

## SECTION VII—FOG CONTROL PLAN

### Requirement<sup>1</sup>

Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If an Enrollee determines that a FOG program is not needed, the Enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the Enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. This plan shall include the following as appropriate:

- (a) An implementation plan and schedule for a public education outreach program that promotes proper disposal of FOG;
- (b) A plan and schedule for the disposal of FOG generated within the sanitary sewer system service area. This may include a list of acceptable disposal facilities and/or additional facilities needed to adequately dispose of FOG generated within a sanitary sewer system service area;
- (c) The legal authority to prohibit discharges to the system and identify measures to prevent SSOs and blockages caused by FOG;
- (d) Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, BMP requirements, record keeping and reporting requirements;
- (e) Authority to inspect grease producing facilities, enforcement authorities, and whether the Enrollee has sufficient staff to inspect and enforce the FOG ordinance;
- (f) An identification of sanitary sewer system sections subject to FOG blockages and establishment of a cleaning maintenance schedule for each section; and
- (g) Development and implementation of source control measures for all sources of FOG discharged to the sanitary sewer system for each section identified in (f) above.

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<sup>1</sup> SWRCB Order No. 2006-0003-DWQ § B.13 (vii)

## **Supporting Documents**

1. FOG Control Program. Created August 2006 by Water Quality Technician. Revised August 2008, December 2009, November 2011, and September 2020.
2. 2009 Watch Areas (previously known as FOG Hot Spots). Updated September 2020
3. Food Handling Facility – Wastewater Discharge Permit (Tier 3). Updated September 2019.
4. Best Management Practices (BMPs) for Restaurant FOG. August 2008.
5. 2018 California Plumbing Code Excerpt for Sections 1009, 1014, and 1015.

## **Sewer System Management Plan - FOG Control Program**

The Fats Oil and Grease (FOG) Program was developed as a component of the Sanitary Sewer System Management Plan (SSMP). Many of the elements required for a FOG program were already in place as part of the City's routine sewer system maintenance.

The FOG Control Program consists of 6 elements as follows:

- ▶ Public education and outreach
- ▶ Legal authority to prohibit illegal discharges, FOG blockages, and prevent sanitary sewer overflows (SSOs),
- ▶ Require installation of grease removal devices and a means to standardize their installation,
- ▶ Authority to inspect grease-producing facilities and enforce noncompliant facilities,
- ▶ Identify system locations subject to FOG blockages and establish maintenance schedules, and,
- ▶ Develop and implement source control measures for all FOG discharged to the sanitary sewer system.

How each of these elements is addressed in the City's FOG Control Program is described below.

### **Public Education and Outreach**

The City's primary avenue for distributing public outreach material will continue to be at local community events. City staff attend City events such as Farmer's Markets to provide public education to residents and visitors to the City and to distribute outreach materials including FOG outreach promotional items. The City proactively manages potential FOG sources through outreach during pretreatment inspections, providing outreach materials as needed. The City also participates in regional FOG public outreach activities through the Bay Area Pollution Prevention Group (BAPPG) and the Bay Area Clean Water Association (BACWA).

### **Legal Authority**

The City is required to maintain adequate legal authority to prohibit discharges to the system and identify measures to prevent Sanitary Sewer Overflows (SSO) and blockages caused by FOG., *Benicia Municipal Code Section 13.50* provides the City authority to enforce illegal discharges of FOG to the collection system and as a mechanism to develop and issue permits if needed. Additionally, The City uses elements of the 2018 *California Plumbing Code* Section 1009, 1014 and 1015 for newly constructed or permitted facilities.

### **Identification of FOG Blockages and Establishment of Maintenance Schedules**

The City is required to identify locations of FOG blockages and establish a routine maintenance schedule to help avoid SSOs. In 2009, City staff identified "hot spots" (an identifiable location of (a) sanitary sewer overflow(s) that requires repeat maintenance due to controllable upstream influences) during the initial development of the FOG Control Program. These "hot spots" were subsequently reviewed interdepartmentally to determine potential causes and solutions for prevention. It was determined that each location was the result of a combination of piping deficiencies (e.g. inadequate slope, a "belly"), roots, or FOG. Although FOG was witnessed at various locations, it was not solely responsible for SSOs at any of the originally identified locations. It was determined that none of the original locations met the criteria for a FOG "hot spot", and that the best mechanism for preventing

SSOs at these locations was periodic maintenance (cleaning) by the City's Public Works Maintenance Division rather than reliance upon FOG removal devices at a limited number of commercial establishments. The "2009 hot spot" list was subsequently revised and is shown in the attached spreadsheet referred to as "watch areas". The spreadsheet can be found in the SSMP, Section 7, immediately following this FOG Control Program. There are currently no identified hot spots in the City, however, the City continues to evaluate areas in the city where FOG blockages may occur and monitor watch areas. Water Quality Division staff works directly with Public Works Maintenance Division to evaluate conditions and updates the watch area spreadsheet based on observed conditions. City staff will evaluate maintenance/cleaning frequencies and make adjustments as needed.

## **FOG Source Control Program**

The City is required to develop and implement source control measures for FOG control. The City's current FOG source control program consists of public outreach and education and the requirement to install grease removal devices for new businesses and tenants who make major improvements to their site that produce FOG. The public outreach and education program was discussed in a previous section.

