the institution.

(2) Public or Informational Sign. Any sign of a noncommercial nature, such as a safety, danger, no trespassing, or other informational sign, any sign which indicates a scenic or historical point of interest; provided that any such sign shall not exceed nine (9) square feet in area and shall be located on the real property to which it pertains.

(3) Gateway Sign. One (1) identification ground sign, single- or double-faced, unlighted or indirectly lighted, per entrance to a town or Resort District not to exceed two (2) signs. Each sign shall not exceed eight (8) feet in height from the top of the sign to the ground or twenty-four (24) square feet in area.

(4) Flag. Any official flag of a governmental jurisdiction or a corporate logo flag, not to exceed fifty (50) square feet, to be displayed only when the United States and/or Hawaii State flag(s) is(are) displayed.

(5) Address Sign. A sign which indicates a street address. It shall not exceed one (1) square foot and shall comply with provisions set forth in Chapter 15, Article 3, Kauai County Code 1987, as amended, "Numbering of Houses."

(6) Ingress-Egress and Parking Signs. Any single- or double-faced sign located at each driveway entrance or exit, denoting such. Each sign face shall not exceed two (2) square feet and shall only contain the words "In", "Entrance", "Out", "Parking", "No Parking" or "Exit" and a symbol designating the appropriate direction.

(7) Pennant. Any individual pennant shall not exceed 11 inches x 18 inches.

(8) Permanently Mounted Signs. Any sign intended to be read only by persons on the premises, which does not exceed twenty-four (24) square feet in total area and is not visible from any public roadway, including menu signs, complex directory, and store hours signs.

(9) Display Lamppost Banners. Any banner that does not exceed sixteen (16) square feet in total area; is affixed to a lamppost from the top and the bottom of the banner or attached on one edge; the top of the banner is not higher than sixteen (16) feet above ground level; is decorative only but may contain the name and logo of the shopping center, resort or office building complex; and shall not protrude into or over public property. The lamppost shall not be a government or public utility lamppost. (Ord. No. 120, September 16, 1964; Sec. 20, C.O. 1971; Sec. 15-4.4, R.C.O. 1976; Ord.

No. 349, July 1, 1978; Sec. 15-4.4, 1978 Cumulative Supplement; Ord. No. 398, August 11, 1980; Ord. No. 415, September 23, 1981; Ord. No. 499, March 16, 1987; Ord. No. 723, March 27, 1998)

Sec. 15-4.7 Construction And Location Of Signs.

(a) Free Ingress and Egress. No sign or support or hangings therefor shall be erected so as to obstruct the doors or windows of any building, or to prevent free ingress and egress to or from any window, door or fire escape of any building; nor shall any sign be attached to any part of a fire escape or upon or to any standpipe or fire escape support, or be placed nearer than two (2) feet from any fire escape platform. All signs shall be so arranged as to swing away from a fire escape or platform.

(b) Interference With Public Alarms, Signals, or Signs. No sign or supports or hangings therefor shall be placed in a position or manner so as to obstruct or interfere with any fire alarm, police alarm, sign or any device maintained by or under public authority.

(c) Structure. Every sign, together with its framework, braces, angles or other supports, shall be maintained in a safe condition, properly secured, supported and braced and shall be kept in good structural condition.

(d) Support. Every sign shall be constructed to withstand wind pressure of not less than thirty (30) pounds per square foot of sign area exposed to wind pressure, shall be rigidly and firmly braced, and where applicable, be securely attached to the building or structure by metal bolts, anchors, chains, cables, or guys.

(e) Wood. All wood permitted to be used either for new signs or replacement of existing signs, or for any part thereof, shall be rot and termite resistant through open-cell preservation methods as specified by the American Wood Preservation Association, or by any other open-cell preservation treatment approved by the County Engineer.

(f) Projection From Building Line. Except for marquee signs, no sign or portion thereof shall project over any public area or way more than five (5) feet from the boundary of the property upon which is located the building or structure to which the sign is attached; provided, that no sign shall project over any public highway, or interfere with vehicular traffic.

(g) Distance Above Ground. The lower edge of all signs projecting over any public area, except marquee signs, shall have a vertical clearance of at least nine (9) feet from such public area. The highest point of any permissible sign attached to part of a building or structure shall not exceed twenty five (25) feet above the ground directly below.

(h) Distance Above the Building. The highest point on any sign attached to the side of a building or structure shall not extend more than two (2) feet above the part of the

building or structure to which it is attached, or two (2) feet above the lowest edge of the roof, whichever is the higher.

(i) Determination of Size of Signs. The size of all signs shall be measured and determined in the following manner:

(1) When signs are framed on a plate, all of the plate or frame shall be included in the dimensions;

(2) When signs are not on a plate or framed but are partly or entirely outlined by a painted border, or if on a plate or frame and circumscribed by a painted border, all of the area circumscribed by the painted border shall be included in the dimensions;

(3) When a sign consists only of letters, designs, or figures, engraved, painted, projected or fixed on a wall, the total area of the sign shall include the entire area within a single, continuous perimeter or regular geometric form enclosing the extreme limits of writing, representation, emblem or any fixture of similar character, together with any frame or other material or color forming an integral part of the display or used to differentiate such sign from the background against which it is placed. Where a sign has two (2) or more faces, the area shall be computed as the largest area projected on the vertical plane for each face exceeding two (2).

(j) Height of Ground Signs. When not specifically permitted under this Article, the top of any ground sign shall not be higher than eight (8) feet from the ground. (Ord. No. 120, September 16, 1964; Sec. 20, C.O. 1971; Sec. 15-4.8, R.C.O. 1976; Ord. No. 349, July 1, 1978; Sec. 15-4.8, 1978 Cumulative Supplement; Ord. No. 415, September 23, 1981; Ord. No. 499, March 16, 1987; Ord. No. 723, March 27, 1998)

Sec. 15-4.8 Permits And Fees.

(a) Except as otherwise provided in this Article, it shall be unlawful for any person to install, construct, erect, alter, relocate, reconstruct, cause or permit to be installed, constructed, erected, altered, relocated, or reconstructed after May 15, 1987, any sign without first having obtained a permit in writing from the County Engineer, and making payment of the fees required in this Section.

(b) How Obtained. Any applicant for a permit shall file with the County Engineer an application, furnished by the Department of Public Works, which must be signed by the owner of the property and owner of the sign, or their duly authorized agent. The application shall contain the following information:

(1) The name and address of the applicant, and of the person, persons or organizations by whom the sign is to be constructed, erected, altered, relocated, or reconstructed.

(2) An accurate description of the actual or proposed location of the sign.

(3) A plan or design of the sign showing its weight, dimensions, lighting equipment, material, composition, details of its attachment to any building or structure, and position relative to the nearest roadway or walkway.

(4) Any electrical permits required and issued for the sign.

(5) Other information pertinent to the application as may be required by the County Engineer.

(c) Illuminated Signs; Approval by County Engineer. The application for a permit for a sign in which electrical wiring and connections are to be used shall be first submitted by the applicant to the County Engineer. The County Engineer shall examine the plans and specifications to determine if the electrical wiring and connections comply with the Electrical Code of the County of Kauai. He shall approve or disapprove the application accordingly.

(d) Fees. Every applicant, before being granted a permit shall pay to the County Engineer for each sign to which the permit is applicable, a fee which shall be determined as follows:

TOTAL ESTIMATED VALUATION OF WORK	FEE TO BE CHARGED
From $0.01 to $500.00	$20.00
From $500.01 and above	$20.00 plus $3.00 per $100.00 or fraction thereof of the total estimated valuation of work.

(e) Disposition of Fees. The County Engineer shall record, in a form approved by the Auditor, all fees received, and shall deposit such fees with the Treasurer to the credit of the General Fund.

(f) Permit Issued If Application In Order. It shall be the duty of the County Engineer, upon the filing of an application for a permit under this Section, to examine the plans, specifications, other relevant data and/or the premises upon which the sign is located or is to be erected. If the proposed sign will be in conformity with all requirements of this Article, applicable statutes and ordinances, he shall issue a permit within thirty (30) calendar days of the date that the application was filed. If the permit is not issued or denied within the thirty (30) day period the applicant may install, construct or erect the sign, subject to, however, the sign's actually being in compliance with all applicable provisions of this Article and provided that the applicant continue the process to obtain, and does obtain a permit.

(g) Revocation of Permit. A permittee shall notify the County Engineer immediately of the completion of the installation, construction, erection, relocation or alteration of any sign for which a permit was issued. The County

Engineer shall thereupon cause an inspection to be made of such work. The County Engineer shall revoke any permit for the failure of the permit holder to comply with any applicable provision of this Article.

(h) Nullification of Permit. If the work authorized under a permit has not been completed within six (6) months after the date of issuance, then the permit shall become void and any sign installed, constructed, erected, relocated, or altered thereafter shall be in violation of this Article.

(i) Work Without a Permit. Except when the sign work may be commenced without a permit, (Sec. 15-4.6) the fee for work commenced without a permit shall be Fifty dollars ($50.00) plus the fee specified in subsection (d) of this Section. (Ord. No. 120, September 16, 1964; Sec. 20, C.O. 1971; Sec. 15-4.5, R.C.O. 1976; Ord. No. 349, July 1, 1978; Sec. 15-4.5, 1978 Cumulative Supplement; Ord. No. 499, March 16, 1987; Ord. No. 502, June 8, 1987; Ord. No. 723, March 27, 1998)

Sec. 15-4.9 Enforcement And Administration.

(a) County Engineer. The County Engineer is charged with the enforcement and administration of this Article. Whenever necessary, and upon request of the County Engineer, the officials of the other departments of the County of Kauai shall render assistance, as is consistent with the usual duties of their respective departments.

(b) Nonconforming Signs. Any sign erected prior to May 15, 1987, in compliance with all of the then existing statutes, ordinances and regulations, shall be permitted to be maintained as a nonconforming sign, subject to the following conditions.

(1) Safe Condition. Nonconforming signs shall be maintained in a safe condition and shall not in any manner be dangerous to the public or to property.

(2) Alteration or Relocation. Upon the alteration or relocation of any nonconforming sign or the discontinuance or removal from the premises of the activity to which the sign relates, the sign shall cease to be a nonconforming sign and shall thereafter be permitted to be maintained only upon compliance with all requirements of this Article. The term "alteration" shall not mean repairs and maintenance for the purpose of keeping the sign in a clean and safe condition.

(c) Abatement and Removal of Unlawful Signs. Whenever it appears to the County Engineer that any sign has been constructed, erected, or is being maintained in violation of any of the terms of this Article, or that a permit therefor has been revoked or become void, or that a sign is unsafe or insecure or in a condition so as to be a menace to the safety of the public, he shall issue a notice in writing to ethe owner of the sign and the owner of the premises upon which the sign is erected or maintained, informing such person

of the violation or dangerous condition of the sign and directing him to make the alteration or repair or do the things or acts necessary to make the sign comply with the requirements of this Article. The notice shall specify that compliance or removal of the sign shall be effected within five (5) working days of receipt of the notice. The notice may be given by personal service, or by depositing a copy thereof in the U.S. mail in a postage prepaid wrapper addressed to the street address of the premises upon which the sign is erected or maintained, or by posting a copy thereof on the premises upon which the sign is erected or maintained. Upon failure to comply with the notice within the time mentioned therein, the County Engineer shall cause the sign, or any part thereof as is constructed or maintained in an unsafe condition or otherwise in violation of this Article, to be removed, altered, or repaired so as to make it a conforming sign and shall charge the expense thereof to the person so notified. Notwithstanding any other provision of this Article, when any sign is in a condition so as to present an imminent danger to the safety of the public or to property, the County Engineer may remove or cause the sign to be removed summarily and without notice.

(d) Enforcement. The County Engineer shall have the police power to do all acts necessary to ensure that the provisions of this Article are not violated, including but not limited to, the issuance of citations for violations of any provision of this Article and the institution of a civil action in any court of competent jurisdiction to bring the violator in compliance with this Article. (Ord. No. 120, September 16, 1964; Sec. 20, C.O. 1971; Sec. 15-4.6, R.C.O. 1976; Ord. No. 349, July 1, 1978; Sec. 15-4.6, 1978 Cumulative Supplement; Ord. No. 499, March 16, 1987; Ord. No. 723, March 27, 1998)

Sec. 15-4.10 Violation and Penalty.

