

TOWN OF OCEAN RIDGE

6450 NORTH OCEAN BOULEVARD

OCEAN RIDGE, FLORIDA 33435

www.oceanridgeflorida.com

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KARLA M. ARMSTRONG
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PHIL BESLER
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MARTIN WIESCHOLEK

July 2020

Dear Contractor:

Re: Installation of Gas or Liquid Storage Tanks in Special Flood Hazard Areas

Attention: Please read this notice carefully, your cooperation and response is requested.

Our community participates in the National Flood Insurance Program (NFIP) and enforces a local floodplain management ordinance. The ordinance is intended to require construction practices to minimize flood damage, minimize damage to utilities, and minimize public funds for response to and recovery from flood events. In addition to the ordinance, we enforce the Florida Building Code, which governs the construction of flood-prone structures and buildings, as well as associated tanks, and mechanical, electrical and plumbing components.

The Town of Ocean Ridge is providing this notice as a reminder that new and replacement gas or liquid storage tanks installed in SFHAs must be properly elevated to or above the design flood elevation or properly anchored to resist hydrostatic and hydrodynamic forces. This notice advises your company that the Town of Ocean Ridge must issue permits for installation of all new gas or liquid storage tanks in special flood hazard areas in accordance with the Town of Ocean Ridge's floodplain management ordinance. This reminder is intended to provide you with basic information and resources and should not be considered a substitute for complying with the local ordinance or the *Florida Building Code*. Should you have questions, desire additional guidance, or obtain a permit application form, please see our website www.oceanridgeflorida.com or you may contact the Building Department at 561-732-2635.

Local, State and Federal Tank Installation Requirements:

The Town of Ocean Ridge Code of Ordinance Article II Flood Damage Prevention, the 2017 Florida Building Code (FBC, FG 301.11) and the National Flood Insurance Program (44 CFR 60.3) requires that gas or liquid storage tanks, appliances, equipment and system installations shall be located at or above the design flood elevation in Special Flood Hazard Areas (SFHAs) where a base flood elevation number is provided (Zone AE), or at least 2 feet above the highest adjacent grade if a base flood elevation number is not specified on the community's Flood Insurance Rate Maps (FIRMs).

Alternatively, gas or liquid storage tanks, appliances, equipment and system installations are permitted to be located below the required flood elevation in Zone A and AE provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the base flood elevation.

Tips for anchoring tanks in Zones A or AE:

- Attach tank to large concrete slab whose weight is great enough to resist the force of flood waters;
- Run straps over the tank and attach them to the concrete slab using turnbuckles;
- Anchor horizontal propane tank with four ground anchors connected across the top of the tank with metal straps;
- Anchor a vertical propane tank with two ground anchors set on opposite sides of the tank. Attach a strap from each anchor to the collar secured around top of the tank. Attach another metal strap connected from one anchor to the other through tank base. This is similar to anchoring a manufactured home and manufactured home installers may make such products available.

Tanks in Zone V or VE:

