Fats, Oils & Grease & Food Service Establishments

Table of Contents

What is F.O.G.

Fats, Oils, and Grease is any substance such as vegetable or animal product that is used in, or is a by- product of, the cooking or food preparation process. Food Service Establishments (F.S.E.) are a prime source of F.O.G. which can pass into a sewer system during the food preparation and kitchen equipment cleaning processes

Fats, Oils, and Grease (F.O.G.)

F.O.G. becomes viscous or solidifies when cooled after being discharged into the drain, sticking to the walls of the pipe and eventually blocking the sewer line causing …….

Sewer Line Blockages

Sewer line blockages are caused by a variety of issues, but according to the EPA's report to Congress, 47% of sanitary sewer overflows identified that fats, oils, and grease generated from restaurants, residential homes and industrial sources were the most common cause of reported blockages. Sewer line blockages are the primary cause of……

Sanitary Sewer Overflows (SSO)

Sanitary sewer overflow is a condition in which untreated sewage is discharged from a sanitary sewer into the environment prior to reaching the sewage treatment facility

Recent Sewer Overflow

Sewer Overflow

The Collections Crew was able to identify that Fats, Oils, and Grease from a Food Service Establishment was the primary cause of this sewer overflow

FOOD SERVICE ESTABLISHMENT (FSE)

BMC 13.09.050 “Definitions”

Food Service Establishment:

Shall mean any entity, including its members, operators, and employees, located within the boundaries of the City, engaged in the business of storing, preparing, serving, manufacturing, packaging or handling food for sale to other entities, or for consumption by the public, and which has any process or device that uses or produces F.O.G., or grease vapors, steam, fumes, smoke or odors that are required to be removed by a type I or type II hood provided in the California Mechanical Code.

Do all Food Service Establishments discharge the same amounts of Fats, Oils & Grease?

Food Service Establishments (F.S.E.)

Grease Removal Devices

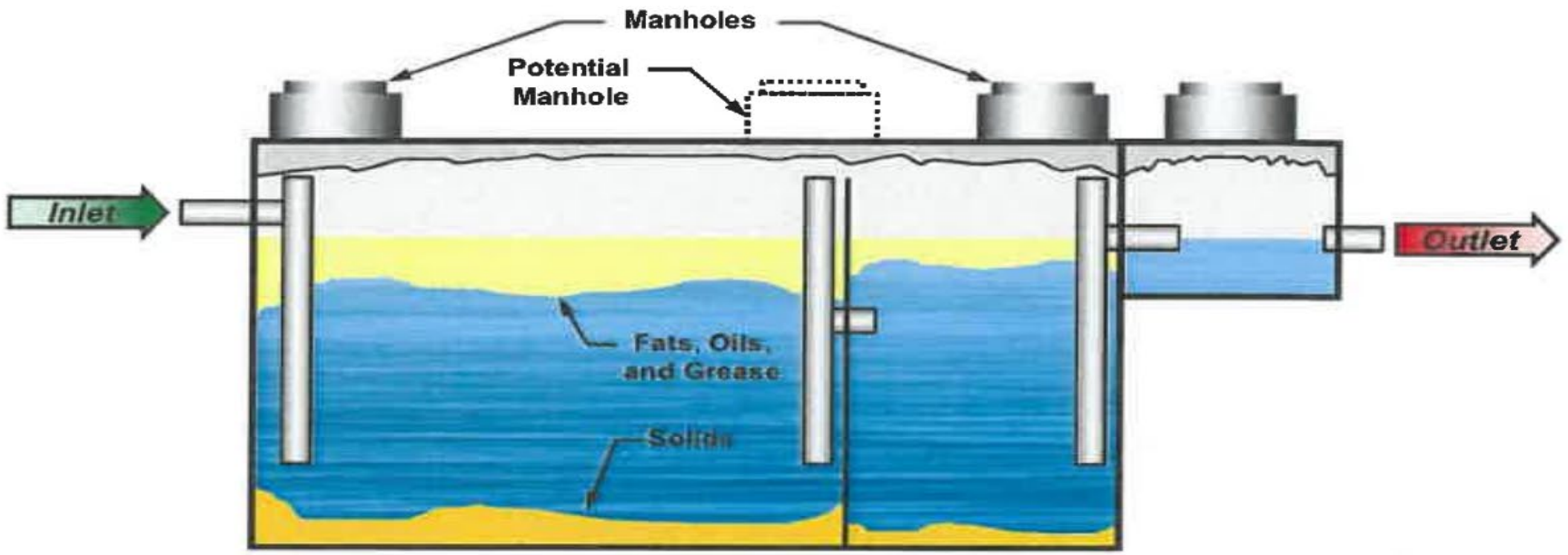
A grease removal device, also known as a grease interceptor, grease trap, or grease recovery device is a plumbing device designed to intercept or trap greases and solids before they enter a wastewater sewer system. Only wastewater from the food prep area such as food prep sinks, kitchen equipment wash sinks, floor drains and mop sink drains discharge to the grease removal device. Restroom wastewater does NOT discharge to a grease removal device