(a) Notice of Violation. Whenever there is a violation of this code, the County Engineer shall serve a notice of violation to the owner of the business that is advertised by the noncomplying sign, with a copy to the owner of the property on which the noncomplying sign is located, to make the sign or portion thereof comply with the requirements of the code. Such notice of violation shall include:

(1) The date of the notice;

(2) The name and address of the person noticed, and the location of the violation;

(3) The section number of the ordinance, code or rule which has been violated;

(4) The nature of the violation; and

(5) The deadline for compliance with the notice.

The notice of violation may be served in person or by registered or certified mail or in any other manner provided by law.

(b) Administrative Fine.

(1) Any owner of the business that is advertised by the noncomplying sign, who has not complied with the notice of violation, shall be issued a citation and shall pay to the County of Kauai an administrative fine in an amount as follows:

Violation Fine:	$50.00

(2) All fines shall be due and payable within thirty (30) calendar days from the date of the citation.

(3) A separate offense is committed upon each day during on or which a violation occurs or continues.

(4) Any owner of the business that is advertised by the noncomplying sign, who is issued a citation and is subject to the administrative fine as provided for herein, may appeal to the Building Board of Appeals of the County of Kauai.

(A) The filing of a notice of appeal does not stay the alleged violator's obligation to pay the applicable administrative fines. The payment of the applicable fines shall be paid prior to the acceptance of the notice of appeal.

(B) The notice of appeal shall be filed within thirty (30) calendar days after the issuance of the citation.

(C) In the event the Building Board of Appeals finds that no violation has occurred, the County shall refund the fines paid.

(5) The decision of the Building Board of Appeals may be appealed to the Circuit Court of the Fifth Circuit as provided for in Chapter 91 (Hawaii Administrative Procedure Act) of the Hawaii Revised Statutes, as amended.

(c) Criminal fines. Any person convicted of violating the requirements set forth in the written notice issued pursuant to Section 15-4.9(c) shall be punishable by a fine not exceeding five hundred dollars ($500.00). A separate offense is committed upon each day during or on which a violation occurs or continues. (Ord. No. 120, September 16, 1964; Sec. 20, C.O. 1971; Sec. 15-4.10, R.C.O. 1976; Sec. 15-4.10, 1978 Cumulative Supplement; Ord. No. 499, March 16, 1987; Ord. No. 723, March 27, 1998)

Sec. 15-4.11 Appeal.

An applicant may challenge any requirement, decision or determination by the County Engineer regarding this Article by filing a notice of appeal with the Board of Appeals of the County of Kauai within twenty-one (21) calendar days after notification of the challenged action. The notice shall state the provisions of this Article from which the appeal is taken and the reasons for the appeal. The Board of Appeals shall apply the standards established in this Article when it

reviews and hears the appeal. (Sec. 15-4.11, R.C.O. 1976; Sec. 15-4.11, 1978 Cumulative Supplement; Ord. No. 415, September 23, 1981; Ord. No. 433, September 1, 1982; Ord. No. 499, March 16, 1987)

Sec. 15-4.12 Variance.

(a) An applicant may apply for a variance by filing a request with the Board of Appeals of the County of Kauai.

(b) A variance may be granted by the Board of Appeals from the provisions of this Article if the Board finds that each of the following criteria has been met:

(1) Because of special circumstances applicable to the building or property, including size, shape, topography, location or surroundings, the strict application of this Article deprives the property of privileges enjoyed by other property in the vicinity and within the same Zoning District, and the applicant shows that he cannot make a reasonable use of the property if this Article is applied. The fact that another property in the vicinity has a nonconforming sign shall not, in and of itself, be a sufficient basis for granting a variance. In no case shall a variance be granted that will provide the applicant with any special privileges not enjoyed by other properties in the vicinity.

(2) The strict application of the provision being appealed from would result in practical difficulty or unnecessary hardship, except that financial hardship to the applicant shall not be a permissible basis for the granting of a variance.

(3) Safety to life, limb, and property will not be jeopardized.

(4) The granting of a variance would not be injurious to any adjoining lot and any building thereon, would not create additional fire hazards, and would not be contrary to the purpose of this Article and the public interest.

(5) A variance shall not be granted to allow any sign prohibited by Sec. 15-4.4(1)-(4) of this Article.

(6) A variance shall not be granted to allow any type of sign within a zoned district which is not permitted in such district by this Article.

(7) A variance shall not be granted to allow an existing nonconforming sign unless all of the criteria in Sec. 15-4.12 are met.

In making its determination, the Board shall take into account the character, use and type of occupancy and construction of an adjoining lot and any building involved.

(c) When these criteria are met, the variance permitted shall be the minimum departure from existing regulations necessary to avoid the deprivation of privileges enjoyed by other property and to facilitate a reasonable use, and which will not create significant probabilities of harm to property

and improvements in the neighborhood or of substantial harmful environmental consequences.

(d) The Board shall indicate in writing, the particular evidences that support the granting of the variance.

(e) Notwithstanding Section 15-4.12(b)(6), the Board may grant a variance for portable signs in Commercial and Industrial Districts if the above findings are made. If the Board grants such a variance for a portable sign, the following minimum requirements shall be imposed:

(1) Only one (1) single or double-faced unlighted portable sign containing only the name of a commercial entity, and void of any advertisement, shall be allowed.

(2) The portable sign shall be set back a minimum of eight (8) feet from the property line of the commercial entity or contiguous business area of which such entity is a part.

(3) The portable sign shall be located not more than five hundred (500) feet from the commercial entity.

(4) The portable sign face shall be not more than four (4) feet high and two (2) feet wide, and the top of the sign shall not be higher than four (4) feet from the ground.

(5) The portable sign shall not be painted with, or made from any reflective or fluorescent material, and shall be in compliance with all applicable safety provisions of this Article.

(6) The frontage of the commercial or industrial entity shall be located more than seventy-five (75) feet from the nearest public roadway.

(7) The portable sign shall not be placed within the street right of way boundary of any public road or highway and shall not block, obstruct or impede, partially or completely, any public sidewalk or pedestrian walkway. (Sec. 15-4.11, R.C.O. 1976; Sec. 15-4.11, 1978 Cumulative Supplement; Ord. No. 415, September 23, 1981; Ord. No. 433, September 1, 1982; Ord. No. 499, March 16, 1987; Ord. No. 723, March 27, 1998)

CHAPTER 15A

FIRE CODE

Article 1.	General Provisions
Sec. 15A-1.1	Purpose
Sec. 15A-1.2	Title
Article 2.	Adoption Of The State Fire Code And Amendments Thereto
Sec. 15A-2.1	Adoption Of The State Fire Code
Sec. 15A-2.2	Amendments To The State Fire Code
Sec. 15A-2.3	Examination And Approval Of Plans By Fire Chief; Penalties
Article 3.	Examination And Approval Of Plans By Fire Chief; Penalties
Sec. 15A-3.1	Scope Of Review
Sec. 15A-3.2	Approval Or Disapproval Of Plans
Sec. 15A-3.3	Penalties

ARTICLE 1. GENERAL PROVISIONS

Sec. 15A-1.1 Purpose.

To adopt the State Fire Code and incorporate by reference the Uniform Fire Code, 1997 Edition (hereafter "UFC"), and the 1999 Accumulative Supplement to the UFC (hereafter "1999 UFC Supplement") and all Appendixes to the above, as copyrighted and published by the Western Fire Chiefs Association and the International Conference of Building Officials and to provide amendments to the State Fire Code which governs the maintenance of buildings and premises to safeguard life, health, property, and the public welfare from fire hazards." (Ord. No. 399, September 3, 1980; Ord. No. 419, December 21, 1981; Ord. No. 553, May 2, 1989; Ord. No. 809, November 5, 2003)

Sec. 15A-1.2 Title.

This Code shall be known as the Fire Code of the County of Kauai and may be cited as the "Fire Code." (Ord. No. 399, September 3, 1980; Ord. No. 419, December 21, 1981; Ord. No. 553, May 2, 1989)

ARTICLE 2. ADOPTION OF THE STATE FIRE CODE

Sec. 15A-2.1 Fire Code Of the County of Kauai.

The State Fire Code as adopted by the State of Hawaii on November 30, 2001, pursuant to Chapter 132, Hawaii Revised Statutes, which code adopts, with modifications, the "Uniform Fire Code, 1997 Edition (hereafter "UFC"), and the 1999 Accumulative Supplement to the UFC (hereafter "1999 UFC Supplement") and all Appendixes to the above, as copyrighted and published by the Western Fire Chiefs Association and the International Conference of Building Officials, is by reference incorporated herein and made a part hereof, subject to the following amendments. (Ord. No. 399, September 3, 1980; Ord. No. 419, December 21, 1981; Ord. No. 553, May 2, 1989; Ord. No. 809, November 5, 2003)

Sec. 15A-2.2 Amendments To The State Fire Code.

Amendments to the State Fire Code are as follows:

(1) Amending Section 101.1

Section 101.1 is amended as follows:

101.1 Title. This Code shall be known as the Fire Code of the County of Kauai and may be cited as the 'Fire Code'."

(2) Section 101.2 is reserved.

(3) Amending Section 2.201(a).

Section 2.201(a) is amended to read:

"(a) The fire department shall inspect as often as may be necessary, all buildings and premises, including such other hazards or appliances as the fire chief may designate by rules, for the purpose of ascertaining and causing to be corrected any conditions which would reasonably tend to cause fire or contribute to its spread, or any violation of the purpose or provisions of this code and of any other law or standard affecting fire safety."

(4) Amending Section 2.201(b).

Section 2.201(b) is amended by amending the last sentence to read:

"All such unsafe buildings are hereby declared to be public nuisances and shall be abated by repair, rehabilitation, demolition, or removal in accordance with the procedure specified in the Uniform Building Code."

(5) Adding Section 2.202(c).

Section 2.202(c) is added to read:

"(c) Adjuster's Report of Fire Losses. Every company or agent transacting the business of fire insurance in the State is hereby required to file with the fire chief in each county through the secretary or other officer, or duly appointed representative of the insurance company, or through the adjuster, a monthly record of fire losses paid or incurred on forms prescribed, permitted, or furnished by the fire chief. These forms shall contain information on each fire loss, such as the name of the insured, name of the adjuster, date and time of fire, cause of fire, occupancy of property involved, construction of building or structure burned, amount of fire insurance carried on building and contents involved in the fire, amount of insurance paid, and apportionment of the loss where more than one company insured the risk."

(6) Adding Section 2.203(c).

Section 2.203(c) is added to read:

"NFPA (hereafter National Fire Protection Association) basic field incident report forms may be used."

(7) Adding Section 2.206.

Section 2.206 is added to read:

"Submission of Building Plans for Approval. Before work commences upon the construction of any building or upon an alteration or addition to any building except a private dwelling, the plans and specifications for the work shall be submitted to the county fire chief. Neither

the person causing the construction, alteration, or addition to be made nor his architect, or agent, shall authorize, order, or permit the work thereon to start and no contractor, builder, or other person may start the work, before approval of the plans and specifications by the county fire chief."

(8) Amending Section 2.302.

Section 2.302 is amended to read:

"Board of Appeals. Any appeal from the decision of the fire chief in the administration of the fire code involving any denial of the use of new or alternate materials, types of construction, equipment, devices or appliances, or any petition for varying the application of the Fire Code may be submitted to the Board of Appeals for hearing and determination as specified in the Uniform Building Code."

(9) Amending Section 2.303(a).

Section 2.303(a) is amended by deleting Article 10.

(10) Amending Section 2.303(b).

Section 2.303(b) is amended to read:

"(b) Whenever this code is inapplicable for any reason to any situation involving the protection of persons and property from the hazards of fire and explosion, the materials, methods of construction, installations, practices, or operations necessary to provide these protections, to a reasonable degree, shall be in accordance with nationally recognized and well established methods of fire prevention and control, as set forth in the following publications by the National Fire Protection Association, as amended in this chapter, which are adopted by reference as part of this code as though set forth in full.