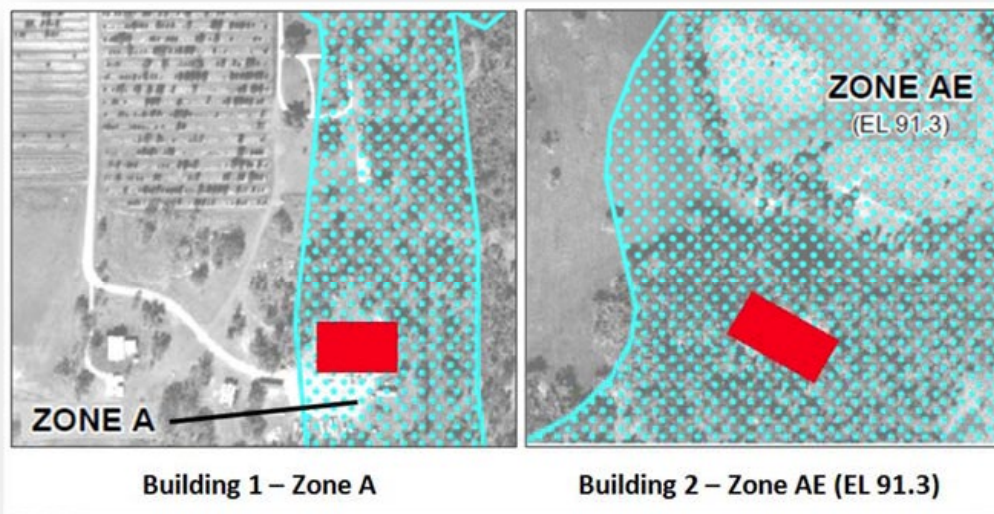
Above-ground, elevated tanks below the base flood elevation are not permitted in coastal high hazard areas Zone V or VE. Tanks are considered structures under the FBC, and tank supporting structures must also meet the structure foundation requirements within that flood zone. Extend vent pipe, inlets or fill openings, and any outlets above the DFE to prevent water from contaminating tank contents, or they can be fitted with covers to prevent inflow or outflow. A threaded fill cap with a tight gasket is recommended for home fuel tanks to prevent outflow. Help protect home and business owners by reminding them to shut off supply lines to equipment when flood or tidal surge warnings are issued.

Permits Required: If a structure is located in a SFHA, the contractor or property owner must apply and receive a permit prior to installation of new gas or liquid storage appliances, equipment and system. Applications for a permit can be obtained and submitted at the Building Department, or online at www.oceanridgeflorida.com.

Receiving a {City or County} Flood Zone Determination: Contractors or property owners can obtain a flood zone determination and base flood elevations for a property by visiting the town's website at www.oceanridgeflorida.com, and click on Building & Zoning and then click on Maps. Finally, click on FIRM maps (effective October 2017). Alternatively, contractors or property owners may determine required elevations for installation of gas or liquid storage appliances, equipment and systems as described below.

Identifying Required Elevations: FIRMs for the Town of Ocean Ridge can be accessed at FEMA's Mapping Service Center Website: <https://msc.fema.gov/> or www.oceanridgeflorida.com. Once your company or the contractor has located a specific property on the community's respective FIRM panel, your company or the contractor should determine whether the structure is in a flood zone, and whether a design flood elevation has been provided (freeboard).

In the example below, Building 1 (outlined in red) is located in a Zone A and Building 2 is located in a Zone AE. Building 1 does not have a specified flood depth number, and Building 2 has an elevation requirement of 91.3 feet above sea level. Since Building 1 does not have a specified elevation number provided on the FIRM, all gas or liquid storage appliances, equipment and system should be installed at least 2 feet above the highest adjacent grade at this building. Since Building 2 does have a specified base flood elevation number, in this case 91.3 feet, all appliances, equipment and systems should be installed at or above an elevation of 91.3 feet above sea level plus 1 foot for freeboard (BFE + 1 Foot).



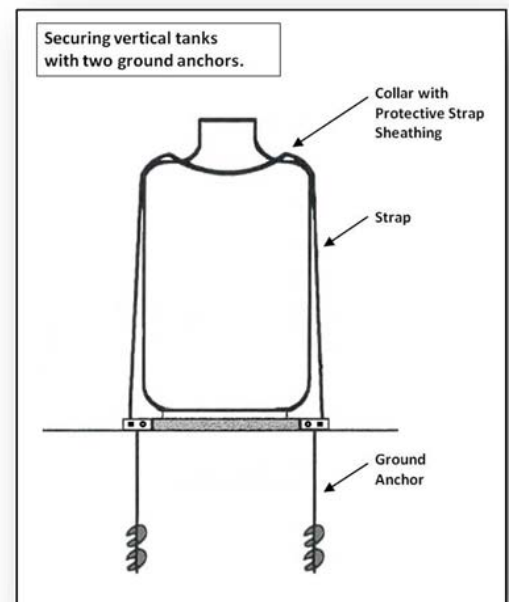
If your company or property owner is unsure about elevation or anchoring requirements pertaining to a structure or its utilities, your company or the contractor must contact the Town of Ocean Ridge's Building Department at 561-732-2635 or by email at permits@oceanridgeflorida.com or in person at 6450 N Ocean Blvd, Ocean Ridge, FL 33435.

