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MANUFACTURED HOME INSTALLATIONS IN FLOOD PRONE ZONE AREA

Statement of Issue:
Over the last months, several installers and suppliers have requested permits that happened to be in a flood zone area. It appears there is some confusion and misunderstanding Leon County Building Plans Review and Inspection Division is requesting new information that has not been required in the past. Therefore, it is important to help to eliminate this confusion and help provide the information being requested that has been required for many years. This will help the applicant succeed in the application process to provide all the needed information when a manufactured home is installed in a flood zone area.

The foundation and manufactured home are engineered designed along with the anchors and tie-downs for a normal lot. Chapter 15C-1, Florida Administrative Code, requires that all mobile/manufactured home installations be performed by a licensed mobile home installer. Tie-downs are an essential part of the foundation system engineered for all mobile/manufactured homes. Homes without proper tie-downs are less resistant to high winds.

Should a manufactured home lot be sloped, poor soil conditions, or in a flood zoned area the foundation, anchors, and tie-downs all would need additional evaluation by a Florida State Licensed Engineer that has structural background and experience.

Background:
As referenced in the Department of Highway Safety and Motor Vehicles *Manufactured Home Section – Installer Licensing Program – Installation Course for Manufactured Housing* manual there are guidance for the installation of homes in flood zone areas. This document was developed in 1985 and last modified in 2003.

Recommendation:
Therefore, when submitting a new or existing manufactured home installed in a flood hazard area a Florida State Licensed Engineer must evaluate the original design of the foundations, anchoring, and support systems. The Engineer will need to consider the design based on the location between the designed flood evaluation and the base flood evaluation or lower. The foundation, anchoring, and support systems must be capable of resisting loads associated with design flood and wind events or combined wind and flood events. The manufactured homes must also review the foundation supports that are designed and anchored to prevent floatation, collapse, or lateral movement of the structure. The design must address the following elements for the installation in a flood zone area:

1. The foundation specification has been designed for flood-resistant considerations and, if so, conditions of applicability for velocities, depths, or wave action.

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Code Requirements to Reference:
This manual references the design for the foundation, anchors and support systems in flood zone areas to comply with the *Manufactured Home Installation in Flood Hazard Areas*, FEMA 85/September 1985 that is published by the Federal Emergency Management Agency. This document was developed in 1985 and last modified in 2003. The following Code references are from the:

Manufactured Home Installation in Flood Hazard Areas

Chapter 1 Administration

1.3.6 Installation of Manufactured Homes in Flood Hazard Areas.

1.3.6.1 Definitions. Terms used in this section shall be as defined in 44 CFR 59.1 of the National Flood Insurance Program (NFIP) regulations.

1.3.6.2 Applicability. The requirements of this section shall apply to the initial installation of manufactured homes located wholly or partly within the flood hazard area.

1.3.6.3 Preinstallation Considerations. Prior to the initial installation of a manufactured home, it shall be determined whether the home site lies wholly or partly within a special flood hazard area as shown on the authority having jurisdiction's (AHJ's) Flood Insurance Rate Map, Flood Boundary and Floodway Map, or Flood Hazard Boundary Map. If so, located, the map and supporting studies adopted by the jurisdiction shall be referenced to determine the flood hazard zone and base flood evaluation at the site. Permits shall be required in accordance with 44 CFR 60.3(a)(1) or 44 CFR 60.3(b)(1) and the AHJ.

1.3.6.4 General Elevation and Foundation Requirements.

1.3.6.4.1 Methods and Practices. Manufactured homes located wholly or partly within special flood hazard areas shall be installed using methods and practices that minimize flood damage during the base flood, in accordance with the AHJ, 44 CFR 60.3(a) through (e), as applicable, and other provisions of 44 CFR referenced by those paragraphs.

1.3.6.5 Related NFIP Guidance. See FEMA 85–85, *Manufactured Home Installation in Flood Hazard Areas*.

Chapter 3 Definitions

3.3 General Definitions.

3.3.4 Base Flood. The flood having a 1 percent chance of being equaled or exceeded in any given year.

3.3.5 Base Flood Elevation (BFE). The elevation of the base flood, including wave height, relative to the datum specified on a jurisdiction's flood hazard map.

3.3.6 Crossovers. Utility connections in multi-section homes that are located where the sections are joined. Crossover connections include heat ducting, electrical circuits, water pipes, drain plumbing, and gas lines.

3.3.7 Design Flood. The greater of either (1) the base flood or (2) the flood so designated by the jurisdiction as its regulatory flood, with a 1 percent chance, or less, of being equaled or exceeded in any given year.

3.3.8 Design Flood Elevation (DFE). The elevation of the design flood, including wave height, relative to the datum specified on a jurisdiction's flood hazard map.

3.3.9 Flood Hazard Area. The greater of either (1) the special flood hazard area shown on the flood insurance rate map or (2) the area subject to flooding during the design flood and shown on a jurisdiction's flood hazard map, or otherwise legally designated.

3.3.10 Flood Hazard Map. A map delineating the flood hazard area and adopted by a jurisdiction.

3.3.11 Footing. That portion of the support system that transmits loads directly to the soil.

3.3.12 Installation. Assembly, at the site of occupancy, of all portions of the manufactured home, connection of the home to utility connections, and installation of support and anchoring systems.

3.3.20 Pier. That portion of the support system between the footing and the manufactured home, exclusive of shims. Types of piers include, but are not limited to, the following: (1) manufactured steel stands; (2) pressure-treated wood; (3) manufactured concrete stands; and (4) concrete blocks.

3.3.23 Stabilizing Devices. All components of the anchoring and support systems, such as piers, footings, ties, anchoring equipment, anchors, or any other materials and methods of construction, that support and secure the manufactured home to the ground.

Chapter 6 Foundations

6.1.5 Flood Hazard Areas. In flood hazard areas, the piers, anchoring, and support systems shall be capable of resisting loads associated with design flood and wind events.

6.5.1 Areas Prone to Flooding.

6.5.1.1 Special elevations and anchoring techniques shall be required when locating a home in flood hazard area.

6.5.1.2 A registered professional engineer and the authority having jurisdiction shall be consulted to assure that the home installation conforms to applicable federal, state, and local codes and regulations.

Chapter 9 Preparation of Appliances

9.5 Flood Hazard Areas.

9.5.1 Outside Appliances. Appliances installed on the manufactured home site shall be anchored and elevated to or above the same elevation as the lowest elevation as the lowest floor of the home.