NATIONAL FIRE PROTECTION ASSOCIATION
Batterymarch Park
Quincy, MA 02269

National Fire Codes, 1985 volumes

10 Installation, Portable Fire Extinguishers
11 Foam Extinguishing Systems
11A Foam Systems, High Expansion
12 Carbon Dioxide Systems
12A Halon 1301 Systems
12B Halon 1211 Systems
13 Sprinkler Systems, Installation
13A Inspection, Testing and Maintenance of Sprinkler Systems
13D Sprinkler Systems, One and Two Family Dwellings
14 Standpipe and Hose Systems, Installation
15 Water Spray Systems for Fire Protection
16 Foam-Water Sprinkler and Spray Systems
17 Dry Chemical Systems
20 Centrifugal Fire Pumps, Installation
22 Water Tanks for Private Fire Protection

30 Flammable and Combustible Liquids
31 Oil Burning Equipment Installation
33 Spray Finishing Using Flammable and Combustible Materials
37 Stationary Combustion Engines and Gas Turbines
45 Laboratories Using Chemicals
50 Bulk Oxygen Systems
50A Gaseous Hydrogen Systems
50B Liquefied Hydrogen System at Consumer Sites
51 Welding and Cutting, Oxygen-Fuel Gas Systems for
51B Cutting and Welding Processes
54 Fuel Gas Code, National
54A Industrial Fuel Gas Code
56F Non-Flammable Medical Gas Systems
58 Liquefied Petroleum Gases, Storage and Handling
59 LP Gases at Utility Gas Plants
59A Liquefied Natural Gas, Storage and Handling
61B Grain Elevators and Bulk Handling
61C Flour and Feed Mills, Applied Grain Storage Elevators, Prevention of Dust Explosions
66 Agriculture Dust
71 Central Station Signaling Systems
72A Local Protection Signaling Systems
72B Auxiliary Signaling Systems
72C Remote Station Signaling Systems
72D Proprietary Signaling Systems
72E Automatic Fire Detectors
75 Electronic Computer/Data Processing Equipment
76A Health Care Facilities, Essential Electrical Systems for
77 Static Electricity
80 Fire Doors and Windows, Installation of
80A Exposure Fires, Protection from
82 Incinerators, Waste and Linen Handling Systems and Equipment
86A Ovens and Furnaces, Design, Location and Equipment
90A Air Conditioning and Ventilating Systems
91 Blower and Exhaust Systems, Dust, Stock and Vapor Removal
96 Cooking Equipment, Vapor Removal
101 Life Safety Code; Chapters 12, 13, 14, 15 (New and Existing Health Care Occupancies; New and Existing Detention and Correctional Occupancies) Sections 12-1.3(c) and 13-1.3(c) are amended to read as follows: "A building, or part thereof used for lodging or boarding of six or more persons who are incapable of self-preservation because of age, or physical or mental limitation."
102 Tents and Air-Supported Structures, Assembly Seating
110 Emergency and Standby Power Systems
231 Storage, General Indoor
231A Storage, General Outdoor
231C Rack Storage of Materials
231D Rubber Tires, Storage of

241 Building Construction and Demolition Operations
303 Marinas and Boatyards
329 Flammable and Combustible Liquids, Underground Leakage of
395 Flammable and Combustible Liquids, Farm Storage of
407 Aircraft Fuel Servicing
409 Aircraft Hangers
416 Airport Terminals
418 Roof-top Heliport Construction and Protection
664 Wood Processing and Woodworking Dust Explosion
704 Fire Hazards of Materials, Identification Systems for
1123 Fireworks, Public Displays
1231 Water Supplies for Suburban and Rural Fire Fighting"

(11) Adding Section 2.303(c).

Section 2.303(c) is added to read:

"(c) The following standards, as they existed on December 1, 1986, are intended for use as a guide in the design, fabrication, testing, and use of equipment regulated by this code.

AMERICAN NATIONAL STANDARDS INSTITUTE
1430 Broadway, New York, New York 10018

ANSI STANDARDS

ANSI A13.1	Identification of Piping Systems, Scheme for the, 1975
ANSI B31	Guide
ANSI B31.1	Power Piping 1980
ANSI B31.2	Fuel Gas Piping 1968
ANSI B31.3	Chemical Plant and Petroleum Refinery Piping 1980
ANSI/ASME B31.4	Liquid Petroleum Transportation Piping System 1979
ANSI B31.5	Refrigeration Piping 1974
ANSI B31.5a	Refrigeration Piping 1978
ANSI B31.8	Gas Transmission and Distribution Piping Systems 1975

AMERICAN PETROLEUM INSTITUTE
2101 "L" Street, N.W., Washington, D.C. 20037

API STANDARDS

12-B	Specifications for Bolted Tanks for Storage of Production Liquids, 12th Edition, January 1977
620	Recommended Rules for Design and Construction of Large Welded, Low Pressure Storage Tanks, June 1978
650	Welded Steel Tanks for Oil Storage, 6th Edition 1979
12-D	Specification for Field Large Welded Tanks for Storage of Production Liquids, 8th Edition, January 1977

12-F	Specification for Shop Welded Tanks for Storage of Production Liquids, 7th Edition, January 1977
(RP)	2000 Venting Atmospheric and Low Pressure Storage Tanks, 2nd Edition, December 1973
1615	Installation of Underground Petroleum Storage System, 1979

AMERICAN SOCIETY FOR TESTING AND MATERIALS
1916 Race Street, Philadelphia, PA 19103

ASTM STANDARDS

ASTM D3435-78	Plastic Containers for Petroleum Products
ASTM D5-78	Penetration of Bituminous Materials
ASTM A395-74	Ferritic Ductile Iron Pressure Retaining Castings for Use at Elevated Temperatures
ASTM D4021-81	Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks

AMERICAN SOCIETY OF MECHANICAL ENGINEERS 345
East 47th Street, New York, New York 10017

ASME STANDARDS

ASME Boiler and Pressure Vessel Code

Section I.	Power Boilers 1980
Section VIII.	Pressure Vessels, Divisions 1 or 2, 1980

UNDERWRITERS LABORATORIES, INC.
333 Pfingsten Road, Northbrook, IL 60062

UL STANDARDS

UL 25	Meters for Flammable and Combustible Liquids and LP Gas, June 25, 1979
UL 30	Safety Cans, March 15, 1977
UL 58	Standard for Steel Underground Tanks for Flammable and Combustible Liquids, October 29, 1976
UL 79	Power Operated Pumps for Petroleum Products Dispensing Systems, June 25, 1975
UL 80	Standard for Steel Inside Tanks for Oil-Burner Fuel, July 14, 1980
UL 87	Power Operated Dispensing Devices for Petroleum Products, November 3, 1980
UL 142	Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids, December 1972
UL 330	Gasoline Hose, August 21, 1978
UL 525	Flame Arresters for Use of Vents of Storage Tanks for Petroleum Oil and Gasoline, August 25, 1980
UL 842	Valves for Flammable Liquids, 1980

UL 1316 Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products, 1983
UNITED STATES OF AMERICA REGULATIONS
Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402
Code of Federal Regulations, Title 49,
Chapter 1 (Department of Transportation Regulations)"

(12) Amending Section 4.101.
Section 4.101 is amended to read:
"(a) It shall be unlawful for any person, firm, or corporation to use a building or premise or to engage in any activities for which a permit is required by this code without first paying any applicable fees and obtaining such permit.
(b) The required permits and fees are as follows:
(1) There shall be a fee of $15.00 for a Section 32.101 Tent Permit.
(2) There shall be a fee of $25.00 for tanks up to 4,999 gallons and $40.00 for tanks 5,000 gallons or larger for a Section 79.103 Tank Installation Permit.
(3) There shall be a fee of $15.00 for tanks with an aggregate of 125 to 499 gallons, and $25.00 for tanks 500 gallons or larger for a Section 82.102(a) Tank Installation Permit."

(13) Deleting Section 4.101(18A), (18B), and (18C).
Section 4.101(18A), (18B), (18C) are deleted.

(14) Amending Section 4.101 - (18D), (18E), and (18F).
Section 4.101 - (18D), (18E), (18F) is amended as follows:
"Redesignate (18D to 18A), (18E to 18B), and (18F to 18C)."

(15) Amending Section 4.101 Paragraph 44.
Section 4.101 Paragraph 44 is amended to read:
"44. Tents, air supported structures, and temporary structures.
To erect or operate:
(a) A tent or air supported structure covering an area in excess of 700 square feet unless such structures are used exclusively for camping or private functions not subject to the general public; and
(b) Temporary structures such as booths or similar combustible structures erected or operated for sale of fireworks or Christmas trees."

(16) Amending Section 9.106.
Section 9.106 is amended by adding the definition of "Dormitory" to read:
"DORMITORY means buildings or spaces in buildings where group sleeping accommodations are provided for persons not members of the same family group in one room or a series of closely associated rooms under joint occupancy and single management as in college dormitories,

with or without meals, but without individual cooking facilities."

(17) Amending Section 9.117.

Section 9.117 is amended by amending the definition of "Group M Occupancies" to read:

"GROUP M OCCUPANCIES

Division 1. Private garages, carports, sheds, agricultural buildings, greenhouses, and lath houses used as accessories only when not over 1,000 square feet in area. See Division 3 for larger agricultural buildings.

Division 2. Fences, retaining walls, swimming pools, tanks, and towers.

Division 3. Agricultural buildings and structures more than 1,000 square feet in area, including buildings for storage, livestock and poultry; milking barns; shade and horticultural structures."

(18) Amending Section 9.122.

Section 9.122 is amended by adding the definition of "Temporary structures" to read:

"TEMPORARY STRUCTURES means those buildings such as booths or similar combustible structures that are erected or operated for the sale of fireworks or Christmas trees."

(19) Amending Section 9.124.

Section 9.124 is amended by adding the term and definition "Vessel" to read:

"VESSEL means every description of watercraft, other than seaplane on the water, used or capable of being used as a means of transportation, to include any ship, barge, or other vessel which is permanently moored or aground and is used or occupied for purposes other than navigation."

(20) Amending Section 10.207(1).

Section 10.207(1) is amended to read:

"(1) When required by the fire chief, approved signs or other approved notices shall be provided and maintained for fire apparatus access roads to identify such roads and prohibit the obstruction thereof or both."

(21) Amending Section 10.209.

Section 10.209 is amended to read:

"Sec. 10.209. When access to or within a structure or an area is unduly difficult because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, a key box shall be installed in an accessible location when required by the fire chief. The key box shall be a type approved by the fire chief and shall contain keys to gain necessary access as required by the fire chief."

(22) Amending Section 10.301(a) - Second paragraph.

Section 10.301(a) - Second paragraph is amended to read:

"Portable fire extinguishers shall comply with the standards of NFPA 10 and this code."

(23) Amending Section 10.301(e).

Section 10.301(e) is amended to read:

"(e) All fire alarm systems, fire hydrant systems, fire extinguishing systems (including automatic

sprinklers), Class I, II, III (combination standpipe system) and combined systems, basement inlet pipes, and other fire protection systems and appurtenances thereto shall meet the approval of the fire department as to installation and location and shall be subject to periodic tests as required herein. Plans and specifications shall be submitted to the fire department for review and approval prior to installation."

(24) Amending Section 10.302(a).

Section 10.302(a) is amended to read:

"(a) General. All sprinkler systems, fire hydrant systems, standpipe systems, fire alarm systems, portable fire extinguishers, smoke and heat ventilators, smoke-removal systems, and other fire protection or extinguishing systems or appliances shall be maintained in an operative condition at all times and shall be replaced or repaired where defective. Fire protective or extinguishing systems coverage, spacing, and specifications shall be maintained in accordance with recognized standards at all times. Such systems shall be extended, altered, or augmented as necessary to maintain and continue protection whenever any building so equipped is altered, remodeled, or added to. All additions, repairs, alterations, and servicing shall be in accordance with recognized standards.

EXCEPTIONS: Systems not required by this or any other code need not be extended, altered, nor augmented, but existing systems shall be maintained and tested as specified in Section 10.302(c).

Soda-acid, foam, loaded stream, antifreeze, and water fire extinguishers of the inverting types shall not be recharged or placed in service for fire protection use."

(25) Amending Section 10.302(b).

Section 10.302(b) is amended to read:

"(b) Systems in high-rise buildings. The building owner shall be responsible for assuring that the fire and life safety systems required by sections 1807 and 1907 of the Uniform Building Code shall be maintained in an operable condition at all times. Unless otherwise required by the fire chief, the testing of these systems shall be conducted by qualified persons approved by the fire chief. A written record shall be maintained and be made available to the fire department."

(26) Adding Section 10.302 subsections (c), (d), (e), (f), and (g):

Section 10.302 subsections (c), (d), (e), (f), and (g) are added to read:

"(c) Frequency of tests.

