

FATS, OILS AND GREASE PROGRAM



TOWN OF APPOMATTOX

PUBLIC WORKS

DEPARTMENT

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Introduction

Fats, oils, and grease (FOG) are a common cause of blockages and sanitary sewer overflows (SSOs) in sanitary sewer systems across the United States. The U.S. Environmental Protection Agency provided a report to Congress that pointed out the fact that almost half the SSOs in the Country occurred due to blockages from grease, which solidifies within the collection system.

Many property owners and tenants are not aware of the potential problems associated with introducing FOG into the sewer systems. Residual FOG comes from cooking and cleaning processes in both residential and commercial establishments and the wastewater originating from these establishments then enters into the publicly owned sewer system. Standard interior plumbing systems and sanitary sewer systems are not intended to handle discharges of FOG; therefore, discharged grease builds up within both systems. Over time, this buildup can result in restricted flows and blockages within the systems and, ultimately, create backups into residences or businesses or overflows to the ground and surface waters.

Raw sewage overflows cannot only cause disruptions in service but can also create potential environmental and human health risks. Raw sewage contains high nutrients and oxygen demanding substances, which can deplete streams of dissolved oxygen resulting in environmental consequences as fish kills. It also may carry bacteria, viruses and parasites, which can cause various health issues for humans (e.g., gastroenteritis, various diseases). In addition, the buildup of grease in public sewer lines increases maintenance and repair costs, which must be passed on to customers.

The best way to protect interior plumbing and the public sewer systems is to prevent as much FOG as possible from going down the drain and subsequently entering the public sewer system. FOG management methods, which can help in this effort, are included in this program.

High discharge rates of petroleum-based compounds can lead to visible sheens in the wastewater treatment works, potential explosive conditions and potential loss of treatment due to interruption of the biological treatment processes within the treatment facility. Visible sheens coming into the treatment facility necessitate additional maintenance (e.g., oil skimming or adsorption) in order to keep the oils from reaching any part of the treatment works, including the biological treatment system or the final outfall. In addition, some discharges have sand, grit or other abrasive materials associated with them (e.g., car and truck wash facilities) that can be detrimental to the treatment works (e.g., line blockage, damage to pump impellers); this material also needs to be removed prior to entering the sewer system.

Design, Installation, and Maintenance of Grease Interceptors

1) General Requirements:

- a) There are various prefabricated grease interceptor units available which may be utilized. The minimum size exterior grease interceptor will be 1000 gallons and the minimum size interior grease interceptor will be a 100 pound capacity unit. If the flow exceeds 50 gallons per minute for an interior interceptor, the state plumbing code will be followed for appropriate sizing increases.
- b) Grease interceptors will be installed in accordance with manufacturer's recommendations and any other requirements by the approval authority having jurisdiction, the latest edition of the International Plumbing Code, the Virginia Uniform Statewide Building Code, the State plumbing code or other appropriate specifications and construction diagrams. In no case shall the specifications be less stringent than the specific requirements noted in this section [E.2. below], unless approved. The approval authority having jurisdiction shall provide review and approval and a building permit shall be obtained prior to installation.
- c) All sink drains and floor drains in food preparation and storage areas and any other areas which may discharge FOG must be routed to a grease interceptor. Dishwashers should also be routed through a grease interceptor but first be preceded by a solids interceptor. The water temperature entering a grease interceptor shall not exceed 140 degrees Fahrenheit (⁰F).
- d) New food service establishments shall not have food grinders installed. Existing food service establishments with food grinders shall have a solids interceptor installed prior to the grease interceptor.
- e) The exterior grease interceptor shall be installed on the property of the facility and at a distance from the kitchen area as to allow for adequate cooling of water prior to it entering the grease interceptor. It shall be fully accessible to allow for proper maintenance, inspection, cleaning and sampling without creating a nuisance.
- f) Sanitary wastes shall not be piped through any new exterior grease interceptor installation unless it is a unit going into an existing facility where the wastewaters are already combined.
- g) Food Truck establishments that plan to dump at the Town's dumping site or hook to the Town's sewer must install a grease trap before being allowed to dump or hook to the Town's sewer.

2) Specific Requirements for Exterior Grease Interceptors:

- a) Sizing shall be based upon providing a minimum of 30 minutes detention using the totalized volume of the peak flow rate for each fixture, including the manufacturer's specified peak flow on automatic dishwashers. As noted in this section (E.1.a. above), in no case shall the interceptor be less than 1000 gallons. It shall be designed to achieve an oil and grease concentration of no more than 100 mg/l.
- b) Access ports should provide full surface area access (See figure nos. 1 and 2 in the Appendix).
- c) Interceptors shall contain a built-in sample port on their effluent line (See figure no. 5 in the Appendix).
- d) Where the interceptor is located in a parking lot, it shall be designed to withstand traffic loads [see figure no. 2 (large manhole frames) in the appendix] and be accessible at all times. As an alternative, it may be located in a protected traffic island with concrete curbing or protected with an appropriate number of bollards that are anchored, concrete filled six-inch or greater diameter steel pipe at least four feet high and four feet buried or other substantial protective guards.
- e) The interceptor shall be properly vented to the atmosphere.
- f) The interceptor shall be of watertight construction to prevent both infiltration and exfiltration.
- g) The inlet and outlet tees must be a minimum of four (4) inches in diameter with the tops of each tee plugged with removable threaded caps. Penetration through the exterior walls shall not be sealed with any type of grouting mixture. The use of "boots", "link seals" or other approved methods shall be used to achieve sound infiltration and exfiltration capabilities.
- h) The interceptor shall have an air gap at the top to keep the tank from becoming air bound.
- i) There shall be a minimum of two (2) compartments with an interior baffle located at least 50% of the distance from the inlet wall. The interior baffle shall allow for venting at the top. The flow through pipe or port from the first compartment shall have a minimum opening equivalent to four (4) inches in diameter.