Previously the City's source control program also included food service establishments (FSEs). In November 2009, the City held two FOG trainings for restaurants that were in the previously identified "hot spots" service area. Fourteen of the twenty restaurants invited to the training attended. The previously identified hot spots were subsequently removed from the hot spot list for reasons described above. With no current "hot spots" identified in the City's service area, the staff identified food service establishments (FSEs) with large in-ground grease interceptors to target for source control. Each permitted FSE is inspected annually. During inspections staff reviews grease interceptor inspection and maintenance logs, distributes FOG outreach material and tours the facility to ensure compliance. Additional restaurants may be targeted in the future for source control activities such as inspections and distribution of FOG BMPs if "hot spots" are identified.

**2009 Watch Areas**  
(previously known as FOG Hot Spots)

	<b>Location</b>	<b>Customer Class</b> (residential or commercial)	<b>Type of infrastructure</b> (pipeline or lift station)	<b>Cause</b> (FOG, roots, engineering deficiency, infrastructure problem)	<b>Corrective Action</b>
1	Restaurant-Southampton Rd	Commercial (Restaurant)	Grease Interceptor	Grease	Water Quality Technician requires businesses to clean grease interceptor twice per year and maintain the records for 3 years. The WQ Technician inspects each business once per year after the cleanings have been completed.
2	Restaurant-Columbus Pkwy	Commercial (Restaurant)	Grease Interceptor	Grease	
3	Restaurant-East 2nd St	Commercial (Restaurant)	Grease Interceptor	Grease	
4	Restaurant-Goodyear Rd	Commercial (Restaurant)	Grease Interceptor	Grease	
5	Restaurant-Columbus Pkwy	Commercial (Restaurant)	Grease Interceptor	Grease	
6	Restaurant-2nd Street	Commercial (Restaurant)	Grease Interceptor	Grease	
7	Food Service/grocery-Southampton Rd	Commercial (Restaurant)	Grease Interceptor	Grease	
8	Restaurant- Southampton Rd	Commercial (Restaurant)	Grease Interceptor	Grease	
9	Food Service/Grocery- Solano Square	Commercial (Restaurant)	Grease Interceptor	Grease	
10	Food Service/Manufacturing Park Rd	Commercial (manufacturing)	Grease Interceptor	Grease	
11	First and B St./East 2nd and B St. 123 First St. to East 2nd and B St. L/S	Commercial and Residential	8" main and lift station	Flat - FOG	enhanced use of CCTV/increased/targeted cleaning schedule as needed.
12	510 East Channel Rd. Manhole #716	Commercial	12" main	Belly - FOG	Bi-annual cleaning CIP WWO63 "East Channel Road Sewerline Replacement" is on the future CIP list for FY 2016-2031.
13	350 Raymond Dr. Manhole #157	Residential	8" main	Eng - FOG	Quarterly cleaning
14	Lower Bolton Circle and Rose Dr. Manhole #844	Residential	8" main	Infras - FOG	Bi-annual cleaning
15	141 East F St. (@ 2nd St.)	Residential (with predominately commercial flow)	6" main	Belly - FOG	Bi-annual cleaning
16	1032 West 5th St. (Continental) Manhole #242	Residential	6" main	Flat - FOG	Quarterly cleaning
17	1421 East 5th St. (Alley 400 block East N) Manhole #096	Residential	6" main	Old infrastructure plus nearby businesses have changed over the years - FOG	Quarterly cleaning



**CITY OF BENICIA  
FOOD HANDLING FACILITY  
WASTEWATER DISCHARGE PERMIT (TIER 3)**

**Business Name:** \_\_\_\_\_

**Effective date:** \_\_\_\_\_

**Business Location:** \_\_\_\_\_

**Expiration date:** \_\_\_\_\_

**Business Address:** \_\_\_\_\_

- I. Grease removal devices (interceptors or grease traps) are required for food handling facilities that meet any of the following criteria:
- New Construction
  - Remodels, additions, alterations or repairs valued at or greater than \$20,000
  - Have caused or contributed to a grease related collection system blockage resulting in increased maintenance requirements and/or a sanitary sewer overflow.
- II. A food handling facility may be granted a waiver or conditional variance from grease interceptor installation and pumping requirements at the discretion of the City's Wastewater Treatment Plant Superintendent or Building Official.
- III. All **new** grease removal devices shall be designed, constructed and installed in accordance with the California Plumbing Code, Title 24, Part 5, Chapter 10 (Attachment 1) and shall have a sampling access point located downstream of the device.
- IV. Each grease removal device shall be maintained, to ensure proper operation and performance, as follows:
- For interceptors, removing the entire contents of the device each time the device is pumped. A minimum pumping frequency of once per six-month period, or more frequently to ensure that the facility discharge does not cause or contribute to a grease-related collection system blockage resulting in maintenance requirements and/or a sanitary sewer overflow. Pumping by a food handling facility waste grease hauler (Attachment 2) is required.
  - For grease traps, remove all solid waste inside the trap each time the trap is cleaned. Daily cleaning is recommended.
- V. The Permit Holder shall record maintenance activities on a "Cleaning Log" provided by the City (Attachment 3) with the following information for each grease removal device located on the premises. The records shall be kept a minimum of three years and provided to the City upon request.
- Date of service
  - Volume pumped (gallons)
  - Name of food handling facility waste grease hauler
  - Approved waste grease disposal location
  - If the device is an interceptor, a copy of the waste manifest for documentation
- VI. The Permit Holder shall notify the City of Benicia-Water Quality Division at (707) 746-4337 of any:
- Sale, lease, closure, or transfer of the operations for which the permit was issued
  - Change of facility name
  - Alteration or change to a grease removal device (s)
  - Remodels, additions, or repairs valued at greater than or equal to \$20,000
- VII. Access to the facility shall be granted to city staff to conduct wastewater compliance inspections and to collect wastewater discharge samples as needed.
- VIII. The City of Benicia will conduct random, unannounced inspections to verify compliance with the terms and conditions of this Food Handling Facilities Wastewater Discharge Permit.
- IX. The City of Benicia will pursue enforcement and penalties as authorized by Benicia Municipal Code Chapter 13.50.

