

STATE OF HAWAII
LOSS MITIGATION GRANT PROGRAM
PROGRAM OVERVIEW

Section 1. Introduction. This document provides an overview of the wind resistive device grant program. This document is for instructional purposes only. You should refer to the specific terms of the Wind Resistive Devices Technical Specifications and Loss Mitigation Grant Program Guidelines.

Section 2. Overall Wind Resistive Device Requirements.

(a) Available Options: Subject to the availability of funds and compliance with the specific requirements of the Wind Resistive Devices Technical Specifications, grants for wind resistive devices may be awarded for the installation of assemblages consisting of the following wind resistive device options only:

- (1)** Roof to Wall uplift restraint ties at roof ridges and roof framing members to wall or beam supports as follows:
 - a)** The restraint ties shall achieve at least 400 lbs. of allowable uplift load resistance at each roof rafter framing connection to an exterior wall or to a beam support. If rafter framing is spaced at more than 24 inches on center, the required clip capacity shall be increased proportionately or additional clips installed to achieve at least 200 lbs. of allowable uplift load capacity per linear foot of roof perimeter. In addition, rim rafters at gable end eaves shall be strapped down to supporting beams using connections with at least 1000 lbs. of allowable uplift resistance. Exterior beams supported on corner columns shall be strapped with at least 2000 lbs. of allowable uplift resistance;
 - b)** All devices shall be corrosion-resistant and installed in accordance with the manufacturer's specifications; and

- c) Roof rafter to wall clips are not required where individual rafters are obstructed by existing power lines or boxes. The clips also shall not be required above a window where nailing would structurally damage existing window frames.
- (2) Fastening of roof wood sheathing or roof metal decking for high wind uplift and a secondary waterproofing membrane. The State will provide a matching grant, subject to availability of funds, only on the retrofit portion of the total cost that is above and beyond the cost of a standard re-roofing job. All contractor invoices shall be itemized to identify the portion of cost attributable to the hurricane retrofit work that is in excess of a standard re-roofing job that matches the pre-existing condition. No grant will be provided for the cost of upgrading from one type of roofing to another.
- (3) Opening Protection. All windows, sliding glass doors, entry doors, garage doors, and skylights shall be protected from wind-borne debris and wind pressure in accordance with the following standard: ASTM E 1996-05 (ASTM, 2005). Additional detailed requirements for the testing procedures necessary for product approval are given in ASTM E1886 and E1996.
- a) All openings in the building enclosure or in a permanently partitioned residential unit shall be protected, including fixed or operable windows, skylights, sliding door openings, and all entry doors, but excluding openings not exceeding a total of 2 square feet in any wall; or
- b) A separate grant application may be submitted for the exterior openings of an attached garage subsequent to the application for the dwelling, provided walls between the attached garage and the residential portion of the structure are protected, including garage roll-up doors and all openings in the garage enclosure, and also including fixed or operable windows, glazed sliding door openings, and all garage entry doors, but excluding openings not exceeding a total of 2 square feet in any wall. Note that the maximum grant amount applies to the dwelling and the garage taken together;

- c) Hawaii Certification:** All devices must be installed in accordance with the manufacturer's specifications or as indicated in the Wind Resistive Devices Technical Specifications. All devices shall have a minimum 20 year design lifespan in a coastal environment including a marine atmosphere. Manufacturers are required to submit engineered details and test data reports for the attachment of the device to specific types of residential construction. Approvals of devices shall be conditional based on the documentation submitted for approval. Separate submittals of tests must be furnished for each type of wall construction (wood stud, single wall board, masonry/concrete);
- d) Single wall construction** requires devices specifically certified by the Insurance Division. For "single wall" construction, opening protection devices shall have been tested, installed onto a mock-up of a window, or door opening in a representative single wall assemblage at least 6 ft. wide by 8 ft. high, and secured at top and bottom to a 4 x 8 wood beam section. Each manufacturer is responsible for submitting test data for review and approval; and
- e) Deployable temporary protection systems** are allowed only at the first story. Any deployable temporary protective systems that require final installation prior to an approaching storm must have the attachment fittings permanently installed on the building;
- (4)** Foundation uplift restraint strengthening of the connections for single wall construction bearing on wood beams and foundation posts on shallow footings. This grant is only applicable to single story, single wall homes on post and beam systems; or
- (5)** Residential Safe Rooms built in accordance with administrative rules adopted by the Department of Defense.
- (b) Sequencing Requirements:** Certain devices may only be eligible for awarded grants if the following sequencing of installation requirements has been met:

- (1) For single wall construction, no other grant for items (a) (2) through (4) shall be awarded unless item (a) (1) has been concurrently or previously installed; and
- (2) No grant shall be awarded for item (a) (4) unless item (a) (1) has been concurrently or previously installed.

(c) Condition of Premises: Eligibility for this grant program is contingent upon the premises and/or land associated with the property being in compliance with the following conditions:

- (1) All buildings must be properly maintained. For example, there shall be no portions of exterior walls or roof in serious disrepair, missing areas of sheathing, overstressed or bowed structural supports or walls, missing wall sections or roof framing, or large cracks through the thickness of masonry walls. There shall be no un-repaired structural damage due to termite, dry-rot, wind, fire, or water damage; and
- (2) Any detached buildings, including sheds, portable buildings, or other lightly constructed structures on the premises of the property shall have walls and roofs adequately connected to each other and anchored to the ground.