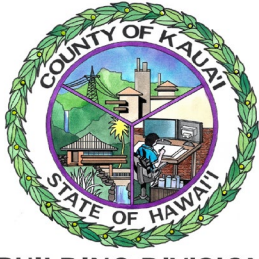




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BUILDING DIVISION

Single Family/Duplex Plan Review Checklist

Application No. _____ - _____

As-Built Structure? [] Yes [] No

Address: _____ TMK: _____

Scope of work: _____

Plans shall comply with the 2012 IRC, 2012 UPC, 2017 NEC, and 2015 IECC

1. FOUNDATIONS

- A. Drainage: the lot shall be graded to drain surface water away from foundation walls.
B. Fill material for a concrete slab on grade shall be compacted and free of vegetation.
C. Footings shall be supported on undisturbed natural soils or engineered fill.
D. Vapor retarder: a 6 mil polyethylene or approved vapor retarder with joints lapped not less than 6" shall be placed between the concrete floor slab and the base course or prepared subgrade where no base course exists.
E. Concrete slab-on-ground floors shall be min. 3 1/2" thick.
F. Concrete shall have a minimum specified compressive strength at 28 days as shown in Table R402.2 (minimum 2,500 psi).
G. Load bearing value of soil: minimum 1,500 psf per IRC Table R403.1.
H. Minimum sizes for concrete and masonry footings shall be as set forth in IRC Table R403.1.
I. All exterior footings shall be placed at least 12" below the undisturbed ground surface (IRC R403.1.4).
J. Slab-on-grade with turned-down footings shall have a minimum of one No. 4 bar at the top and bottom of the footing (IRC R403.1.3.2).
K. Foundations with stem walls shall have installed a minimum of one No. 4 bar within 12" of the top of the wall and one No. 4 bar located 3" - 4" from the bottom of the footing (IRC R403.1.3.1).
L. The top of the footing shall be level. The bottom surface of footings shall not have a slope exceeding 1:10. Use stepped footings when necessary to change the elevation of the top surface of the footings. (IRC R403.1.5)
M. Underfloor clearances:
min. 24" between grade & the bottom of floor joists
min. 6" clearance between grade and the bottom of wood members when using ipe wood
min. 18" between grade and the bottom of girders
min. 6" ground clearance for wood members of an open slat wood deck
N. Drains shall be provided around foundations that retain earth and enclose habitable or unhabitable spaces below grade. (IRC R405.1)
O. Anchor bolts: shall be min. 1/2" diameter; min 7" embedment; require a nut and washer on each bolt; spaced a max. of 6' o.c.; min. 2 bolts per plate section; located not less than 7 bolt diameters (3 1/2") nor more than 12" from the end of each section. (IRC R403.1.6)
P. Concrete foundation walls: min. 6" height above finished grade
Q. Foundation walls that retain earth and enclose habitable or usable spaces located below grade shall be dampproofed: IRC 406.1 (Waterproofing: IRC 406).
R. Min. 18" x 24" access required for all underfloor spaces. (IRC R408.4)
S. Underfloor Ventilation: minimum 1 sq. foot of ventilation for every 150 sf of underfloor area. One opening required within 3' of each corner of the bldg.

2. FRAMING

- A. Diagonal bracing, lateral cross-bracing is based on wind speed (Table 602.10.3(1)) and bracing methods. (Table R602.10.4)
B. Double plates.
C. Minimum 22" x 30" scuttle required for attic access if:
the attic exceeds 30 sf; and,
the attic has a vertical height of 30" or more (IRC R807.1).
D. Ceiling joist spans shall comply with Chapter 8, IRC.
E. Brace roof framing to partition.
F. Provide rafter ties where ceiling joists & rafters are not parallel.
G. Double joists under parallel bearing partitions.
H. Provide a continuous load path for roof rafters or trusses to transmit the uplift forces to the foundation.
I. See Table R502.5(1) for girder and header spans and jack studs.
J. Minimum clearance between the bottom of the floor joists or bottom of floors without joists and the ground shall be 24 inches; the minimum clearance between the bottom of the girders and ground beneath shall be 18 inches.

3. GARAGE

- A. 1-hr separation between garage/dwelling lined with minimum 1/2" gypsum board. Garages beneath habitable rooms shall be separated with 5/8" type "X" gypsum board (IRC R302.6).
B. 1 3/8" solid core or 20-minute fire resistive door required between garage/dwelling (IRC R302.5.1).
C. No openings from a garage into a sleeping room (IRC R302.5.1).
D. Floor shall be of approved noncombustible material (IRC R309.1).
E. Garage floor shall be sloped toward the main vehicle entry doorway for drainage (or provide a drain). (IRC R309.1)
F. Minimum 6' 8" opening height for a garage door.