**AUTHORIZATION**

The above named Permit Holder is hereby authorized to discharge wastewater to the community sewer, subject to Permit Holder's compliance with these Permit Terms and Conditions, Benicia Municipal Code Chapter 13.50.040, and the Food Handling Facility Wastewater Discharge Permit Standard, and Terms and Conditions. The City may amend this Permit to include revisions during the term of the Permit. This permit shall remain in effect until a new permit is issued.

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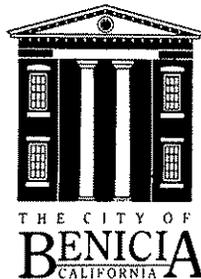
Jeff Gregory, Wastewater Treatment Plant Superintendent  
614 East 5<sup>th</sup> Street, Benicia, CA 94510

Date

# Restaurant Handouts

## Best Management Practices (BMPs) for Restaurant Fats, Oils and Grease (FOG)

- Post “No Grease” signs above sinks and on the front of dishwashers.
- Check grease interceptor solids depth routinely. The combined thickness of the floating grease and the bottom solids should not be more than 25% of the total interceptor depth.
- Collect and recycle waste cooking oil.
- “Dry wipe” pots, pans, and kitchen equipment, before cleaning.
- Maintain a routine grease trap cleaning schedule.
- Use absorbent paper under fryer baskets.
- Use absorbents such as cat litter or paper towels to pick up oil and grease spills before mopping.
- Do not use emulsifiers or solvents other than typical dishwashing detergents.
- TRAIN ALL STAFF ON BMPS.



City of Benicia  
Water Quality Division  
FOG Control Program: 707-746-4337

# CHAPTER 10

## TRAPS AND INTERCEPTORS

### 1001.0 General.

**1001.1 Applicability.** This chapter shall govern the materials, design, and installation of traps and interceptors.

» **1001.2 Where Required.** Each plumbing fixture, shall be separately trapped by an approved type of liquid seal trap. This section shall not apply to fixtures with integral traps. Not more than one trap shall be permitted on a trap arm.

Food waste disposers installed with a set of restaurant, commercial, or industrial sinks shall be connected to a separate trap. Each domestic clothes washer and each laundry tub shall be connected to a separate and independent trap, except that a trap serving a laundry tub shall be permitted to also receive the waste from a clothes washer set adjacent thereto. The vertical distance between a fixture outlet and the trap weir shall be as short as practicable, but in no case shall the tailpiece from a fixture exceed 24 inches (610 mm) in length. One trap shall be permitted to serve a set of not more than three single compartment sinks or laundry tubs of the same depth or three lavatories immediately adjacent to each other and in the same room where the waste outlets are not more than 30 inches (762 mm) apart and the trap is centrally located where three compartments are installed.

### 1002.0 Traps Protected by Vent Pipes.

**1002.1 Vent Pipes.** Each plumbing fixture trap, except as otherwise provided in this code, shall be protected against siphonage, backpressure, and air circulation shall be assured throughout the drainage system by means of a vent pipe installed in accordance with the requirements of this code.

**1002.2 Fixture Traps.** Each fixture trap shall have a protecting vent so located that the developed length of the trap arm from the trap weir to the inner edge of the vent shall be within the distance given in Table 1002.2, but in no case less than two times the diameter of the trap arm.

**1002.3 Change of Direction.** A trap arm shall be permitted to change direction without the use of a cleanout where such change of direction does not exceed 90 degrees (1.57 rad). Horizontal changes in direction of trap arms shall be in accordance with Section 706.3.

**Exception:** For trap arms 3 inches (80 mm) in diameter and larger, the change of direction shall not exceed 135 degrees (2.36 rad) without the use of a cleanout.

**1002.4 Vent Pipe Opening.** The vent pipe opening from a soil or waste pipe, except for water closets and similar fixtures, shall not be below the weir of the trap.

### 1003.0 Traps — Described.

**1003.1 General Requirements.** Each trap, except for traps within an interceptor or similar device shall be self cleaning. Traps for bathtubs, showers, lavatories, sinks, laundry tubs, floor drains, urinals, drinking fountains, dental units, and similar fixtures shall be of standard design, weight and shall be of ABS, cast-brass, cast-iron, lead, PP, PVC, or other approved material. An exposed and readily accessible drawn-copper alloy tubing trap, not less than 17 B & S Gauge (0.045 inch) (1.143 mm), shall be permitted to be used on fixtures discharging domestic sewage.