NOTE: A grease removal device gives us a very clear picture of what quantities of fats, oils and grease is generated from a kitchen food prep area in a F.S.E.

Grease Interceptors (in-ground)

Gravity Grease Interceptor

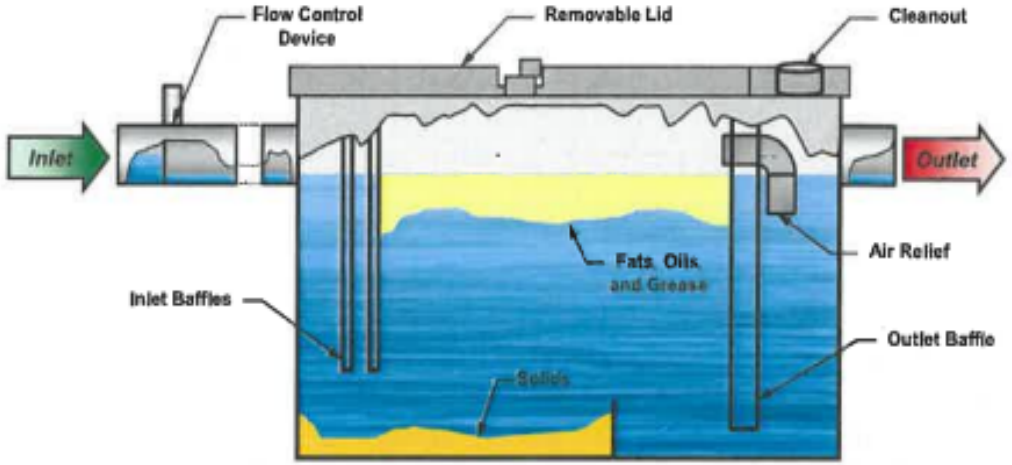
Gravity grease interceptors (GGIs) treat kitchen wastewater from food service establishments (FSEs) using gravity separation. They accumulate fats, oil and grease (FOG) and solids over time allowing the treated wastewater to discharge to the sanitary sewer (see the figure below).



Gravity Grease Interceptor
Outdoor, In-ground
500 – 1,500 Gallons (Typical)

Hydromechanical Grease Interceptor / Grease Trap (above-Ground)

Hydromechanical grease interceptors (HGIs) (formerly named grease traps) treat kitchen wastewater from food service establishments (FSEs) using gravity separation aided by vented flow control. They are typically installed indoors and connected to one to four sinks in the kitchen. They accumulate fats, oil and grease (FOG) and solids over time in a relatively small separator tank allowing the treated wastewater to discharge to the sanitary sewer (see the figure below).