4. INSULATION

- A. Min. R-19 at the roof level between framing members or R-30 above the ceiling level.
B. Min. R-15 entirely above the roof deck.
C. Air conditioned spaces require min. R-13 cavity wall insulation for thermal envelope.
D. Alternative methods and materials may be submitted to meet minimum requirements.

5. STAIRWAYS (IRC R311.7.5)

- A. Maximum 7 3/4" rise.
B. Minimum 10" run.
C. Minimum 6' 8" headroom, including landings.
D. Minimum 36" width.

- E. Flight of stairs: maximum 12' between floor levels or landings.
F. A handrail is required on at least one side of each continuous run of treads or flight with 4 or more risers. Each handrails may project a maximum 4 1/2" into the required stairway width.
G. The top of handrails shall be placed not less than 34" nor more than 38" above the nosing of the treads.
H. The handgrip portion of the handrail shall not be less than 1 1/4" nor more than 2" in diameter, or equivalent shape (see Type II handrails: IRC 311.5.6.3, #2).
I. Handrails shall have a smooth gripping surface with no sharp corners.
J. Handrails shall have a minimum clear distance of 1 1/2" away from the wall.
K. Handrails shall be returned or shall terminate in newel posts or safety terminals.
L. No handrail extensions required in residential construction.
M. Intermediate rails shall be spaced so no object 4 3/8" in diameter can pass through. (Less than 4 3/8" in diameter)
N. The triangular openings formed by the riser, tread and bottom element of a guard at the open side of a stairway may be of such size that a 6" sphere cannot pass through. (Less than 6" between)
O. Min. 1-hr construction for storage under stairways if space is enclosed and accessible.
P. Stairway lighting requirements: IRC 303.6.

6. SPIRAL STAIRS (IRC R311.7.10.1)

- A. Minimum 26" tread width
B. Minimum 7 1/2" tread depth @ 12" from the narrow end
C. All treads shall be identical
D. Maximum rise: 9 1/2"
E. Minimum headroom: 6' 6"

7. GUARDS (aka Guardrails) (IRC R312)

- A. Required at stairs & unenclosed floor and roof openings: 36" min. height.
B. Intermediate rails or an ornamental pattern: spaced so no object 4" in diameter can pass through. (Less than 4" between rails).
C. Porches and decks which are enclosed with insect screening shall be provided with guards where the walking surface is located more than 30" above the floor or grade below.

8. SMOKE ALARMS/CARBON MONOXIDE ALARMS (IRC R314, R315)

- A. Smoke alarms shall be listed in accordance with UL 217. Carbon monoxide alarms shall be listed in accordance with UL 2034. Combination alarms shall be listed in accordance with UL 2034 and UL 217.
B. Required Locations:
in each sleeping room
outside each separate sleeping area in the immediate vicinity of the bedrooms
on each additional story of the dwelling
basements
in dwelling units with split levels (see IRC R314.3)
C. Smoke alarms/carbon monoxide alarms must be interconnected.
FYI: Alarms shall receive their primary power from the building wiring and shall be equipped with a battery backup. They shall sound an alarm audible in all sleeping areas of the dwelling unit in which they are located.

9. EMERGENCY ESCAPE AND RESCUE WINDOWS (IRC R310)

- A. Basements and every sleeping room shall have at least one operable emergency escape and rescue opening (exc. Basements used only to house mechanical equipment and not exceeding 200 sf).
B. Openings shall open directly into a public street, public alley, yard or court.
C. Clear opening requires ALL of the following:
minimum 5.7 square feet
minimum 24" height
minimum 20" width
maximum 44" above the finished floor
D. Window must be openable from the inside without the use of keys, tools or special knowledge.

10. EGRESS DOORS

- A. Not less than one conforming exit door required (IRC R311.2).
B. The required exit door shall provide access from the habitable portion of the dwelling to the exterior.
C. The required exit door shall not travel through a garage.
D. The required exit door shall be side-hinged.
E. The required exit door shall be not less than 3' wide and 6' 8" high.
F. There shall be a floor or landing on each side of an exterior door.
G. The floor or landing shall not be more than 1 1/2" lower than the top of the threshold: see exceptions: IRC 311.3.1.

11. CARPORTS

- A. Carports shall be open on at least two sides.
B. Carport floor surfaces shall be of approved noncombustible materials. Exception: asphalt surfaces shall be permitted at ground level in carports.
C. Carport floor shall be sloped toward the main vehicle entry door for drainage.