(1) The requirements shall apply to the testing and inspection of Class I, II, and III standpipe systems, provided that, upon completion by the building owner of the acceptance test as required by the Uniform Building Code, the owner

shall thereafter conduct tests and inspections of Class I, II, and III standpipes at least once every five years; and provided further that hoses, fire pumps, and other appurtenances for Class II and III standpipe systems shall be inspected annually.

(2) The building owner shall be responsible for conducting tests and inspections of the fire extinguishing systems other than Class I, II, and III standpipe systems at least once annually, unless otherwise required by other sections of this code.

(3) The above tests and inspections may be required at shorter intervals when an inspection by the fire chief indicates that there is reason to believe that the system or device would fail to operate properly in an emergency.

(d) The test required herein shall be conducted by a person, qualified and licensed by the fire chief to conduct such testing procedure for the particular system or device being tested.

(e) Procedures to be followed in accomplishing the test and inspections required by subsection (c) and procedures to be followed in the issuance, suspension, or revocation for cause of licenses shall be as promulgated by the fire chief in rules adopted pursuant to chapter 91, Hawaii Revised Statutes.

(f) The fire chief shall make, amend, or repeal any such rule as may be required to fully effectuate the provisions of this section.

(g) No persons shall maintain, repair, fill, or refill a portable fire extinguisher unless that person has obtained a license issued by the fire chief in accordance with section 10.302(e) and NFPA 10, authorizing that person to maintain, repair, fill, or refill portable fire extinguishers."

(27) Amending Section 10.306.

Section 10.306 is amended to read:

"Fire Alarm System Requirements.

Sec. 10.306. (a) Group A Occupancy assemblies having a capacity of 300 or more persons shall have an approved electrically supervised manual fire alarm system arranged to alert employees and attendants to an emergency. Approved visual alarm devices such as coded lights shall be used in the audience or seating area in lieu of audible alarm sounding devices except for places of assembly in educational occupancies.

Provisions shall be made for transmitting voice messages by a public address system throughout the assembly area. Reliability of the public address system shall be assured by testing the system prior to allowing occupants into the assembly room. The public address system shall also be provided with an emergency power source.

(b) Group B Occupancies.

(1) Group B division 2, office buildings (over 75 feet in height) having floors used for human occupancy located more than 75 feet above the highest grade shall conform to the special requirements of section 10.306.1 of this code.

(2) Group B division 2, office buildings (under 75 feet in height) having floors used for human occupancy located less than 75 feet above the highest grade level shall have an agreed electrically supervised manual fire alarm system where:

(A) The building is three or more stories in height;

(B) The occupancy is subject to 100 or more occupants above the level of exit discharge; or

(C) The occupancy is subject to 1,000 or more total occupants.

EXCEPTIONS: In buildings protected throughout by an approved automatic sprinkler system that is provided with an approved initiation device that will operate when the flow of water is equal to or greater than that from a single automatic sprinkler; or in buildings protected throughout by an approved automatic fire detection system and alarm initiation system.

(3) Group B division 2, retail and wholesale stores having an aggregate gross area of 3,000 square feet or more, utilizing more than three floor levels, or utilizing a floor below the street floor level for sales purposes, shall have an approved electrically supervised manual fire alarm system.

EXCEPTIONS: In buildings protected throughout by an approved automatic sprinkler system that is provided with an approved initiation device that will operate when the flow of water is equal to or greater than that from a single automatic sprinkler; or buildings protected throughout by an approved automatic fire detection and alarm initiation system.

(4) An annunciator panel shall be provided on the first floor lobby area or other areas designated by the authority having jurisdiction for Group B division 2, office buildings, retail and wholesale stores four stories or more, or when required by the fire chief.

(5) A manual fire alarm box shall be located adjacent to required exit doors and in every elevator lobby.

(c) Group E Occupancies with an occupant capacity of more than 50 persons shall be provided with an approved electrically supervised manual fire alarm system. In

Group E Occupancies which are provided with an automatic fire extinguishing or required detection system, the operation of such system shall automatically activate the school fire alarm system including an alarm mounted on the exterior of the building. Alarm systems shall be tested and logged monthly. Fire exit drills shall be held not less than once each month during which the building shall be completely evacuated. An annunciator panel shall be provided in the office of each school when required by the fire chief.

(d) Group H Occupancies shall have an approved automatic or electrically supervised manual fire alarm system if the aggregate floor area is 10,000 square feet or more, or the total capacity of the building is 100 persons or more, or if 25 persons or more are employed above or below the level of exit discharge. Upon activation, the fire alarm system shall initiate a continuous or pulsating alarm signal on all indicating devices of the affected building until manually reset.

(e) Group I Occupancies. Fire alarm systems shall be provided and installed in accordance with NFPA 101 Life Safety Code, 1985, chapters 12, 13, 14, and 15.

(f) Group R Occupancies.

(1) Buildings housing Group R-1 Occupancies having floor used for human occupancy located more than 75 feet above the highest grade shall conform to the special requirements of section 10.306.1 of this code.

(2) Group R Occupancy apartments, dormitories, and rooming houses three stories or more in height or containing more than 15 apartments and every hotel three stories or more in height or containing 20 or more guest rooms shall install in the common area an approved automatic alarm system or an approved electrically supervised manual fire alarm system designed to warn the occupants of the buildings in the event of fire.

EXCEPTION: An alarm system need not be installed in buildings not over two stores in height when all individual dwelling units and contiguous attic and crawl spaces are separated from each other and from public or common areas by at least one-hour fire-resistive occupancy separations and each individual dwelling unit has an exit direct to a yard or public way. The alarm system shall include provisions for smoke detection and manual operation in interior corridors and automatic detection in storage rooms, laundry rooms, equipment rooms, and similar common areas.

(3) Each dormitory or rooming house, non-fire resistive in construction, more than one story in height with interior exit corridors, interior stairways, or rooms with community-type cooking facilities shall be provided with smoke detectors

designed to warn occupants of the building in the event of a fire.

Required smoke detectors shall receive their primary power from the building wiring when the wiring is serviced from a commercial disconnecting switch other than those required for overcurrent protection.

(4) An annunciator panel shall be provided on the first floor lobby area or other area designated by the authority having jurisdiction, in any new fire alarm installation for buildings four stories or more. A manual fire alarm box shall be located adjacent to required exit doors and in every elevator lobby.

(5) All employees of hotels shall be instructed and drilled in the duties they are to perform in event of fire, panic, or other emergency. Management for every hotel shall conduct fire drills for staff and employees at least once every 180 days covering such points as the operation and maintenance of the available first-aid fire appliances, the testing of guest alerting devices, and a study of instructions for emergency duties. A written record of each drill shall be maintained in the hotel management's office and made available to the fire department for review.

(g) Other requirements for fire alarm systems.

(1) Installation, inspection, and maintenance of the fire alarm system shall be according to the standards set forth in UFC Standard No. 10-2.

(2) A signal system or intercommunicating system shall not be used for any purpose other than fire warning unless it meets the requirements of this code.

(3) Stations for operating any manually operated fire alarm system shall be placed immediately adjacent to the telephone switchboard in the building, if there is a switchboard, and at such other locations as may be required by the chief.

(4) Alarm systems shall be tested periodically in all buildings with fire alarm systems except as required by other provisions of the fire code. Such tests shall include the checking of available first-aid fire appliances and a review of instructions for emergency duties.

(5) Visual alarm devices shall be installed when deemed necessary by the fire chief."

(28) Adding Section 10.306.1.

Section 10.306.1 is added to read:

"Sec. 10.306.1 (a) These special fire alarm requirements shall apply to buildings housing Group B division 2 Occupancies used as offices and to buildings housing R-1 occupancies having floors used for human occupancy located more than 75 feet above the highest

grade. These buildings shall conform to the special requirements of this section and other applicable requirements of this code.

(b) The alarm and communication systems shall be designed and installed so that damages to any terminal unit or speaker will not render more than one zone of the system inoperative. The wiring for these systems shall be carried in approved raceways located within 2-hour fire-resistive shafts. For this purpose only, the stair shafts, including the smoke venting shafts of mechanically ventilated smokeproof enclosures may be utilized to house the risers.

(c) All power, fire alarm and communication systems provided under the requirements of this section shall be transferable to the standby power system.

(d) The following alarm and communications systems shall be provided:

(1) The operation of any sprinkler, water flow device, automatic fire detection device, or manual fire alarm station shall automatically activate a voice alarm system. Activation of the system shall automatically sound an alert signal to the designated areas and an audible and visual signal shall be transmitted to the central control station. The sounding of a fire alarm signal in any given area or floor shall not prohibit voice communication to other areas or floors.

The alert signal shall automatically be followed by a voice alarm which shall provide a pre-determined message on a selective basis to the area where the alarm originated followed by voice instructions giving appropriate information and direction to the occupants.

The alarm shall be designed to be heard clearly by all occupants within the building or designated portions thereof as is required for the public address system.

The central control station shall contain controls for the voice alarm system so that either a selective or general voice alarm may be manually initiated. The system shall be electrically supervised to cause the activation of an audible trouble signal in the central control station upon interruption or failure of the audio path including amplifiers, speaker wiring, switches, and electrical contacts and shall detect opens, shorts, and grounds which might impair the function of the system.

(2) An approved and electrically supervised two-way fire department closed communications system shall be provided for fire department use.

(A) A jack or plug receptacle shall be located at the following locations:

(i) The central alarm and communications panel or the central location approved by the fire department.

(ii) The designated fireman's elevator.

(iii) Each elevator lobby on each floor of the building.

(iv) Stairwell side of each exit into each required stairway.

The height of the jack or plug shall not be more than 5-feet nor less than 3-feet above floor level.

(B) Portable hand sets in compliance with the following provisions shall be provided by the building owner or management for fire department use:

(i) Not less than 10 approved type portable hand sets shall be stored and maintained in the central control station.

(ii) Length of cord for portable hand sets shall be provided as recommended and approved by the fire department.

(iii) Approved portable hand sets shall be maintained in an operative condition at all times and shall be replaced or repaired when found to be defective.

(3) An approved and electrically supervised public address communications system designed to be clearly heard by all occupants of the building shall be provided on a general or selective basis from the central control station to the following terminal areas:

(A) Elevators.
(B) Elevator lobbies.
(C) Corridors.
(D) Exit stairways.
(E) Tenant occupied spaces.
(F) Dwelling units in apartment houses.
(G) Hotel guest rooms or suites.
(H) Public restrooms.

The public address system may be combined with the local alarm system provided the combined system is an approved type. Combination systems shall be designed to permit voice transmissions to override the voice or fire alarm, but shall continue to sound until manually terminated at the central control station. The public address system shall be designed and installed so that damage to any terminal unit or speaker will not render more than one zone of the system inoperative.

(e) A central control station for fire department operations shall be provided near or adjacent to the main entrance to the building or in a location approved by the fire

department. The central control station shall be separated from the remainder of the building by not less than one-hour fire-resistive construction with a minimum superficial floor area of 60 square feet.

It shall contain:

(1) The voice alarm and public address systems panel.

(2) The fire department closed communications panels.

(3) Fire detection and alarm system annunciation panels to include status indication for each floor.

(4) Status indicators for elevators with annunciator visually indicating the location of the elevators and which elevators are operational.

(5) Status indicators and controls for smoke control system if provided.

(6) Controls for unlocking all stairway doors simultaneously when alarm is sounded (when applicable under the Uniform Building Code.)

(7) Water flow detector display panel with status indicators for each floor.

(8) A telephone connected to the public telephone system.

(9) Portable hand sets for fire department use."

(29) Amending Section 10.307(a).

Section 10.307(a) is amended by adding a fourth 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."

(30) Amending Section 10.307(b).

Section 10.307(b) is amended by adding a second paragraph to read:

"Fire department water supply hose connections shall be located on a street front not less than eighteen inches nor more than 4-feet above grade. Appropriate identifications signs shall be provided as required by the fire department."

(31) Amending Section 10.308(a).

Section 10.308(a) is amended to read:

"(a) General. An automatic fire extinguishing system shall be installed in the occupancies and locations as set forth in this section. Where an automatic fire extinguishing system is required, proper types of spare sprinkler heads shall be provided and stored in a cabinet on the premises as follows:

(1) 1 to 300 sprinklers 6-heads
(2) 301 to 1,000 sprinklers 12-heads
(3) Over 1,000 sprinklers 24-heads

In addition, three proper types of sprinkler stoppers and a special sprinkler wrench shall also be provided and kept in the cabinet to be used in the removal and installation of sprinkler heads."

(32) Amending Section 10.308(b)1.