#### Exceptions:

- (1) Drawn-copper alloy tubing traps shall not be used for urinals. Each trap shall have the manufacturer's name stamped legibly in the metal of the trap, and each tubing trap shall have the gauge of the tubing in addition to the manufacturer's name. A trap shall have a smooth and uniform interior waterway.
- (2) *[HCD 1 & HCD 2] Non-water supplied urinals conforming to ASME A112.19.19-2006, Standard for Vitreous China Nonwater Urinals, or reference standards in Table 1701.1 for non-vitreous ceramic or plastic urinal fixtures.*

**TABLE 1002.2**  
**HORIZONTAL LENGTHS OF TRAP ARMS**  
**(EXCEPT FOR WATER CLOSETS AND SIMILAR FIXTURES)<sup>1, 2</sup>**

TRAP ARM PIPE DIAMETER (inches)	DISTANCE TRAP TO VENT MINIMUM (inches)	LENGTH MAXIMUM (inches)
1¼	2½	30
1½	3	42
2	4	60
3	6	72
4	8	120
Exceeding 4	2 x Diameter	120

For SI units: 1 inch = 25.4 mm

**Notes:**

<sup>1</sup> Maintain ¼ inch per foot slope (20.8 mm/m).

<sup>2</sup> The developed length between the trap of a water closet or similar fixture (measured from the top of the closet flange to the inner edge of the vent) and its vent shall not exceed 6 feet (1829 mm).

## TRAPS AND INTERCEPTORS

**1003.2 Slip Joint Fittings.** A maximum of one approved slip joint fitting shall be permitted to be used on the outlet side of a trap, and no tubing trap shall be installed without a listed tubing trap adapter. Listed plastic trap adapters shall be permitted to be used to connect listed metal tubing traps.

**1003.3 Size.** The size (nominal diameter) of a trap for a given fixture shall be sufficient to drain the fixture rapidly, but in no case less than nor more than one pipe size larger than given in Table 702.1. The trap shall be the same size as the trap arm to which it is connected.

### 1004.0 Traps.

**1004.1 Prohibited.** No form of trap that depends for its seal upon the action of movable parts shall be used. No trap that has concealed interior partitions, except those of plastic, glass, or similar corrosion-resisting material, shall be used. "S" traps, bell traps, and crown-vented traps shall be prohibited. No fixture shall be double trapped. Drum and bottle traps shall be installed for special conditions. No trap shall be installed without a vent, except as otherwise provided in this code.

**1004.2 Movable Parts.** Bladders, check valves or other type of devices with moveable parts shall be prohibited to serve as a trap.

### 1005.0 Trap Seals.

**1005.1 General.** Each fixture trap shall have a liquid seal of not less than 2 inches (51 mm) and not more than 4 inches (102 mm), except where a deeper seal is found necessary by the Authority Having Jurisdiction. Traps shall be set true with respect to their liquid seals and, where necessary, they shall be protected from freezing.

### 1006.0 Floor Drain Traps.

**1006.1 General.** Floor drains shall connect into a trap so constructed that it can be readily cleaned and of a size to serve efficiently the purpose for which it is intended. The drain inlet shall be so located that it is in full view. Where subject to reverse flow of sewage or liquid waste, such drains shall be equipped with an approved backwater valve.

### 1007.0 Trap Seal Protection.

**1007.1 General.** Floor drain or similar traps directly connected to the drainage system and subject to infrequent use shall be protected with a trap seal primer, except where not deemed necessary for safety or sanitation by the Authority Having Jurisdiction. Trap seal primers shall be accessible for maintenance.

### 1008.0 Building Traps.

**1008.1 General.** Building traps shall not be installed except where required by the Authority Having Jurisdiction. Each building trap where installed shall be provided with a cleanout and with a relieving vent or fresh-air intake on the inlet side of the trap, which need not be larger than one-half the diameter of the drain to which it connects. Such relieving

vent or fresh-air intake shall be carried above grade and terminate in a screened outlet located outside the building.

### 1009.0 Interceptors (Clarifiers) and Separators.

**1009.1 Where Required.** Interceptors (clarifiers) (including grease, oil, sand, solid interceptors, etc.) shall be required by the Authority Having Jurisdiction where they are necessary for the proper handling of liquid wastes containing grease, flammable wastes, sand, solids, acid or alkaline substances, or other ingredients harmful to the building drainage system, the public or private sewer, or to public or private sewage disposal.

**1009.2 Approval.** The size, type, and location of each interceptor (clarifier) or separator shall be approved by the Authority Having Jurisdiction. Except where otherwise specifically permitted, no wastes other than those requiring treatment or separation shall be discharged into an interceptor (clarifier).

**1009.3 Design.** Interceptors (clarifiers) for sand and similar heavy solids shall be so designed and located as to be readily accessible for cleaning and shall have a water seal of not less than 6 inches (152 mm).