3) Grease Interceptor Maintenance

- a) Grease interceptors shall be inspected and cleaned on a sufficient periodic basis in order to ensure their proper operation. Exterior interceptors shall be cleaned at least quarterly. Smaller interior grease interceptors will be cleaned no less than weekly. More frequent cleaning may be required if inspections indicate that FOG is getting into the public sewer system in quantities sufficient to cause restricted flow, blockage or increased maintenance of the wastewater treatment works. All cleaning events should be observed to ensure that they are appropriately completed.
- b) Exterior grease interceptors shall not exceed 25% in grease/solids depth.
 - (a) Example calculation: Floating grease/scum layer measures 8 inches and the bottom solids layer is 6 inches. If the total depth of the liquid level in the interceptor is 48 inches, the grease/solids depth is 14 inches divided by 48 inches times 100 which equals 29%; exceeds the 25% requirement.
- c) Each grease interceptor cleaning shall be a complete evacuation of the system, which will allow for proper inspection. Grease removed from interior interceptors should be placed in an outside storage container for disposal or recycling. Pumped contents from exterior grease interceptors shall be transported to a facility authorized to receive the wastewater.
- d) Grease interceptors shall be pumped by a transporter that is approved for the pumping and transport of the waste.

Design and Installation of Oil/Water Separators and Grit Interceptors

From Virginia Plumbing Code

1003.4 Oil separators required.

At repair garages where floor or trench drains are provided, car washing facilities, factories where oily and flammable liquid wastes are produced and hydraulic elevator pits, oil separators shall be installed into which oil-bearing, grease-bearing or flammable wastes shall be discharged before emptying into the building drainage system or other point of disposal.

Exception: An oil separator is not required in hydraulic elevator pits where an approved alarm system is installed. Such alarm systems shall not terminate the operation of pumps utilized to maintain emergency operation of the elevator by fire fighters.

1003.4.1 Separation of liquids.

A mixture of treated or untreated light and heavy liquids with various specific gravities shall be separated in an approved receptacle.

1003.4.2 Oil separator design.

Oil separators shall be listed and labeled, or designed in accordance with Sections 1003.4.2.1 and 1003.4.2.2.

1003.4.2.1 General design requirements.

Oil separators shall have a depth of not less than 2 feet (610 mm) below the invert of the discharge drain. The outlet opening of the separator shall have not less than an 18-inch (457 mm) water seal.

1003.4.2.2 Garages and service stations.

Where automobiles are serviced, greased, repaired or washed or where gasoline is dispensed, oil separators shall have a capacity of not less than 6 cubic feet (0.168 m³) for the first 100 square feet (9.3 m²) of area to be drained, plus 1 cubic foot (0.028 m³) for each additional 100 square feet (9.3 m²) of area to be drained into the separator. Parking garages in which servicing, repairing or washing is not conducted, and in which gasoline is not dispensed, shall not require a separator. Areas of commercial garages utilized only for storage of automobiles are not required to be drained through a separator.

1003.5 Sand interceptors in commercial establishments.

Sand and similar interceptors for heavy solids shall be designed and located so as to be provided with ready access for cleaning, and shall have a water seal of not less than 6 inches (152 mm).

Management Practices for Food Service Establishments

1) Inside Management Practices

- a) Fats, oils and grease from cooking shall not be poured down sink drains, floor drains or water closets. Signs should be posted noting the same. Where possible, FOG shall be collected for recycle.
- b) Sink drain screens shall be maintained in place in order to prevent larger particles from going down the drains. Food scraps should be disposed of in trash containers rather than down the drains. Food grinders shall not be used unless an inline solids interceptor is installed prior to the grease interceptor.
- c) Dry methods of clean-up (e.g., scraping, wiping, sweeping) shall be utilized for fats, oil and grease prior to wet methods using water (e.g., rinsing and/or washing). Signs should be posted noting the same.
- d) Where floor drains are present, FOG spills need to be dry-cleaned in an effort to keep the material out of the drain.

- e) In order to prevent grease from re-solidifying in the sewer system and other potential harmful effects, hot water, caustics, acids, solvents, enzymes, drain deodorizers or other emulsifying agents shall not be utilized to dissolve grease.
- f) Hot water shall not be run through the grease interceptors to clean them out.
- g) In order to avoid spills, containers of used FOG should be emptied before they become full and covers should be utilized when carrying fats, oils and grease to outside storage containers.
- h) Outside storage containers for FOG shall be protected from precipitation and not stored in a manner where spills or leaks would enter a storm sewer.
- i) Staff shall be trained in the various management practices used to address FOG.

Procedures for grease traps that fail inspection

Any trap that fails inspection and needs to be cleaned, the inspector will follow these procedures. Along with the inspection report form a re-inspection letter must be filled out and signed by the manager or supervisor. Also, pictures will be taken and kept for our records. Any trap that fails inspection will have 7 days to have the tank cleaned and a copy of the manifest sheet from the company cleaning the trap submitted back to the Town. A re-inspection will take place after the 7 days any trap that fails on the re-inspection day a final letter will be filled out and signed by the manager. This letter will state that they will have 2 days to comply or their water service will be turned off. The Town Manager or Mayor will be notified immediately regarding any final notices that have been issued.