Anchoring Vertical Tanks, example: As shown in the figure below, vertical tanks must be secured with a minimum of two ground anchors. Set each anchor on opposite sides of vertical tanks. Attach a strap from each anchor to the collar secured around top of the tank.

Another metal strap should be passed through and under the tanks base connected from one anchor to the other. The ground anchors and straps described below are the same type of products that are required by building codes to tie down mobile homes.

Anchoring Horizontal Tanks, example: The attached guidance document from FEMA (April 2011) entitled "Anchor Fuel Tanks," provides a diagram of an inexpensive way to secure a horizontal propane tank with four ground anchors connected across the top of the tank with metal straps. (Visit FEMA's website for most up-to-date guidelines and examples).

Request Follow-Up Action: The Town of Ocean Ridge requests that your company provide a brief response to this notice, acknowledging that you have received, reviewed and intend to comply with this guidance to ensure compliance with the town's floodplain ordinance. You may email me at LBurns@oceanridgeflorida.com.



Please keep a copy of this notice and your company's response for your records. We thank you in advance for your cooperation and assistance in ensuring that our community is diligent in preventing loss of building equipment due to flood hazards.

Sincerely,
Lisa A. Burns
Building Clerk

Anchor Fuel Tanks



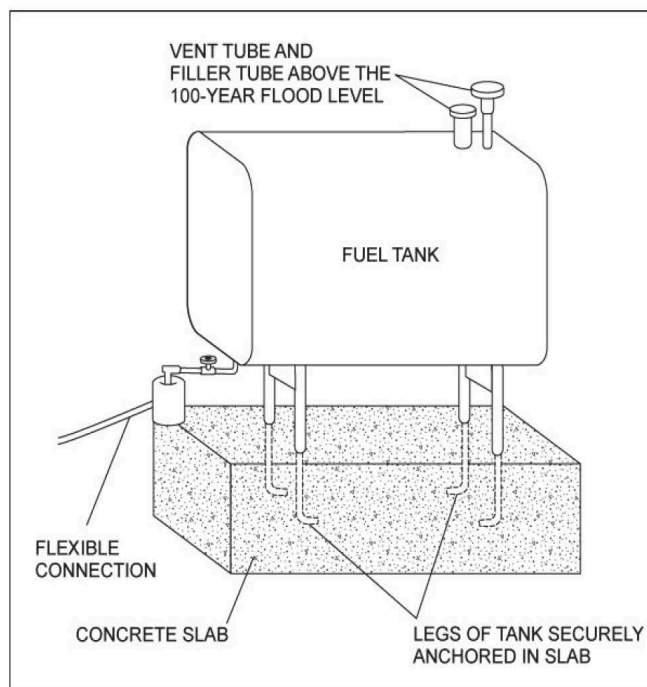
FEMA

PROTECTING YOUR PROPERTY FROM FLOODING

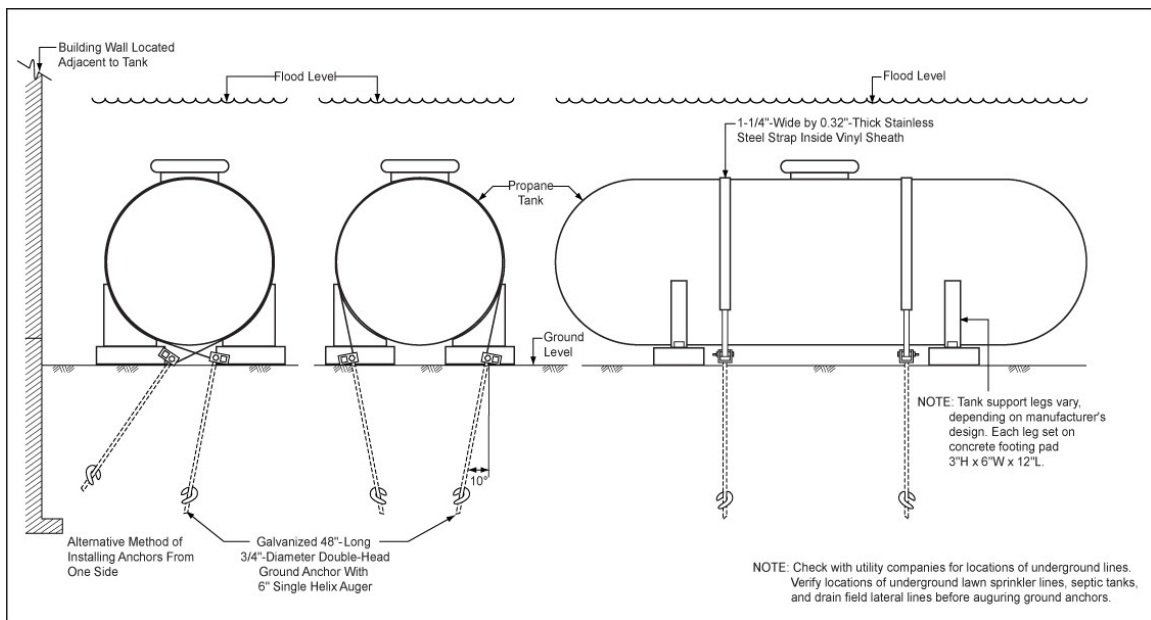
Unanchored fuel tanks can be easily moved by flood waters, posing serious threats not only to you, others, and your property, but also to public safety and the environment. An unanchored tank outside your building can be driven into the building walls by flood waters, or it can be swept downstream, damaging other houses. When an unanchored tank in your basement is moved by flood waters, the supply line can tear free and your basement can be contaminated by oil. Even a buried tank can be pushed to the surface by the buoyant effect of soil saturated by water.

As shown in the first figure, one way to anchor a fuel tank is to attach it to a large concrete slab whose weight is great enough to resist the force of flood waters. This method can be used for all tanks above ground, both inside and outside your property. You can also anchor an outside tank by running straps over it and attaching them to the concrete slab by using turnbuckles.