Section 10.308(b)1 is amended by amending the first paragraph to read:

"1. In every story or basement of all buildings when floor area exceeds 1,500 square feet and there is not provided at least 20 square feet or opening entirely above the adjoining ground level in each 50 lineal feet or fraction thereof of exterior wall in the story or basement on at least one side of the building. Each of the required 20 square feet shall have at least one opening with minimum dimensions of 3 feet by 4 feet. The 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.

When openings in a story are provided on only one side and the opposite wall of such story is more than 75 feet from such openings, the story shall be provided with an approved automatic sprinkler system, or openings as specified above shall be provided on at least two sides of an exterior wall of the story.

If any portion of a basement is located more than 75 feet from openings required in this section, the basement shall be provided with an approved automatic sprinkler system."

(33) Amending Section 10.308(b)3.

Section 10.308(b)3 is amended to read:

"3. In rooms where nitrate film is stored or handled, an automatic sprinkler system shall be installed in accordance with NFPA 40."

(34) Amending Section 10.308(c)5.

Section 10.308(c)5 is amended by amending the first paragraph, line three to read:

"wall of stages; over and within permanent platforms in excess of 1,000 square feet in area."

(35) Amending Section 10.311(c).

Section 10.311(c) is amended by amending the third and fourth paragraphs to read:

"There shall be a two-way outlet above the roof line when the roof has a slope of less than 4-inches in 12-inches.

In buildings where more than one standpipe is provided, the standpipe shall be interconnected at the bottom. Control valves shall be provided for each riser with the location subject to the approval of the fire department. The control valves shall be installed not more than 4-feet nor less than 2-feet above floor level and shall be secured in the open position by locking or sealing the valve."

(36) Amending Table No. 10.311.
Table No. 10.311 is amended to read:

"TABLE NO. 10.311 - STANDPIPE REQUIREMENTS

	NONSPRINKLERED (2) BUILDING		SPRINKLERED (3,4) BUILDING	
Occupancy (1)	Standpipe Class	Hose Requirement	Standpipe Class	Hose Requirement
1. Occupancies 4-stores or more in height, except Group R, Div. 3	I and II (or III)	No Yes (5)	I (or III)	No
2. Group A Occupancies with occupant load exceeding 1,000	II	Yes	No Requirement	No
3. Group A, Div. 1 Occupancies over 5,000 square feet used for exhibition.	II	Yes	II	Yes
4. Groups I, H, B, Div. 1, 2 or 3 Occupancies less than 4 stores in height but greater than 20,000 sq. ft. per floor.	II	Yes	No Requirement	No

(1) Class II standpipe need not be provided in assembly areas used solely for worship.
(2) Class II standpipes need not be provided in basements having an automatic fire-extinguishing system throughout such basement.
(3) Combined systems with their related water supplies may be used in sprinklered buildings.
(4) Portions of otherwise sprinklered buildings which are not protected by automatic sprinklers shall have Class II standpipes installed.
(5) Hose is required for Class II outlets."

(37) Amending Section 10.312.
Section 10.312 is amended by amending the first sentence in the first paragraph to read:
"Fire protection equipment and systems shall be installed and maintained in buildings under construction in accordance with Article 87 subject to the amendments therein."

(38) Amending Section 10.314(c).
Section 10.314(c) is amended by amending the first sentence of the second paragraph to read:
"All systems shall comply with the standards of NFPA 96 and this code."

(39) Amending Section 10.402(c).
Section 10.402(c) is amended to read:

"(c) A sign shall be displayed permanently near or on each required fire door in letters not less than 1-inch high to read as follows: 'FIRE DOOR DO NOT OBSTRUCT' or 'FIRE DOOR - KEEP CLOSED'."

(40) Amending Section 11.101(a).

Section 11.101(a) is amended to read:

"(a) For information on open fires, private incineration, and agricultural fires, refer to section 11.117."

(41) Deleting Section 11.107.

Section 11.107 is deleted.

(42) Adding Section 11.117.

Section 11.117 is added to read:

"Control Of Open Burning.

Sec. 11.117. (a) The following kinds of open fires are not subject to state air pollution laws. Control of these fires shall be established by each county.

(1) Fires for cooking of food;

(2) Fires for recreational, decorative, or ceremonial purposes;

(3) Fires to abate a fire hazard;

(4) Fires for prevention or control of disease or pests;

(5) Fires for training of fire fighting personnel

(6) Fires for disposal of dangerous materials; and

(7) Fires for residential bathing purposes.

(b) Except for closed incinerators approved by the state health department, private incineration is prohibited by state health laws. Clearance by the state health department for and notification of all agricultural fires either by telephone or written notice shall be on file with the fire prevention bureau and area fire stations before these fires are permitted."

(43) Deleting Section 11.203(a).

Section 11.203(a) is deleted.

(44) Amending Section 11.203(b) and (c).

Section 11.203(b) and (c) are amended to read:

"Redesignating subsection (b) as (a) and subsection (c) as (b)."

(45) Amending Section 11.204.

Section 11.204 is amended to read:

"Sec. 11.204. Cotton batting, either natural, artificial, or manufactured, straw, dry vines, leaves, trees, or other highly flammable materials shall not be used for decorative purposes in show windows or other parts of commercial, industrial, educational, or institutional occupancies unless made flame retardant, provided, that nothing in this section shall be held to prohibit the display of saleable goods permitted and offered for sale. Electric light bulbs in these occupancies shall not be decorated with paper or other

combustible materials unless the materials shall first have been rendered flame retardant.

As evidence or flame-retardant quality, the fire chief may accept or require certification by a recognized testing laboratory that the material has been subjected to appropriate treatment and test and has met the performance requirements specified in NFPA No. 701 Flame Resistant, Test for Textiles and Films. A record of the certificate of flame retardant treatment shall be maintained and made available for inspection upon request by the fire department."

(46) Deleting Section 11.208.

Section 11.208 is deleted.

(47) Amending Section 12.103(c).

Section 12.103(c) is amended by adding a third paragraph to read:

"In wholesale and retail stores, at least one-half of the required exits shall be so located as to be reached without going through check-out stands. In no case shall check-out stands or associated railings or barriers obstruct exits or required aisle or approaches thereto. At least one aisle of five feet minimum width leading directly to an exit shall be provided for check-out stands."

(48) Amending Section 12.105(e).

Section 12.105(e) is amended by adding an exception to read:

"EXCEPTION: Foyers, lobbies, or reception areas which are constructed as required for corridors may have dead-ends exceeding 20-feet, provided that the ratio of length of dead end to width does not exceed 2:1."

(49) Amending Section 12.106(e).

Section 12.106(e) is amended to read:

"(e) An approved sign shall be located at each floor level landing in all exit stairways of buildings four or more stories in height. The sign shall indicate the floor level and shall be so located approximately five feet above the floor landing in a position which is readily visible when the door is in the open or closed position. Lettering shall be at least 5-inches high with 3/4-inch stroke for floor level numbering. See Appendix I-B."

(50) Amending Section 12.113(b).

Section 12.113(b) is amended to read:

(1) The power supply for exit illumination shall be provided by two separate branch circuits of the normal premises wiring system, unless an emergency system is installed, for the following occupancies:

(A) Group A, divisions 2, 2.1, 3, and 4, E and B occupancies with an occupant load over 100 persons.

(B) Groups H, and R, division 1, occupancies with an occupant load over 100 persons.

(C) Group I occupancies with an occupant load over 50 persons.

One of the required circuits shall supply only fixtures sued for exit illumination or exit signs. The other circuit may supply current to other outlets.

In Group A Occupancies exit illumination in portions of buildings other than the stage shall be on a separate circuit from that of the stage. Such exit illumination shall be controlled from the box office or other approved central control center located in a portion of the building other than the stage.

(2) The power supply for exit illumination shall normally be provided by the premises wiring system. In the event of its failure, illumination shall be automatically provided from an emergency system for the following occupancies:

(A) Groups A, division 1, occupancies.

(B) Group A, division 2, and 2.1 occupancies with an occupant load over 500 persons.

(C) Group B occupancies with an occupant load over 300 persons.

(D) Group I occupancies with an occupant load over 100 persons.

(E) Group R-1 occupancies with more than 500 hotel guest rooms or 300 apartment units.

For high-rise buildings, and smokeproof enclosures, refer to the Uniform Building Code.

Emergency systems shall be supplied from storage batteries or an on-site generator set and the system shall be installed in accordance with the requirements of the electrical code."

(51) Adding Section 12.201.

Section 12.201 is added to read:

"Sec. 12.201. (a) At all elevator locations on each floor level above and below the floor of exit discharge, there shall be displayed in a conspicuous location, a sign reading: 'IN CASE OF FIRE USE EXIT STAIRWAYS. DO NOT USE ELEVATORS.' Lettering shall be not less than 5/8-inch high.

EXCEPTION: Signs at least 2-3/4-inches x 2-1/4-inches in overall size with legible wording and approved by the fire chief may be used as an alternate and shall be affixed at each elevator call button assembly.

(b) Elevator service companies shall have their name and telephone number in the elevator key box."

(52) Amending Section 13.103.

Section 13.103 is amended to read:

"Sec. 13.103. The size, color, and location of legally required no smoking signs shall be subject to the approval of the fire chief. Lettering shall be at least 4-inches high with 1/2-inch wide stroke."

(53) Deleting Section 24.102.

Section 24.102 is deleted.

(54) Amending Section 25.101.

Section 25.101 is amended to read:

"Sec. 25.101. No place of assembly, such as restaurants, nightclubs, dancing and drinking establishments, with load capacities of 300 or more persons shall be maintained, operated, or used as such without a permit. The fire permit shall be posted in a conspicuous place."

(55) Amending Section 25.103:

Section 25.103 is amended by adding subsection (c) to read:

"(c) As evidence of flame-retardant quality, the fire chief may accept or require certification by a recognized testing laboratory that the material has been subjected to appropriate treatment and testing and has met the performance requirements specified in NFPA No. 701 Flame Resistant, Test for Textiles and Films. A record of the certificate of flame retardant treatment shall be maintained and made available for inspection upon request by the fire department."

(56) Amending Section 25.107(d).

Section 25.107(d) is amended by amending the first paragraph to read:

"(d) Aisle spacing, with standard seating, shall be so located that there will be not more than six intervening seats between any seat and the nearest aisle.

EXCEPTION: There may be seven intervening seats between any seat and the nearest aisle if self-rising seats are installed."

(57) Amending Section 25.108.

Section 25.108 is amended by adding subsection (e) to read:

"(e) Distances between tables in restaurants, nightclubs, and drinking establishments shall be not less than 54-inches where seats are back to back."

(58) Amending Section 25.112.

Section 25.112 is amended to read:

"Sec. 25.112(a). When requested by the fire chief, a floor plan indicating the seating arrangements, location, and width of exit ways and aisles shall be submitted to the fire chief for approval for places of assembly with an occupant load of 300 or more persons. An approved copy of the plans shall be kept on display on the premises.

An approved exit plan shall also be posted in a conspicuous location near the main entrance and it shall be maintained in a legible condition by the owner or authorized agent.

(b) Management shall be responsible for the inspection before each show or event of all required means of egress from each part of the building, including stairways, egress doors and any panic hardware installed thereon, aisles, and corridors. Passageways and similar elements of the means of egress shall be available for immediate use and free of all obstructions before each show or event. Management shall inform all patrons of all required exit locations before each show or event

in places of assembly with an occupant load of 300 or more persons."

(59) Amending Section 25.114(b).

Section 25.114(b) is amended to read:

"(b) The number of persons in any building or portion thereof shall not exceed the amount determined by the building official."

(60) Amending Section 25.115.

Section 25.115 is amended to read:

"Use Of Candles And Open Flame Devices.

Sec. 25.115(a) Open-flame devices may be used on stages or platforms, provided adequate precautions satisfactory to the fire chief are taken to prevent ignition of combustible materials. So-called 'flaming sword' or other like equipment shall not be used except in sprinklered areas. This shall be construed to mean that stages, platforms, dressing, and storage rooms or areas used as places for the performance of 'flaming sword' or other dance performances using fire or flame, shall be sprinklered.

(b) Portable cooking equipment, not flue-connected, shall be permitted only as follows: Equipment fueled by small heat sources which can be readily extinguished by water, such as candles or alcohol-burning equipment (including 'solid alcohol'), may be used provided adequate precautions satisfactory to the fire chief are taken to prevent ignition of any combustible materials.