**1009.4 Relief Vent.** Interceptors (clarifiers) shall be so designed that they will not become air-bound where closed covers are used. Each interceptor (clarifier) shall be properly vented.

**1009.5 Location.** Each interceptor (clarifier) cover shall be readily accessible for servicing and maintaining the interceptor (clarifier) in working and operating condition. The use of ladders or the removal of bulky equipment in order to service interceptors (clarifiers) shall constitute a violation of accessibility. Location of interceptors (clarifiers) shall be shown on the approved building plan.

**1009.6 Maintenance of Interceptors.** Interceptors shall be maintained in efficient operating condition by periodic removal of accumulated grease, scum, oil, or other floating substances and solids deposited in the interceptor.

**1009.7 Discharge.** The waste pipe from oil and sand interceptors shall discharge as approved by the Authority Having Jurisdiction.

### 1010.0 Slaughterhouses, Packing Establishments, etc.

**1010.1 General.** A fish, fowl, and animal slaughterhouse or establishment; a fish, fowl, and meat packing or curing establishment; a soap factory, tallow-rendering, fat-rendering, and a hide-curing establishment shall be connected to and shall drain or discharge into an approved grease interceptor (clarifier).

#### 1010.2 [AGR] Meat and Poultry Processing Plants.

**1010.2.1 Drainage and Plumbing Systems.** Drainage and plumbing systems shall meet the requirements of Section 724.0.

**1010.2.1.1** Each floor drain shall be equipped with a deep-seal trap.

**1010.2.2** *The plumbing shall be installed so as to prevent sewage from backing up and flooding the floor.*

**Exception:** *Floor drains in areas not regularly washed down will be acceptable with deep-seal traps, provided that such drains are connected to secondary drainage systems discharging into a safe sink or basin (air gap) that is properly trapped and vented, and that such drains accomplish the objectives and intent of this section.*

**1010.2.3** *Interceptor traps which are connected with the sewer system shall not be near any edible products department or in any area where products are unloaded from or loaded into vehicles. To facilitate cleaning, such traps shall have inclined bottoms and be provided with suitable covers.*

**1010.3 [AGR] Collection Centers and Facilities.** *All drains shall be properly installed with adequate deep-sealed traps of the conventional "P," "U" or "S" type and vents.*

**1010.4 [AGR] Horse Meat and Pet Food Establishments.** *There shall be an efficient drainage and plumbing system for the establishment and premises. All drains and gutters shall be installed with traps and vents approved by the Department.*

**1010.5 [AGR] Draining and Plumbing.** *There shall be an efficient drainage and plumbing system for the plant and premises.*

**1010.5.1 Drainage and Gutters.** *All drains and gutters shall be properly installed with approved traps and vents. The drainage and plumbing system must permit the quick runoff of all water from plant buildings, and of surface water around the plant on the premises, and all such water shall be disposed of in such a manner as to prevent a nuisance or health hazard.*

**1010.5.2 Sewage and Plant Waste.** *The sewer system have adequate slope and capacity to remove readily all waste from the various processing operations and to minimize, or if possible, prevent stoppage and surcharging of the system. When the sewage disposal system is a private system which is required to be approved by a state or local health authority, the applicant shall furnish the administrator a letter from the proper health authority indicating that the sewage disposal system is acceptable to such authority.*

### **1011.0 Minimum Requirements for Auto Wash Racks.**

**1011.1 General.** A private or public wash rack, or floor or slab used for cleaning machinery or machine parts shall be adequately protected against storm or surface water and shall drain or discharge into an approved interceptor (clarifier).

### **1012.0 Commercial and Industrial Laundries.**

**1012.1 General.** Laundry equipment in commercial and industrial buildings that does not have integral strainers shall discharge into an interceptor having a wire basket or similar device that is removable for cleaning and that will

prevent passage into the drainage system of solids  $\frac{1}{2}$  of an inch (12.7 mm) or larger in maximum dimension, such as string, rags, buttons, or other solid materials detrimental to the public sewerage system.

### **1013.0 Bottling Establishments.**

**1013.1 General.** Bottling plants shall discharge their process wastes into an interceptor that will provide for the separation of broken glass or other solids, before discharging liquid wastes into the drainage system.

### **1014.0 Grease Interceptors.**

**1014.1 General.** Where it is determined by the Authority Having Jurisdiction that waste pretreatment is required, an approved type of grease interceptor(s) in accordance with ASME A112.14.3, ASME A112.14.4, CSA B481, PDI G-101, or PDI G-102, and sized in accordance with Section 1014.2.1 or Section 1014.3.6, shall be installed in accordance with the manufacturer's installation instructions to receive the drainage from fixtures or equipment that produce grease-laden waste located in areas of establishments where food is prepared, or other establishments where grease is introduced into the drainage or sewage system in quantities that can effect line stoppage or hinder sewage treatment or private sewage disposal systems. A combination of hydromechanical, gravity grease interceptors, and engineered systems shall be allowed in order to meet this code and other applicable requirements of the Authority Having Jurisdiction where space or existing physical constraints of existing buildings necessitate such installations. A grease interceptor shall not be required for individual dwelling units or for private living quarters. Water closets, urinals, and other plumbing fixtures conveying human waste shall not drain into or through the grease interceptor.