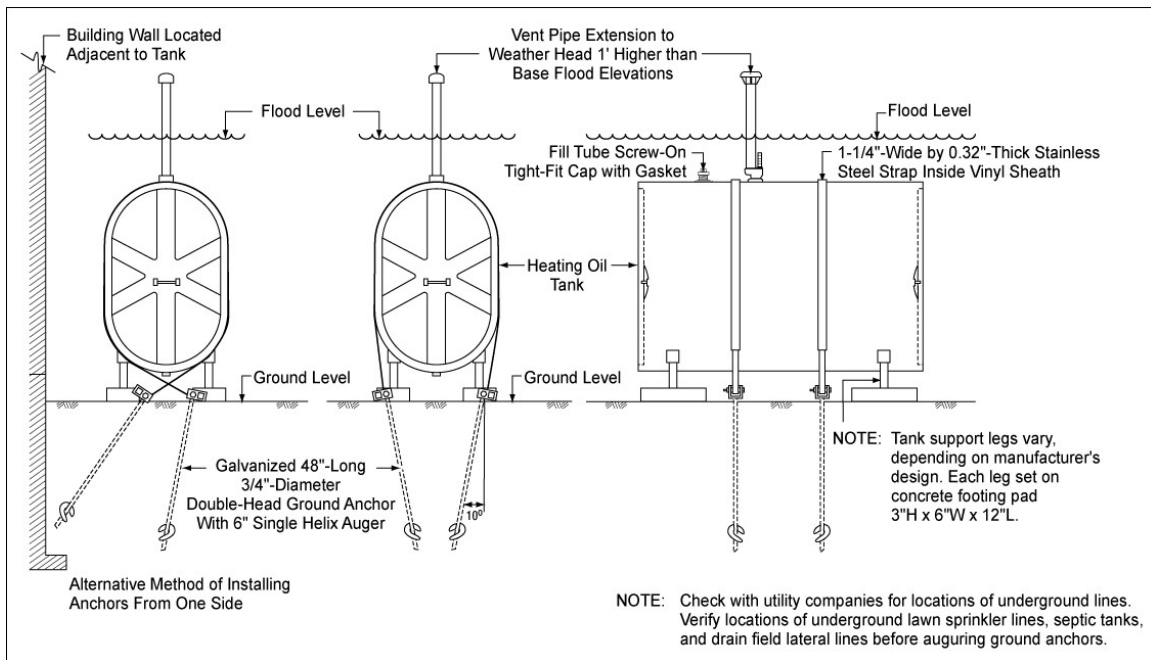
Propane is stored in pressurized vessels as liquefied petroleum gas (LPG), which can be extremely volatile and potentially explosive if the tank is ruptured and the escaping LPG is ignited by a spark. As shown in the second figure (next page), an inexpensive way to secure a horizontal outside propane tank is to install four ground anchors connected across the top of the tank with metal straps. Secure a vertical tank (120-gallon, 420 lb. size) with two ground anchors. Set each anchor on opposite sides of vertical tank. Attach a strap from each anchor to the collar secured around top of the tank. Attach another metal strap connected from one anchor to the other through tank base. The ground anchors and straps described below are the same products that are required by building codes to tie down mobile homes. These products are available from suppliers and installers that service the manufactured housing industry. Similar products can be used to anchor an outside heating oil tank. As is illustrated in the third figure (next page), one way to secure the oil tank is by running straps over it and attaching them to ground anchors.



Anchoring a fuel tank.



Anchoring an outside propane tank.



Anchoring an outside heating oil tank.

BENEFITS OF UTILIZING THIS MITIGATION STRATEGY

Helps to prevent damage and contamination to a structure and neighboring structures

Helps to protect public health and safety, as well as those of the structure's occupants, in addition to protecting the environment

TIPS

Keep these points in mind when you anchor a fuel tank:

- ✓ If you prefer not to do this work yourself, you can have a handyman or contractor anchor your tank.
- ✓ Extend all filling and ventilation tubes above the 100-year flood level so that flood waters cannot enter the tank.
- ✓ Close all connections when flood warnings are issued.

ESTIMATED COST

Anchoring a 1,000-gallon fuel tank to a concrete base will cost approximately \$300 to \$500.

OTHER SOURCES OF INFORMATION

FEMA 259, *Engineering Principles and Practices for Retrofitting Flood Prone Residential Buildings*, January 1995, <http://www.fema.gov/library/viewRecord.do?id=1645>. (New FEMA 259 will be available in the Fall of 2011.)

FEMA 348, *Protecting Building Utilities from Flood Damage*, Chapter 3, November 1999, <http://www.fema.gov/library/viewRecord.do?id=1750>.

FEMA P-499, *Home Builder's Guide to Coastal Construction*, "Protecting Utilities," Technical Fact Sheet No.8.3, December 2010, <http://www.fema.gov/library/viewRecord.do?id=2138>.

FEMA 481, *Anchoring Home Fuel Tanks* (DVD), <http://www.fema.gov/library/viewRecord.do?id=2021>.

FEMA, *Anchoring Home Fuel Tanks* (Video), <http://www.youtube.com/watch?v=gVTSWXnLmC4>

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