(c) No person shall use or allow to be used any open flame device or burning candle or candles in any building or place in such a manner as to create a fire hazard."

(61) Deleting Section 25.116.

Section 25.116 is deleted.

(62) Deleting Section 26.102.

Section 26.102 is deleted.

(63) Deleting Section 27.102.

Section 27.102 is deleted.

(64) Deleting Section 28.102.

Section 28.102 is deleted.

(65) Deleting Section 29.102.

Section 29.102 is deleted.

(66) Deleting Section 30.101.

Section 30.101 is deleted.

(67) Deleting Section 31.102.

Section 31.102 is deleted.

(68) Amending Section 31.106.

Section 31.106 is amended to read:

"Sec. 31.106(a) Rooms for the use and storage of rubber cement and other flammable or combustible liquids shall conform to the requirements of Article 79, Division II.

(b) Storage of rubber tires shall conform to NFPA Standard 321-D."

(69) Amending Section 32.101.
Section 32.101 is amended to read:
"Sec. 32.101. Permits are required to erect or operate a tent or air supported structure covering an area in excess of 700 square feet and for temporary structures (booths) erected or operated for the sale of fireworks or Christmas trees."

(70) Amending Section 32.102.
Section 32.102 is amended to read:
"Sec. 32.102. For the purpose of this article, a place of assemblage shall include any circus, sideshow, carnival, bazaar, tent show, or tent sale, theater, skating rink, dance hall, or any other public exhibition, production, engagement, or offering, or other place of assemblage in or under which 100 or more persons may gather for the above specified purposes."

(71) Amending Section 32.104(a).
Section 32.104(a) is amended to read:
"(a) Tents, air supported structures or temporary structures shall be located not less than 10 feet from any property or permanent structures except where the property line is a street or alley."

(72) Amending Section 32.105.
Section 32.105 is amended by amending the first paragraph to read:
"Tent, air supported structures, and temporary structures and their appurtenances shall be adequately roped, braced, and anchored to withstand the elements of the weather against collapsing. Evidence of structural stability shall be furnished to the fire chief upon request."

(73) Amending Section 32.109.
Section 32.109 is amended by amending the first paragraph to read:
"Fire extinguishers and other fire protection equipment shall be provided in every tent, air supported structure and temporary structure as follows:"

(74) Deleting Section 33.102.
Section 33.102 is deleted.

(75) Deleting Section 34.102.
Section 34.102 is deleted.

(76) Amending Section 34.104.
Section 34.104 is amended to read:
"Sec. 34.104. The burning of wrecked or discarded motor vehicles or of junk, or of any waste materials shall be done only in such locations and in such manner as approved by the agency having jurisdiction."

(77) Deleting Section 35.102.
Section 35.102 is deleted.

(78) Deleting Section 36.102.
Section 36.102 is deleted.

(79) Deleting Section 46.102.
Section 46.102 is deleted.

(80) Deleting Sections 47.101 to 47.112.
Sections 47.101 to 47.112 (Article 47) are deleted.
(81) Deleting Section 48.102.
Section 48.102 is deleted.
(82) Deleting Section 49.101(c).
Section 49.101(c) is deleted.
(83) Deleting Section 50.103.
Section 50.103 is deleted.
(84) Deleting Section 51.103.
Section 51.103 is deleted.
(85) Deleting Section 62.102.
Section 62.102 is deleted.
(86) Deleting Section 63.103.
Section 63.103 is deleted.
(87) Deleting Section 74.103.
Section 74.103 is deleted.
(88) Deleting Section 75.103.
Section 75.103 is deleted.
(89) Adding Section 75.603.
Section 75.603 is added to read:

"Sec. 75.603. Tank vehicles transporting cryogenic fluids shall not be left unattended on any residential street; nor in or within 500 feet of any residential area, apartment or hotel complex, educational, hospital or care facility at any time; or at any other place or location that would, in the opinion of the fire chief, present an extreme life hazard.

EXCEPTION: When unattendance is necessary in connection with unloading the vehicle or servicing tanks; or when in case of accident or other emergency, the operator must leave the vehicle to obtain assistance."

(90) Deleting Section 76.102.
Section 76.102 is deleted.
(91) Deleting Sections 77.101 to 77.410.
Sections 77.101 to 77.410 (Article 77) are deleted.
(92) Amending Section 78.101.
Section 78.101 is amended by adding a second paragraph to read:

"This article shall not conflict with any rule established pursuant to state law, or county ordinance that applies to the manufacture, possession, storage, sale, transportation, and use of fireworks."

(93) Amending Section 78.102(c).
Section 78.102(c) is amended by amending the first sentence to read:

"Applications for permits shall be made in writing in advance of the date of the display as prescribed by county ordinance."

(94) Amending Section 78.102.
Section 78.102 is amended by adding subsection (d) to read:

"(d) The use of fireworks for public display shall be in accordance with NFPA Pamphlet 1123."

(95) Adding Section 78.107.
Section 78.107 is added to read:
"Sec. 78.107(a). Fireworks shall be stored and sold in compliance with the following:
(1) A maximum of 500 pounds must be isolated from combustible materials and sources of heat or ignition.
(2) Quantities in excess of 500 pounds shall be stored in a room of one-hour fire-resistive construction or a room equipped with an automatic sprinkler system. Such rooms shall be entirely separated from other sections within the building.
(b) Wholesalers and retailers of fireworks shall comply with the licensing provisions required by county and state rules."

(96) Amending Section 79.103.
Section 79.103 is amended to read:
"Sec. 79.103. For permits to store or use flammable or combustible liquids, see section 4.101. The required permit application shall be submitted prior to the commencement of any work."

(97) Amending Section 79.201(e)1.
Section 79.201(e)1 is amended to read:
"1. In assembly buildings, hotels, apartment houses, one and two family dwellings, and lodging houses, storage is prohibited.
EXCEPTIONS:
(A) Quantities not exceeding 10 gallons for maintenance purposes and operation of equipment when stored in approved containers and located in a private garage or approved locations.
(B) Except for one and two family dwellings storage in excess of 10 gallons that is used for maintenance purposes and operation of equipment when stored in cabinets which comply with section 79.201(g).
(C) A maximum aggregate of 25 gallons of Class II and Class III-A liquids may be stored outside the one and two family dwelling unit in approved containers and located in storerooms of attached or detached garages or accessory buildings."

(98) Deleting Section 79.205(c).
Section 79.205(c) is deleted.

(99) Amending Section 79.601(a).
Section 79.601(a) is amended to read:
"(a) A flammable or combustible liquid storage tank may be located underground, outside of, or under a building if such installation meets the requirements of this section. The tank shall be so located with respect to existing foundations and supports that the loads carried by the latter cannot be transmitted to the tank. The distance from any part of a tank storing liquids to the nearest wall of any basement, pit, cellar, or property

line shall be not less than 3 feet. A minimum distance of 18-inches, shell-to-shell shall be maintained between underground tanks."

(100) Amending Section 79.601(b).

Section 79.601(b) is amended by amending the fourth paragraph to read:

"Nonmetallic underground tanks shall be installed in accordance with manufacturer's instruction and any other conditions specified by the fire chief. The minimum depth of cover shall be as specified in this subsection."

(101) Deleting Section 79.902(g).

Section 79.902(g) is deleted.

(102) Amending Section 79.902(h).

Section 79.102(h) is amended by redesignating subsection (h) as (g).

(103) Amending Section 79.903(a).

Section 79.903(a) is amended by adding an exception to the second paragraph to read:

"EXCEPTION: Dispensing nozzles for self-service gasoline dispensers shall be of the listed automatic-closing type without a latch-open device."

(104) Amending Section 79.903(a).

Section 79.903(a) is amended by adding a fourth paragraph to read:

"Product delivery hoses shall be equipped with a listed emergency breakaway device designed to retain liquid on both sides of the breakaway point. Such devices shall be installed and maintained in accordance with the manufacturer's instructions."

(105) Amending Section 79.903(b).

Section 79.903(b) is amended by amending the first paragraph to read:

"The dispensing of Class I, Class II, and Class III-A liquids into the fuel tank of a vehicle or into a container shall at all times be under the supervision of a qualified attendant. A qualified and properly trained attendant shall mean a person who meets the following criteria.

(1) Has satisfactorily completed a course of instruction in the use of portable fire extinguishing equipment.

(2) Has been instructed in emergency procedures dealing with gasoline spills and dispenser electrical power shut-off.

(3) Is able-bodied to perform emergency duties and capable of readily circulating about the premises when the need arises.

(4) Possess a valid motor vehicle operator's license.

Owners or their representatives shall be responsible to see that each attendant in their employ meets the above criteria.

EXCEPTION: Supervision by a qualified attendant is not required for a service station which is not open to

the public, provided that the owner of such station is accountable for the safe operation of the station and the training of users thereof. Such stations may include card or key-operated dispensers."

(106) Amending Section 79.903(b).

Section 79.903(b) is amended by adding a third paragraph to read:

"Dispensing of gasoline into approved portable containers shall be prohibited from self-service gasoline dispensers except by a qualified attendant."

(107) Amending Section 79.903(f)6.

Section 79.903(f)6 is amended to read:

"6. A public address system shall be provided and approved by the fire chief to permit the attendant to communicate with persons in the dispensing area at all times."

(108) Amending Section 79.908.

Section 79.908 is amended to read:

"Sec. 79.908. A fire extinguisher with a minimum classification of 2A, 20B:C shall be provided and so located that it will be not more than 50 feet from any pump, dispenser, or fill-pipe opening."

(109) Deleting Sections 79.1101 to 79.1112.

Sections 79.1101 to 79.1112 (Division XI) are deleted.

(110) Deleting Section 79.1201.

Section 79.1201 is deleted.

(111) Deleting Section 79.1202.

Section 79.1202 is deleted.

(112) Amending Section 79.1410.

Section 79.1410 is amended by amending the first paragraph to read:

"1. Suitable portable fire extinguishers with a rating of not less than 2A, 20B:C shall be located within 50 feet of those portions of the facility where fires are likely to occur, such as hose connections, pumps, and separator tanks."

(113) Deleting Section 79.1701.

Section 79.1701 is deleted.

(114) Deleting Section 79.1803.

Section 79.1803 is deleted.

(115) Deleting Section 80.102.

Section 80.102 is deleted.

(116) Deleting Section 81.103.

Section 81.103 is deleted.

(117) Amending Section 81.106.

Section 81.106 is amended to read:

"Sec. 81.106. The design and installation of automatic fire extinguishing systems shall conform to requirements in the building code and the standards of NFPA 13."

(118) Amending Section 82.102(a).

Section 82.102(a) is amended to read:

"(a) No person shall install or maintain any LP gas container without a permit. Where a single container or

the aggregate of interconnected containers is 125 gallons or more, the installer shall submit plans to the fire chief. A permit shall not be required for the installation or maintenance of portable containers of less than an aggregate of 125 gallons water capacity."

(119) Amending Section 82.105(d).

Section 82.105(d) is amended to read:

"(d) Containers shall be located with respect to buildings or line of adjoining property which may be built upon in accordance with the standards of NFPA 58."

(120) Deleting Section 83.101.

Section 83.101 is deleted.

(121) Amending Section 84.102(c).

Section 84.102(c) is amended to read:

"(c) There shall be installed and maintained ready for use in every projection room one approved fire extinguisher with at least a 2A, 20B:C rating."

(122) Adopting Appendix I-C.

Appendix I-C entitled Stairway Identification is adopted.

(123) Amending Appendix III-A.

Appendix III-A entitled Testing Fire-Extinguishing Systems is amended as follows:

"(iii) Flow Test. Flow 500 gpm of water through the standpipe system to the roof outlet upon completion of installation. A separate flow test shall be conducted through each inlet. Install a test gauge at the inlet being used to measure the inlet pressure. The maximum allowable pressure lost within the system due to friction shall be 15 psi. Friction loss shall be determined by subtracting the static pressure (head) and outlet pressure from the inlet pressure while 500 gpm is flowing. For all other subsequent testing required under section 10.302(c), flow 250 gpm of water through the standpipe system to the roof outlet."

(124) Amending Section 103.1.4.

Section 103.1.4 is amended to read:

"Sec. 103.1.4 Appeals. See Kauai County Charter, Article 12."

(125) Amending Section 103.4.1.2.