12. SAFETY GLAZING

- A. Provide safety glazing where required. (IRC R308.4)
B. Jalousies shall be minimum 3/16" thick and no longer than 48" long.
C. Required glazed openings shall open directly onto a street or public alley, yard, or court on the same lot. (IRC R303.8)
D. Safety glazing required in panels adjacent to a door where the nearest vertical edge is within a 24" arc of the door in the closed position and the bottom exposed edge of the glazing is less than 60" above the walking surface.
E. Glazing in individual fixed or operable panels where:
a. the exposed area of the individual pane is larger than 9 sf.; and,
b. the bottom edge of the glazing is less than 18" above the floor; and,

- c. the top edge of the glazing is more than 36" above the floor; and,
- d. one or more walking surfaces are within 36" horizontally of the glazing
- F. In showers, bathtubs, etc., where the bottom exposed edge of the glazing is less than 60" above the walking surface.

13. HAWAII WIND PROVISIONS FOR NEW CONSTRUCTION (APPENDIX W OF CHAPTER 12 BUILDING CODE). This is required for areas on Kaua'i where the basic design wind speed is 130 mph or greater.

- A. In wind-borne debris regions, glazing in buildings shall be impact resistant or protected with an impact-resistant covering meeting the requirements of an approved impact-resistant standard or ASTM E1996 and ASTM E1886.
- B. Wood structural panels with a minimum thickness of 7/16 inch and maximum panel span of 8 feet shall be permitted for opening protection in buildings with a mean roof height of 33 feet or less for Group R-3 or R-4 occupancies. Panels shall be pre-cut to that they shall be attached to the framing surrounding the opening containing the produce with the glazed opening. Panels shall be pre-drilled as required for the anchorage method and shall be secured with the attachment hardware provided. Attachments shall be designed to resist the components and cladding loads determined in accordance with the provisions of ASCE 7, with corrosion-resistant hardware provided and anchors permanently installed on the building. Attachment in accordance with Table 1609.2 with corrosion-resistant attachment hardware is permitted for buildings with a mean roof height of 45 feet or less and effective wind speed not in excess of 140 mph.
- C. Partially enclosed and open occupancy R-3 buildings without wind-borne debris protection shall include a safe room designed and built in accordance with County of Kaua'i Section U102 Hawaii Residential Safe Room.

14. ROOF

- A. Provide pre-engineered wood truss drawings prepared, stamped/ signed by a registered design professional. Must be submitted/approved before Load/Uplift Ties Inspection.
- B. Roof underlayment required. (IRC R905.2.3)
- C. Roof deck: minimum 5/8" thick. (IRC R803.1)
- D. Solid roof sheathing shall be nominal 1" lumber applied diagonally.
- E. Opposing rafters shall be aligned at the ridge and shall be connected at the rafters with a tie strap.
- F. Provide attic ventilation: 1:150.
- G. A drip edge is required for shingle roofs. (IRC R905.2.8.5)

15. ELECTRICAL

- A. Wall switch controlled lighting outlets required:
 - ___ habitable rooms ___ bathrooms ___ hallways
 - ___ stairways ___ attached garages
 - ___ detached garages with electric power
 - ___ exterior side of outdoor entrances or exits with grade level access
- B. Lighting outlets required:
 - ___ attic ___ under floor spaces
 - ___ utility room ___ basement
- C. Wall receptacle outlets 6' from openings and every 12' along walls in:
 - ___ kitchen ___ family room ___ dining room
 - ___ living room ___ parlor ___ library
 - ___ den ___ sun room ___ bedroom
 - ___ recreation room ___ other
- D. GFCI protection required for all single-phase 120-volt 15 and 20 amp receptacles in:
 - ___ bathrooms (all) ___ outdoors ___ accessory buildings
 - ___ garages (all, including the outlet(s) for the garage door opener)
 - ___ crawl spaces at or below grade level ___ unfinished basements
 - ___ kitchens serving the countertop surfaces ___ boathouses
 - ___ laundry, utility, and wet bar sinks: all receptacles within 6' of the outside edge of the sink
- E. Outdoor weatherproofed 15 & 20 amp 120-volt receptacles shall be installed at the front and rear of the dwelling, maximum 6.5' above grade
- F. AFCI protection required for all 120-volt single phase 15 & 20 amp circuits supplying outlets installed in dwelling unit:
 - ___ family rooms ___ dining rooms ___ living rooms
 - ___ parlors ___ libraries ___ dens
 - ___ bedrooms ___ sunrooms ___ closets
 - ___ recreation rooms ___ hallways ___ similar rooms/areas

Note: AFCI protection NOT required in kitchens, bathrooms, unfinished basements, garages, outdoors, in laundry rooms or for 220-volt equipment.
- G. A dwelling unit shall be supplied by only one electrical service meter.
- H. Trench for electrical conduit:
 - ___ min. 18" deep ___ caution tape at 12" below grade; parallel with pipe.
- I. Outdoor lights must be suitable for a damp location.
- J. Shower lights must be suitable for a wet location.
- K. Provide weatherproof protection for outdoor receptacle(s).
- L. Outlets on opposite sides of the fire wall shall be separated horizontally by at least 24".
- M. Electrical receptacle required within 3' of each bathroom basin.