**1014.1A [OSHPD 1, 2, 3 & 4]** *The Authority Having Jurisdiction is the individual official, board, department or agency authorized to administer and enforce the sewage treatment system in the area of the location of the health facility.*

**1014.1B [OSHPD 1, 2, 3 & 4]** *Grease interceptors shall not be installed in food preparation area of the kitchens.*

**1014.1C [OSHPD 1, 2, 3 & 4]** *Grease interceptors shall be installed outside of the kitchen area in location affording ease of maintenance and servicing.*

**1014.1.1 Trapped and Vented.** Each fixture discharging into a grease interceptor shall be individually trapped and vented in an approved manner.

**1014.1.2 Maintenance.** Grease interceptors shall be maintained in efficient operating condition by periodic removal of the accumulated grease and latent material. No such collected grease shall be introduced into drainage piping or a public or private sewer. Where the Authority Having Jurisdiction determines that a grease interceptor is not being properly cleaned or maintained, the Authority Having Jurisdiction shall have the authority to mandate the installation of additional equipment or devices and to mandate a maintenance program.

**1014.1.3 Food Waste Disposers and Dishwashers.** No food waste disposer or dishwasher shall be connected to or discharge into a grease interceptor. Commercial food waste disposers shall be permitted to discharge directly into the building’s drainage system.

**Exception:** Food waste disposers shall be permitted to discharge to grease interceptors that are designed to receive the discharge of food waste.

**1014.2 Hydromechanical Grease Interceptors.** Plumbing fixtures or equipment connected to a Type A and B hydromechanical grease interceptor shall discharge through an approved type of vented flow control installed in a readily accessible and visible location. Flow control devices shall be designed and installed so that the total flow through such device or devices shall at no time be greater than the rated flow of the connected grease interceptor. No flow control device having adjustable or removable parts shall be approved. The vented flow control device shall be located such that no system vent shall be between the flow control and the grease interceptor inlet. The vent or air inlet of the flow control device shall connect with the sanitary drainage vent system, as elsewhere required by this code, or shall terminate through the roof of the building, and shall not terminate to the free atmosphere inside the building.

**Exception:** Listed grease interceptors with integral flow controls or restricting devices shall be installed in an accessible location in accordance with the manufacturer’s installation instructions.

**1014.2.1 Capacity.** The total capacity in gallons (gal) (L) of fixtures discharging into a hydromechanical grease interceptor shall not exceed two and one-half times the certified gallon per minute (gpm) (L/s) flow rate of the interceptor in accordance with Table 1014.2.1.

For the purpose of this section, the term “fixture” shall mean and include each plumbing fixture, appliance, apparatus, or other equipment required to be connected to or discharged into a grease interceptor by a provision of this section.

**1014.2.2 Vent.** A vent shall be installed downstream of hydromechanical grease interceptors in accordance with the requirements of this code.

**1014.3 Gravity Grease Interceptors.** Required gravity grease interceptors shall comply with the provisions of Section 1014.3.1 through Section 1014.3.7.

**1014.3.1 General.** The provisions of this section shall apply to the design, construction, installation, and testing of commercial kitchen gravity grease interceptors.

TABLE 1014.2.1  
HYDROMECHANICAL GREASE INTERCEPTOR SIZING USING GRAVITY FLOW RATES<sup>1</sup>

DIAMETER OF GREASE WASTE PIPE (inches)	MAXIMUM FULL PIPE FLOW (gpm) <sup>2</sup>	SIZE OF GREASE INTERCEPTOR	
		ONE-MINUTE DRAINAGE PERIOD (gpm)	TWO-MINUTE DRAINAGE PERIOD (gpm)
2	20	20	10
3	60	75	35
4	125	150	75
5	230	250	125
6	375	500	250

For SI units: 1 inch = 25 mm, 1 gallon per minute = 0.06 L/s

**Notes:**

- <sup>1</sup> For interceptor sizing by fixture capacity see the example below.
- <sup>2</sup> ¼ inch slope per foot (20.8 mm/m) based on Manning’s formula with friction factor N = .012.

EXAMPLE 1014.2.1  
SIZING HYDROMECHANICAL GREASE INTERCEPTOR(S) USING FIXTURE CAPACITY

**Step 1: Determine the flow rate from each fixture.**

$$[\text{Length}] \times [\text{Width}] \times [\text{Depth}] / [2.31] = \text{Gallons} \times [.75 \text{ fill factor}] / [\text{Drain Period (1 minute or 2 minutes)}]$$

**Step 2: Calculate the total load from fixtures that discharge into the interceptor.**

FIXTURES	COMPARTMENTS	LOAD (gallons)	SIZE OF GREASE INTERCEPTOR ONE-MINUTE DRAINAGE PERIOD (gpm)	TWO-MINUTE DRAINAGE PERIOD (gpm)
Compartment size	—	—	—	—
24 inches x 24 inches x 12 inches	2	44.9	—	—
Hydrant	—	3	—	—
Rated Appliance	—	2	—	—
—	—	49.9	50	25

For SI units: 1 inch = 25.4 mm, 1 gallon per minute = 0.06 L/s, 1 gallon = 3.785 L

**1014.3.2 Waste Discharge Requirements.** Waste discharge in establishments from fixtures and equipment which contain grease, including but not limited to, scullery sinks, pot and pan sinks, dishwashers, soup kettles, and floor drains located in areas where grease-containing materials exist, shall be permitted to be drained into the sanitary waste through the interceptor where approved by the Authority Having Jurisdiction.