Section 103.4.1.2 is amended by deleting the last three sentences of the first paragraph of this section and substituting in their place:

"When the fire chief deems any chimney, smokestack, stove, oven, incinerator, furnace or other heating device, electric fixture or any appurtenance thereto, or anything regulated under a nationally recognized standard in or upon any building, structure or premises not specifically mentioned in this Fire Code, to be defective or unsafe so as to create a hazard, the fire chief is authorized to serve upon the owner or the person having control of the property a written notice to repair or alter as necessary the defective, unsafe, or hazardous condition and shall notify any other authority responsible for enforcing codes regulating such fixtures, equipment and appurtenances."

(126) Amending Section 103.4.3.

Section 103.4.3 is amended by amending the title of this section to read:

"Sec. 103.4.3 Compliance with orders and notices."

(127) Section 103.4.3.2 is deleted in its entirety.

(128) Section 103.4.3.3 is deleted in its entirety.

(129) Amending Section 103.4.4.

Section 103.4.4 is amended to read:

"Sec. 103.4.4 Citations. Any person violating any of the provisions of the Fire Code shall be deemed guilty of a misdemeanor and each such person shall be deemed guilty of a separate offense for each and every day or portion thereof during which any violation of any provisions of the Fire Code is committed, continued, or permitted, and upon conviction of any such violation, such person shall be punished by a fine of not more than $1,000.00 or by imprisonment for not more than one year, or by both such fine and imprisonment."

(130) Amending Section 105.3.

Section 105.3 is amended to read:

"Sec. 105.3 Application for Permit and Licenses. Application for permits and licenses shall be made to the fire prevention bureau in such form and detail as prescribed in section 105.8. Where required, certain applications for permits shall be accompanied by plans."

(131) Amending Section 105.8.

Section 105.8 is amended to read:

"Sec. 105.8 Permits, Licenses, and Fees. A permit or license shall be obtained from the fire prevention bureau, or other agency designated by the fire chief, prior to engaging in the following activities, practices, or functions:

(1) Places of assembly. The operation of a place of assembly requires an annual permit. The annual permit fee is $50.00. For permit requirements see section 2501.3.

(2) Tents and canopies. Permit fee: $30.00. For permit requirements see section 3203.

(3) Application of Flammable Finishes. Annual permit fee: $50.00. For permit requirements see section 4501.3.

(4) Flammable and combustible liquid tank installation.Permit fee: $50.00 for tank capacities of 61 to 4,999 gallons. $80.00 for tank capacities of 5,000 or more. For permit requirements see section 7901.3.

(5) Liquefied petroleum gas container (tank) installation. Permit fee: $50.00 for a single container or the aggregate of interconnected containers of 125-gallons water capacity or more. For permit requirements see section 8202.1.

(6) Fireworks permits, as authorized by chapter 132D, Haw. Rev. Stat., as amended, shall be required as follows:

(a) Individual purchase of non-aerial common fireworks for the following designated holidays- New Year's Eve, Chinese New Year, and the Fourth of July. Permit fee: $25.00.

(b) Individual purchase of non-aerial common fireworks for cultural purposes, events, and special occasions, at times other than designated holidays. Permit fee: $25.00.

(c) Use or purchase of aerial common fireworks, special fireworks, or both, for public displays or exhibition. Permit fee: $110.00.

(d) To import, store, offer to sell, or sell at wholesale or retail aerial common fireworks, special fireworks, or non-aerial common fireworks, unless the person has a valid license under chapter 132D, Haw. Rev. Stat., as amended. License fees shall be as follows:

(i) Importation. Annual license fee: $3,000.00.

(ii) Wholesale. Annual license fee: $2,000.00.

(iii) Storage. Annual license fee: $1,000.00.

(iv) Retail. Annual license fee: $500.00."

(132) Amending Section 903.4.2.

Section 903.4.2 is amended by adding a third paragraph to read:

"Acceptance testing of private fire hydrants shall be in accordance with County Department of Water requirements. Records of the acceptance test shall be submitted by the applicant to the fire chief within seven (7) calendar days of the test."

(133) Amending Section 1001.4.

Section 1001.4 is amended by amending the third paragraph of this section and by adding a fourth and fifth paragraph to read:

"The satisfactory passage of a final approval of installation test, in accordance with nationally recognized standards and the manufacturer's instructions, shall be a prior condition of final acceptance for halon and clean agent systems. The fire chief may witness such tests.

Upon completion of the installation of a non-water based fire extinguishing system, a satisfactory final approval of installation test of the system shall be made in accordance with nationally-recognized standards and the manufacturer's instructions. Non-water based systems include, but are not limited to, dry chemical and carbon dioxide extinguishing systems. The fire chief may witness such tests.

The fire chief shall be notified in writing by the company conducting the test no less than four (4) business working days prior to the date of the test. The fire chief shall be informed of the name of the business being

tested, the date on and time at which the testing will occur, and the company and individual conducting the test."

(134) Amending Section 1001.5.2.

Section 1001.5.2 is amended by adding a fifth, sixth, and seventh paragraph to read:

"The following licenses to conduct inspections, testing, and maintenance shall be issued by the fire chief and, unless revoked by the fire chief, shall be valid for three years from the date that any such licenses are issued: 1) Automatic Fire Extinguishing Systems; 2) Class I; 3) Class II; 4) Class III; 5) Combined Systems; and 6) Portable Fire Extinguishers.

Personnel conducting the inspection, testing, and maintenance shall be qualified and experienced in inspecting, testing and maintenance for the specific type of system prior to conducting inspections, testing, and maintenance for the specific type of system.

In conducting tests and inspections required by section 1001.5.2, appropriate NFPA standards as well as administrative rules adopted by the fire chief pursuant to chapter 91, Haw. Rev. Stat., as amended, shall be followed. In issuing, suspending, or revoking for cause licenses issued under section 1001.5.2, the fire chief shall follow procedures established by rules adopted pursuant to chapter 91, Haw. Rev. Stat., as amended."

(135) Amending Section 1002.1.

Section 1002.1 is amended by adding a third paragraph to read:

"The rating of the portable fire extinguisher shall be not less than 2A:40B:C."

(136) Amending Section 1003.3.1.

Section 1003.3.1 is amended to read:

"Sec. 1003.3.1 Where Required. Valve monitoring and water-flow alarm and trouble signals shall be distinctly different and shall be automatically transmitted to an approved central station, remote station or proprietary monitoring station as defined by UFC Standard 10-2. Alternatively, when approved by the Building Division of the County's Department of Public Works with the concurrence of the fire chief, valve monitoring and water-flow alarm and trouble signals shall sound an audible signal at a constantly-attended location. Valve monitoring, water-flow, and trouble signals shall be monitored on the island of Kauai, provided that underground key or hub valves in roadway boxes provided by the municipality or public utility need not be monitored."

(137) Amending Section 1006.2.2.1.

A new section 1006.2.2.1 is added and shall read:

"Sec. 1006.2.2.1 Deep Fat Fryers. All deep fat fryers shall be installed with at least a 16 inch (406.4 mm) space between the fryer and surface flames from adjacent cooking equipment."

(138) Amending Section 1006.2.2.2.

A new section 1006.2.2.2 is added and shall read:

"Sec. 1006.2.2.2 Air Acceptance Test. Prior to the commencement of initial cooking operations, a satisfactory air acceptance test of the system shall be made in accordance with the manufacturer's instructions. The fire chief may witness such tests."

(139) Amending Section 1007.2.2.1.

Exception number one of section 1007.2.2.1 is amended to read:

"**EXCEPTION #1**: Manual fire alarm boxes are not required for fire alarm systems in buildings protected throughout by an approved automatic sprinkler system that is equipped with an approved initiation device that will operate when the flow of water is equal to or greater than that from a single automatic sprinkler."

(140) Amending Section 1007.2.9.1.1.

The first paragraph of section 1007.2.9.1.1 is amended to read:

"Sec. 1007.2.9.1.1 General. Group R Occupancies shall be provided with fire alarm systems in accordance with section 1007.2.9. Group R, Division 1 Occupancies shall be provided with a manual and automatic fire alarm system in apartment houses three or more stories in height or containing seventeen (17) or more dwelling units, in hotels three or more stories in height or containing twenty (20) or more guest rooms, and in congregate residences three (3) or more stories in height or having an occupant load of fifty (50) or more. See also section 1007.2.12."

(141) Amending Section 1007.2.12.2.2.

Section 1007.2.12.2.2 is amended by adding both an Item 5 and adding a new paragraph at the end thereof to read:

"5. In every storage room, laundry room, furnace room and similar common areas in Group R, Division 1 Occupancies.

Smoke detection systems conforming to the provisions of Chapter 4 of NFPA standard 90A will be accepted in lieu of items 2 and 3 above."

(142) Adding Section 1007.3.3.5.1.

A new Section 1007.3.3.5.1 is added to read:

"Sec. 1007.3.3.5.1 Trouble signals. Trouble signals shall be located in areas where they are likely to be heard. The location of trouble signals shall be subject to the fire chief's approval."

(143) Amending Section 1102.3.1.

Section 1102.3.1 is amended by adding a new section to read:

"Sec. 1102.3.1 General. Open burning not subject to state air pollution laws under chapter 342B, Haw. Rev. Stat., as amended, shall be conducted in accordance with the 1997 edition of the Uniform Fire Code and the following requirements:

(1) Fires for cooking of food: Persons shall notify the Fire Department's Fire Communication Center (Kauai Police Department non-emergency, incident reporting number, currently 241-6711 or 241-1711) (hereafter "FCC") and the nearest County fire station ten (10) minutes prior to lighting the fire.

(2) Fires for recreational, decorative, or ceremonial purposes: Persons shall obtain written permission from the owner of the property on which the fires for recreational, decorative, or ceremonial purposes will occur. Persons shall also submit a letter requesting the fire chief's approval to ignite such fires fourteen (14) calendar days before the burn. The letter to the fire chief shall describe the date, time, and location where the fire will occur. If the chief approves the request, the person shall notify the FCC and the nearest County fire station ten (10) minutes prior to lighting the fire.

(3) Fires to abate a fire hazard. Persons shall notify the FCC and the nearest County fire station prior to igniting the fire. Persons shall also have sufficient resources immediately on hand to control the fire. Persons shall also monitor the fire's behavior and weather conditions to ensure no hazardous creations exist or are created.

(4) Fires for the prevention or control of disease or pests. Persons shall obtain approval from the Director of the state Department of Health prior to igniting any such fires. Persons shall also notify the FCC and the nearest County fire station ten (10) minutes before lighting the fire. Persons shall also have sufficient resources immediately on hand to control the fire.

(5) Fires for the training of fire-fighting personnel: Persons shall notify the FCC ten (10) minutes prior to lighting the fire. Persons shall also have sufficient resources immediately on hand to control the fire. Persons shall also monitor the fire's behavior and weather conditions to ensure no hazardous creations exist or are created.

(6) Fires for the disposal of dangerous materials: Persons shall obtain approval from the Director of the state Department of Health prior to igniting the fire. Persons shall also notify the FCC ten (10) minutes prior to lighting the fire. Persons shall also have sufficient resources immediately on hand to control the fire. Persons shall also monitor the fire's behavior and weather conditions to ensure no hazardous creations exist or are created.

(7) Fires for residential bathing purposes: Persons shall notify the FCC and the nearest County fire station ten (10) minutes prior to lighting the fire.

The person or persons owning, operating, or managing the property, premises, business establishment, or industry upon which the fires described in this section 1102.3.1 occur, shall be responsible for such fires and shall be responsible for ensuring that all requirements of this section have been complied with."

(144) Amending Section 2501.3.

Section 2501.3 is amended to read:

"Sec. 2501.3 Permits and Plans. A permit is required for places of assembly with an occupant load capacity of three hundred (300) or more persons, such as restaurants, nightclubs, dancing, and drinking establishments. The permit shall be posted in a conspicuous location on the premises.

Additionally, the permit applicant shall submit to the fire chief, concurrently with the permit application, two (2) copies of the floor plan of the establishment indicating the gross square footage, seating arrangements (if more than one seating configuration is used by the establishment), occupancy load, aisle widths, exits and access ways to exits, and other fire code requirements according to Article 25. See also amended section 105.8."

(145) Amending Section 3203.

Section 3203 is amended to read:

"Sec. 3203 Permits and Plans. A permit is required to erect or operate a tent or canopy having an area in excess of 2,100 square feet. Permit applications shall conform to the Fire Code requirements of Article 32.