16. MISCELLANEOUS

- A. Walls and soffit lined with 1/2" gypsum board.
- B. Water Heater: if gas heater, provide vents according to the 2012 Uniform Plumbing Code.
- C. Clothes dryers shall be exhausted to the outside air.
- D. Hallway: minimum 36" width.
- E. Recommend: minimum 30" vertical clearance from the cooking top to the bottom of unprotected combustible material.
- F. Show North, East, South West elevations and provide the north arrow.
- G. TMK shall be listed on all plan pages.
- H. Provide lot dimensions and label the property lines.
- I. Provide a scale for all drawings.
- J. Show location of utilities: cesspool/septic or sewer connection, water lateral, electric meter location and underground/above ground connections.
- K. Show right-of-ways and easements.
- L. Permit required for retaining walls >4' high. Retaining walls ≥5' will require a stamp from an architect or engineer.
- M. Factory-built fireplaces shall be listed and labeled and shall be installed in accordance with the conditions of the listings and shall be UL127 tested.
- N. Requires a solar water heater, or provide variance from the State of Hawaii.
- O. Swimming pool (Chapter 42, Appendix G): (exception: a power safety cover)
 - ___ Min. 4' high fence ___ Openings in fence < 4"
 - ___ Gate: self-closing & self-latching
- P. A signed Energy Code compliance form is required.
- Q. Plans must be stamped and signed by an architect or engineer, licensed in the State of Hawaii, and must contain the statement: **"This work was prepared by me or under my supervision and construction of this project will be under my observation."**
- R. Provide an approved weather-protective barrier under the siding.
- S. Toilets: provide 30" minimum width, and 24" min. in front of the toilet.

- T. Show a solar hot water system on the plans and show the location of the storage tank and solar collectors.
- U. Specify that outdoor showers shall drain into an approved receptor.

17. OTHER REQUIREMENTS

- A. Soil Treatment and Termite Barriers:

Where the plates, sills, 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.
- B. Treatment for Structural Lumber:

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 treated in the following manner:

 1. Treated in accordance with American Wood-Preservers Association (AWPA) Standard U1 (UC1, UC2 and UC3A), 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 Standard U1 (UC1, UC2 and UC3A) or other approved preservative system.

Treatment shall include the following:

1. A quality control and inspection program which meets or exceeds the current requirements of AWPA Standards M2-01 and M3-03;
 2. Inspection and testing 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 AWPA Standard M4-02 or the manufacturer's ICC-Evaluation Services report requirements; 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 not less than 6 inches by 8 inches, and shall be placed on the lower left corner of the strapped bundle.
- C. Numbering Requirements and Specifications

All owners of housed and buildings shall 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 a contrasting color from the background on which they are placed, at least three inches in height, securely affixed in a permanent manner and shall not be readily effaceable. Your assigned house number is:

18. REQUIRED INSPECTIONS

Reinforcing steel or structural framework of any part of any building or structure shall not be covered or concealed without first obtaining the approval of the building official.

The building official, upon notification from the permit holder or his agent shall make the following inspections and shall either approve that portion of the construction as completed or shall notify the permit holder or his agent wherein the same fails to comply with this code:

- A. FOUNDATION INSPECTION:

To be made after excavations for footings are complete and any required reinforcing steel is in place. For concrete foundations, any required forms shall be in place prior to inspection. All materials for the foundation shall be on the job, except where concrete is ready mixed in accordance with ICC Standard No. 26-13, the concrete need not be on the job. Where the foundation is to be constructed of approved treated wood, additional inspections may be required by the building official.
- B. CONCRETE SLAB OR UNDER-FLOOR INSPECTION:

To be made after all in-slab or under-floor building service equipment, conduit, piping accessories and other ancillary equipment items are in place but before any concrete is placed or floor sheathing installed, including the subfloor.
- C. COMPLETE LOAD PATH AND UPLIFT TIES INSPECTION:

To be made after tie straps, approved framing anchors or mechanical fasteners are installed and prior to concealment by sheathing.
- D. FRAMING INSPECTION:

To be made after the roof, all framing, fire blocking and bracing are in place and all pipes, chimneys and vents are complete and the rough electrical, plumbing, and heating wires, pipes and ducts are approved.
- E. INSULATION INSPECTION:

Must be inspected prior to covering walls.
- F. LATH AND/OR GYPSUM BOARD INSPECTION: To be made after all lathing and gypsum board, interior and exterior, is in place but before any plastering is applied or before gypsum board joints and fasteners are taped and finished.
- G. FINAL INSPECTION:

To be made after finish grading and the building is completed and ready for occupancy.

Checked: _____ Date _____
Residential Plans Examiner