**1014.3.2.1 Toilets and Urinals.** Toilets, urinals, and other similar fixtures shall not drain through the interceptor.

**1014.3.2.2 Inlet Pipe.** Waste shall enter the interceptor through the inlet pipe.

**1014.3.3 Design.** Gravity interceptors shall be constructed in accordance with the applicable standard in Table 1701.1 or the design approved by the Authority Having Jurisdiction.

**1014.3.4 Location.** Each grease interceptor shall be so installed and connected that it shall be easily accessible for inspection, cleaning, and removal of the intercepted grease. A gravity grease interceptor in accordance with IAPMO Z1001, shall not be installed in a building where food is handled. Location of the grease interceptor shall meet the approval of the Authority Having Jurisdiction.

**1014.3.4.1 Interceptors.** Interceptors shall be placed as close as practical to the fixtures they serve.

**1014.3.4.2 Business Establishment.** Each business establishment for which a gravity grease interceptor is required shall have an interceptor which shall serve that establishment unless otherwise approved by the Authority Having Jurisdiction.

**1014.3.4.3 Access.** Each gravity grease interceptor shall be located so as to be readily accessible to the equipment required for maintenance.

**1014.3.5 Construction Requirements.** Gravity grease interceptors shall be designed to remove grease from effluent and shall be sized in accordance with this section. Gravity grease interceptors shall also be designed to retain grease until accumulations can be removed by pumping the interceptor. It is recommended that a sample box be located at the outlet end of gravity grease interceptors so that the Authority Having Jurisdiction can periodically sample effluent quality.

**1014.3.6 Sizing Criteria.** The volume of the interceptor shall be determined by using Table 1014.3.6. Where drainage fixture units (DFUs) are not known, the interceptor shall be sized based on the maximum DFUs allowed for the pipe size connected to the inlet of the interceptor. Refer to Table 703.2, Drainage Piping, Horizontal.

**1014.3.7 Abandoned Gravity Grease Interceptors.** Abandoned grease interceptors shall be pumped and filled as required for abandoned sewers and sewage disposal facilities in Section 722.0.

**TABLE 1014.3.6  
GRAVITY GREASE INTERCEPTOR SIZING**

DRAINAGE FIXTURE UNITS <sup>1,3</sup> (DFUs)	INTERCEPTOR VOLUME <sup>2</sup> (gallons)
8	500
21	750
35	1000
90	1250
172	1500
216	2000
307	2500
342	3000
428	4000
576	5000
720	7500
2112	10 000
2640	15 000

For SI units: 1 gallon = 3.785 L

**Notes:**

- <sup>1</sup> The maximum allowable DFUs plumbed to the kitchen drain lines that will be connected to the grease interceptor.
- <sup>2</sup> This size is based on: DFUs, the pipe size from this code; Table 703.2; Useful Tables for flow in half-full pipes (ref: *Mohinder Nayyar Piping Handbook*, 3rd Edition, 1992). Based on 30-minute retention time (ref.: George Tchobanoglous and Metcalf & Eddy. *Wastewater Engineering Treatment, Disposal and Reuse*, 3rd Ed. 1991 & Ronald Crites and George Tchobanoglous. *Small and Decentralized Wastewater Management Systems*, 1998). Rounded up to nominal interceptor volume.
- <sup>3</sup> Where the flow rate of directly connected fixture(s) or appliance(s) have no assigned DFU values, the additional grease interceptor volume shall be based on the known flow rate (gpm) (L/s) multiplied by 30 minutes.

**1015.0 FOG (Fats, Oils, and Greases) Disposal System.**

**1015.1 Purpose.** The purpose of this section is to provide the necessary criteria for the sizing, application, and installation of FOG disposal systems designated as a pretreatment or discharge water quality compliance strategy.

**1015.2 Components, Materials, and Equipment.** FOG disposal systems, including components, materials, and equipment necessary for the proper function of the system, shall be in accordance with ASME A112.14.6.

**1015.3 Sizing and Installation.** FOG disposal systems shall be sized and installed in accordance with the manufacturer's installation instructions.

**1015.4 Performance.** FOG disposal systems shall produce an effluent quality not to exceed 5.84 grains per gallon (gr/gal) (100 mg/L) FOG in accordance with ASME A112.14.6.

**1015.5 [OSHPD 1, 2, 3 & 4] Grease interceptors shall not be installed in food preparation area of kitchens.**

**1015.6 [OSHPD 1, 2, 3 & 4] Grease interceptors shall be installed outside of the kitchen area in location affording ease of maintenance and servicing.**

## EXAMPLE 1014.3.6

## GRAVITY GREASE INTERCEPTOR SIZING EXAMPLE

Given: A restaurant with the following fixtures and equipment.

One food preparation sink; three floor drains - one in the food prep area, one in the grill area, and one receiving the indirect waste from the ice machine and a mop sink.