Additionally, the permit applicant shall submit to the fire chief, concurrently with the permit application, two (2) copies of the plot plan of the property, indicating distances to property lines, buildings, other tents and canopies, parked vehicles, and internal combustion engines. See also amended section 105.8."

(146) Amending Section 4501.3.

Section 4501.3 is amended to read:

"Sec. 4501.3 Permits and Plans. A permit is required for spraying or dipping operations using flammable or combustible liquids, or the application of combustible powders regulated by Article 45.

Additionally, the permit applicant shall submit to the fire chief, concurrently with the permit application, two (2) copies of the plan for spraying or dipping installation with distances from stored flammable and combustible liquids. The plan shall indicate the location of exits closest to the spraying or dipping area, an approved fixed extinguishing system installed in the permitted area, and shall address other Fire Code requirements of Article 45. See also amended section 105.8."

(147) Amending Section 5201.5.3.

Section 5201.5.3 is amended by adding a second paragraph to read:

"The second sign shall be in red letters on a white background. The letters shall be at least 2 inches high with a ¼ inch stroke."

(148) Amending Section 5201.6.3.

Section 5201.6.3 is amended by amending the first paragraph to read:

"Sec. 5201.6.3 Unsupervised Dispensing. Unsupervised dispensing shall be allowed when the owner or operator provides, and is accountable for, daily site visits, regular equipment inspection and maintenance, conspicuously-posted instructions for the safe operation of dispensing equipment, and posted telephone numbers of the owner or operator. In addition to the signs required by section 5201.8, a sign shall be posted in a conspicuous area that reads:

IN CASE OF SPILL OR RELEASE

1. Use emergency pump shutoff!
2. Report the accident!
   Fire Department Telephone No.
   This facility's address

The sign shall be in red letters on a white background. The letters shall be at least 1 inch high, with a stroke of 3/16 inches. During hours of operation, stations allowing unsupervised dispensing shall provide a fire alarm transmitting device. A telephone not requiring payment in order to be operable shall be an acceptable transmitting device."

(149) Amending Section 5201.8.

Section 5201.8 is amended by adding a second paragraph to read:

"One sign shall be in red letters on a white background. The letters shall be at least 4 inches high with a ½ inch stroke. The sign shall read:

NO SMOKING, STOP MOTOR

The second sign shall be in red letters on a white background. The letters shall be at least 1 inch high with a ½ inch stroke. The sign shall read:

"DISPENSING INTO UNAPPROVED CONTAINERS IS PROHIBITED"

(150) Amending Section 7801.3.

Section 7801.3 of the 1999 UFC Supplement is amended to read:

"Sec. 7801.3 Permits and Licenses."

(151) Amending Section 7801.3.1.

Section 7801.3.1 of the 1999 UFC Supplement is amended to read:

"Sec. 7801.3.1 Fireworks. See amended section 105.8."

(152) Amending Section 7801.3.1.1.

Section 7801.3.1.1 of the 1999 UFC Supplement is amended to read:

"Sec. 7801.3.1.1 Importation. A license is required to import fireworks 1.3G and 1.4G in any quantity. See also amended section 105.8."

(153) Amending Section 7801.3.1.2.

Section 7801.3.1.2 of the 1999 UFC Supplement is amended to read:

"Sec. 7801.3.1.2 Storage. A license is required to store fireworks 1.3G and 1.4G in any quantity. See section 7702 of the UFC for the storage of 1.3G fireworks. See the County building code for the storage of 1.4G fireworks. See also amended section 105.8."

(154) Amending Section 7801.3.1.3.

Section 7801.3.1.3 of the 1999 UFC Supplement is amended to read:

"Sec. 7801.3.1.3 Retail and Wholesale. A license is required for retail and wholesale sales of non-aerial common fireworks, 1.4G. See also amended section 105.8."

(155) Amending Section 7801.3.1.4.

Section 7801.3.1.4 of the 1999 UFC Supplement is amended to read:

"Sec. 7801.3.1.4 Public Displays. A permit shall be required for public displays of exhibitions, or both, of aerial common fireworks, special fireworks, or both. A permit for use shall be granted only to a pyrotechnic operator authorized by the authority as having jurisdiction. Permit application shall be made not less than twenty (20) calendar days prior to the scheduled date of the display. The permit application shall include a diagram of the grounds on which the display will be held, showing the point at which the fireworks will be discharged; the location of surrounding buildings, highways and other lines of communication; the lines behind which the audience will be restrained; and the location of nearby trees, telegraph, electrical or telephone lines and other overhead obstructions. When the application is made, the fire chief shall be consulted regarding requirements for standby fire watch personnel. See also amended section 105.8."

(156) Amending Section 7801.3.2.

Section 7801.3.2 of the 1999 UFC Supplement is amended to read:

"Sec. 7801.3.2 Pyrotechnic special effects material. A permit shall be required to manufacture, compound, store, or use pyrotechnic special effects material. A permit for use shall be granted only to a pyrotechnic operator as authorized by the authority having jurisdiction. Permit applications shall be made not less than twenty (20) calendar days prior to the scheduled date of the display. The permit application shall include a diagram showing the point at which the pyrotechnic devices will be fired, the fallout radius for each pyrotechnic

device and lines behind which the audience will be restrained. When the application is made, the fire chief shall be consulted regarding requirements for standby fire watch personnel. See also amended section 105.8."

(157) Amending Section 7801.3.2.1.

A new section 7801.3.2.1 is added to read:

"Sec. 7801.3.2.1 Non-aerial common fireworks. A permit shall be required to purchase or use non-aerial common fireworks, commonly known as firecrackers, by an individual for the designated holidays of New Year's Eve, Chinese New Year, and the Fourth of July. See also amended section 105.8."

(158) Amending Section 7801.3.2.2.

A new section 7801.3.2.2 is added to read:

"Sec. 7801.3.2.2 Non-aerial common fireworks, cultural purposes. A permit shall be required to purchase non-aerial common fireworks for cultural purposes, events, special occasions, and similar activities, at any time other than designated holidays. See also amended section 105.8."

(159) Amending Section 7901.3.1.

Section 7901.3.1 is amended to read:

"Sec. 7901.3.1 Permits and Plans. A permit shall be required to install or operate equipment in connection with the storage, handling, use, or sale of flammable or combustible liquids regulated under Article 79. Additionally, the permit applicant shall submit to the fire chief, concurrently with the permit application, three (3) copies of the plot and cross-sectional plans for the property indicating distances from property lines, buildings, surrounding buildings, other fuel tanks located on the premises, dispensers, emergency electrical shutoff, vent lines, vent line diameters, piping, location of fire extinguishers, and necessary signage and placards.

Tank installations within the jurisdiction of the County of Kauai shall be approved of by the Department of Planning of the County of Kauai, prior to the submission of an application for the tank installation permit to the fire chief for installations on State of Hawaii conservation zoned areas, tank installations shall be reviewed and approved of by the State of Hawaii's Department of Land and Natural Resources. See also amended section 105.8."

(160) Amending Section 7902.1.3.2.

Section 7902.1.3.2 is amended by adding a second paragraph to read:

"Each side of the placard shall be minimum of ten (10) inches, with numerals not less than 4 inches high and with a 5/8 inch stroke. The numerals shall be "reflective white" on the blue and red diamonds and "reflective black" on the yellow and white diamonds."

(161) Amending Section 7904.2.7.

Section 7904.2.7 is amended to read:

"A portable fire extinguisher with a rating of not less than 2A:40B:C shall be located within fifty (50) feet of those portion of the facility where fires are likely to occur, such as hose connections, pumps, and separator tanks."

(162) Amending Section 8001.7.

The first paragraph of section 8001.7 is amended to read:

"Sec. 8001.7 Identification Signs. Visible hazard identification signs as specified in UFC Standard 79-3 shall be placed on stationary aboveground tanks and at entrances to locations where hazardous materials are stored, dispensed, used, or handled in quantities in excess of the exempt amounts listed in Tables 8001.15-A, 8001.15-B, 8001.15-C, and 8001.15-D. Signs shall be posted at specific entrances and locations as designated by the fire chief."

(163) Amending Section 8202.1.

Section 8202.1 is amended to read:

"Sec. 8202.1 Permits and Plans. A permit shall be required to install, dispense, or maintain a liquid propane (hereafter "LP") gas container or tank.

EXCEPTION: A permit shall not be required to install or maintain a portable container or the aggregate of interconnected containers of less than 125-gallon water capacity.

Permits are not transferable and any change in use, occupancy, operation, ownership, vendor, or capacity shall require a new permit.

Distributors shall not fill an LP-gas container for which a permit is required unless a permit for installation has been issued for that location by the fire chief.

Where a single container or the aggregate of interconnected containers is 125-gallons or more water capacity, the installer shall submit plans to the fire chief.

LP-gas installations requiring a permit shall have its permits on site and available for inspection by the fire chief. Additionally, the permit applicant shall submit to the fire chief, concurrently with the permit application, three (3) copies of the plot and cross-sectional plans for the property indicating distances from property lines, surrounding buildings, other fuel tanks located on the premises, dispensers, emergency electrical shutoff, vent lines and diameters, piping, location of fire extinguishers, and necessary signage and placarding.

Container installations on Kauai must have received approval by the County Planning Department before submitting an application to the County Fire Department for a LP-gas container installation permit. For installations on State of Hawaii conservation zoned areas, container installations shall be reviewed by the state

Department of Land and Natural Resources. See also amended section 105.8."

(164) Amending Section 8202.2.

Section 8202.2 is amended to read:

"Sec. 8202.2 Records. Installers shall maintain a record of installations for which a permit is not required by section 105 and have such records available for inspection by the fire chief.

EXCEPTION: Installation of gas-burning appliances and replacement of portable cylinders."

(165) Amending Section 8203.1.

Section 8203.1 is amended by adding a third paragraph to read:

"Each side of the placard shall be a minimum of ten (10) inches, with numerals not less than four (4) inches high and with a 5/8 inch stroke. The numerals shall be "reflective white" on the blue and red diamonds and "reflective black" on the yellow and white diamonds."

(166) Amending Appendix III-C.

Appendix III-C is amended by replacing it in its entirety to read:

"APPENDIX III-C

INSPECTION, TESTING, AND MAINTENANCE OF WATER-BASED FIRE-PROTECTION SYSTEMS, AUTOMATIC FIRE-EXTINGUISHING SYSTEMS, AND PORTABLE FIRE EXTINGUISHERS

SECTION 1: GENERAL

Inspection, testing, and maintenance of water-based fire-protection systems shall be in accordance with UFC Appendix standard A-III-C-1.

Inspection, testing, and maintenance of non-water based fire protection systems shall be in accordance with the appropriate NFPA standard of the 1997 National Fire Codes.

Inspection, testing, and maintenance of portable fire extinguishers shall be in accordance with UFC Standard 10-1."

(167) Repeal of previous state fire code.

"All previous state fire codes are repealed." (Ord. No. 399, September 3, 1980; Ord. No. 419, December 21, 1981; Ord. No. 553, May 2, 1989; Ord. No. 809, November 5, 2003)

ARTICLE 3. EXAMINATION AND APPROVAL OF PLANS BY FIRE CHIEF; PENALTIES

Sec. 15A-3.1 Scope of Review.

The scope of review of plans and specifications required to be reviewed under Haw. Rev. Stat. §132-9 shall be limited to applicable requirements of the Uniform Fire Code. (Ord. No. 809, November 5, 2003)

Sec. 15A-3.2 Approval or Disapproval of Plans.

The fire chief shall approve or disapprove plans and specifications submitted pursuant to Haw. Rev. Stat. §132-9 within thirty (30) calendar days after receiving them. If the fire chief fails to approve or disapprove the plans and specifications within thirty days after receiving them, the plans shall be deemed approved.

Whenever the fire chief finds that the building being constructed, or upon which alterations and/or additions are to be made is, for any reason not reasonably safe from 1) loss or damage to property, 2) loss of life, or 3) injury to persons, due to fire, the fire chief shall disapprove the plans and specifications, and return them with a written statement setting forth the reasons for the disapproval. (Ord. No. 809, November 5, 2003)

Sec. 15A-3.3 Penalties.

Any person, individual, association, firm, corporation, partnership, sole proprietorship, or other form of business entity convicted of violating any of the provisions of Haw. Rev. Stat. §132-9 or this Article 3 of Chapter 15A of the Kauai County Code 1987 shall be punished by a fine of not more than $1,000.00 or by imprisonment for not more than one year, or both. (Ord. No. 809, November 5, 2003)