Kitchen Drain Line DFU Count (from Table 702.1):

3 floor drains at 2 DFUs each	=	6 DFUs
Mop sink at 3 DFUs each	=	3 DFUs
Food prep sink at 3 DFUs each	=	3 DFUs
Total	=	12 DFUs

Using Table 1014.3.6, the grease interceptor will be sized at 750 gallons (2389 L).

**1016.0 Sand Interceptors.**

**1016.1 Discharge.** Where the discharge of a fixture or drain contain solids or semi-solids heavier than water that would be harmful to a drainage system or cause a stoppage within the system, the discharge shall be through a sand interceptor. Multiple floor drains shall be permitted to discharge into one sand interceptor.

**1016.2 Authority Having Jurisdiction.** Sand interceptors are required where the Authority Having Jurisdiction deems it advisable to have a sand interceptor to protect the drainage system.

**1016.3 Construction and Size.** Sand interceptors shall be built of brick or concrete, prefabricated coated steel, or other watertight material. The interceptor shall have an interior baffle for full separation of the interceptor into two sections. The outlet pipe shall be the same size as the inlet pipe of the sand interceptor, the minimum being 3 inches (80 mm), and the baffle shall have two openings of the same diameter as the outlet pipe and at the same invert as the outlet pipe. These openings shall be staggered so that there cannot be a straight line flow between the inlet pipe and the outlet pipe. The invert of the inlet pipe shall be no lower than the invert of the outlet pipe.

The sand interceptor shall have a minimum dimension of 2 square feet (0.2 m<sup>2</sup>) for the net free opening of the inlet section and a minimum depth under the invert of the outlet pipe of 2 feet (610 mm).

For each 5 gpm (0.3 L/s) flow or fraction thereof over 20 gpm (1.26 L/s), the area of the sand interceptor inlet section is to be increased by 1 square foot (0.09 m<sup>2</sup>). The outlet section shall at all times have a minimum area of 50 percent of the inlet section.

The outlet section shall be covered by a solid removable cover, set flush with the finished floor, and the inlet section shall have an open grating, set flush with the finished floor and suitable for the traffic in the area in which it is located.

**1016.4 Separate Use.** Sand and similar interceptors for every solid shall be so designed and located as to be readily

accessible for cleaning, shall have a water seal of not less than 6 inches (152 mm), and shall be vented.

**1017.0 Oil and Flammable Liquid Interceptors.**

**1017.1 Interceptors Required.** Repair garages and gasoline stations with grease racks or grease pits, and factories that have oily, flammable, or both types of wastes as a result of manufacturing, storage, maintenance, repair, or testing processes, shall be provided with an oil or flammable liquid interceptor that shall be connected to necessary floor drains. The separation or vapor compartment shall be independently vented to the outer air. Where two or more separation or vapor compartments are used, each shall be vented to the outer air or shall be permitted to connect to a header that is installed at a minimum of 6 inches (152 mm) above the spill line of the lowest floor drain and vented independently to the outer air. The minimum size of a flammable vapor vent shall be not less than 2 inches (50 mm), and, where vented through a sidewall, the vent shall be not less than 10 feet (3048 mm) above the adjacent level at an approved location. The interceptor shall be vented on the sewer side and shall not connect to a flammable vapor vent. Oil and flammable interceptors shall be provided with gastight cleanout covers that shall be readily accessible. The waste line shall be not less than 3 inches (80 mm) in diameter with a full-size cleanout to grade. Where an interceptor is provided with an overflow, it shall be provided with an overflow line [not less than 2 inches (50 mm) in diameter] to an approved waste oil tank having a minimum capacity of 550 gallons (2082 L) and meeting the requirements of the Authority Having Jurisdiction. The waste oil from the separator shall flow by gravity or shall be pumped to a higher elevation by an automatic pump. Pumps shall be adequately sized and accessible. Waste oil tanks shall have a 2 inch (50 mm) minimum pump-out connection at grade and a 1½ inch (40 mm) minimum vent to atmosphere at an approved location not less than 10 feet (3048 mm) above grade.

**1017.2 Design of Interceptors.** Each manufactured interceptor that is rated shall be stamped or labeled by the manufacturer with an indication of its full discharge rate in gpm (L/s). The full discharge rate to such an interceptor shall be determined at full flow. Each interceptor shall be rated equal to or greater than the incoming flow and shall be provided with an overflow line to an underground tank.

Interceptors not rated by the manufacturer shall have a depth of not less than 2 feet (610 mm) below the invert of the discharge drain. The outlet opening shall have not less than an 18 inch (457 mm) water seal and shall have a minimum capacity as follows: Where not more than three motor vehicles are serviced, stored, or both, interceptors shall have a minimum capacity of 6 cubic feet (0.2 m<sup>3</sup>), and 1 cubic foot (0.03 m<sup>3</sup>) of capacity shall be added for each vehicle up to 10 vehicles. Above 10 vehicles, the Authority Having Jurisdiction shall determine the size of the interceptor required. Where vehicles are serviced and not stored, interceptor capacity shall be based on a net capacity of 1 cubic foot (0.03 m<sup>3</sup>) for each 100 square feet (9.29 m<sup>2</sup>) of surface to be drained into the interceptor, with a minimum of 6 cubic feet (0.2 m<sup>3</sup>).