Hydromechanical Grease Interceptor
Indoor, Above Ground (Typical)
15-60 Gallons, 20-50 GPM (Typical)
40-100 Pounds of FOG Storage (Typical)

LEGAL AUTHORITY

FEDERAL: Environmental Protection Agency

STATE: California State Water Resources Control Board

LOCAL: Santa Ana Watershed Project Authority /Ordinance No.8
Beaumont Municipal Code

ENVIRONMENTAL PROTECTION AGENCY

National Pretreatment Program

40 CFR (Code of Federal Regulations) Part 403

Controlling Fats, Oils, and Grease Discharges from Food Service Establishments

Summary:

The National Pretreatment Program provides regulatory tools and authority to state and local POTW pretreatment programs for eliminating pollutant discharges that cause interference at POTW's, including interference caused by the discharge of Fats, Oils, and Grease (F.O.G.) from **Food Service Establishments (F.S.E.)**

More specifically, the Pretreatment Program regulations at 40 CFR 403.5 (b)(3) prohibit "solid or viscous pollutants in amounts which will cause obstruction" to the flow in the POTW and its collection system

State Water Resources Control Board

Order No 2006-0003-DWQ: Statewide General Waste Discharge Requirements for Sanitary Sewer Systems:

All federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California are required to comply with the terms of this order

SEWER SYSTEM MANAGEMENT PLAN (SSMP):

To facilitate proper funding and management of sanitary sewer systems, each Enrollee must develop and implement a system-specific Sewer System Management Plan (SSMP). The goal of the SSMP is to provide a plan and schedule to properly manage, operate, and maintain all parts of the sanitary sewer system. This will help reduce and prevent SSOs, as well as mitigate any SSOs that do occur

STATE WATER RESOURCES CONTROL BOARD (cont)

FOG CONTROL PROGRAM:

Each Enrollee shall evaluate its service area to determine whether a FOG control program is needed. If F.O.G. is found to be a problem, the Enrollee must prepare and implement a F.O.G. source control program to reduce the amount of these substances discharged to the sanitary sewer system. This plan shall include the following as appropriate:

(d) Requirements to install grease removal devices (such as traps or interceptors), design standards for the removal devices, maintenance requirements, best management practice (B.M.P.) requirements, record keeping and reporting requirements

Santa Ana Watershed Project Authority

BMC 13.20 Adoption of SAWPA Ordinance

Ordinance No.8
An ordinance of the Santa Ana Watershed Project Authority establishing regulations for the use of the Inland Empire Brine Line.

Article 2 – General Prohibitions and Limitations on Discharges

Section 201.0 (o) Prohibited Waste Discharges:
"Any material or quantity of material(s), including but not limited to fats, oils, and grease (F.O.G.) which will cause abnormal sulfide generation, obstruct flows within the collections system, or contributes to or causes a sanitary sewer overflow"

BEAUMONT MUNICIPAL CODE

Chapter 13.09 “Regulating Fats, Oils, and Grease (F.O.G.) Management in Food Service Establishments”

13.09.010 Purpose and Intent

“The purpose of this chapter is to comply with the order No. DWQ 2006-0003 adopted by the State Water Resources Control Board in May 2006, mandating implementation of various tasks associated with the City’s sanitary sewer systems”

13.09.030 General Prohibitations

“The discharge of fats, oils, and grease (F.O.G.) and other solids in concentrations from food services establishments and other commercial and other industrial facilities to the City sewer systems that may adversely affect the normal function of these systems or result in blockages and/or public nuisance is prohibited”

California Plumbing Code (CPC)

BMC 15.16.010 Adoption of California 2019 Plumbing Code

CPC 1014.1 "General" (Grease Interceptors)

Where it is determined by the Authority Having Jurisdiction that waste pretreatment is required, an approved type of grease interceptor(s) shall comply with ASME (American Society of Mechanical Engineers), sized in accordance with the California Plumbing Code and installed in accordance with the manufacture's installation instructions…

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).

1014.3.6 Sizing Criteria

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

TABLE 1014.3.6
GRAVITY GREASE INTERCEPTOR SIZING

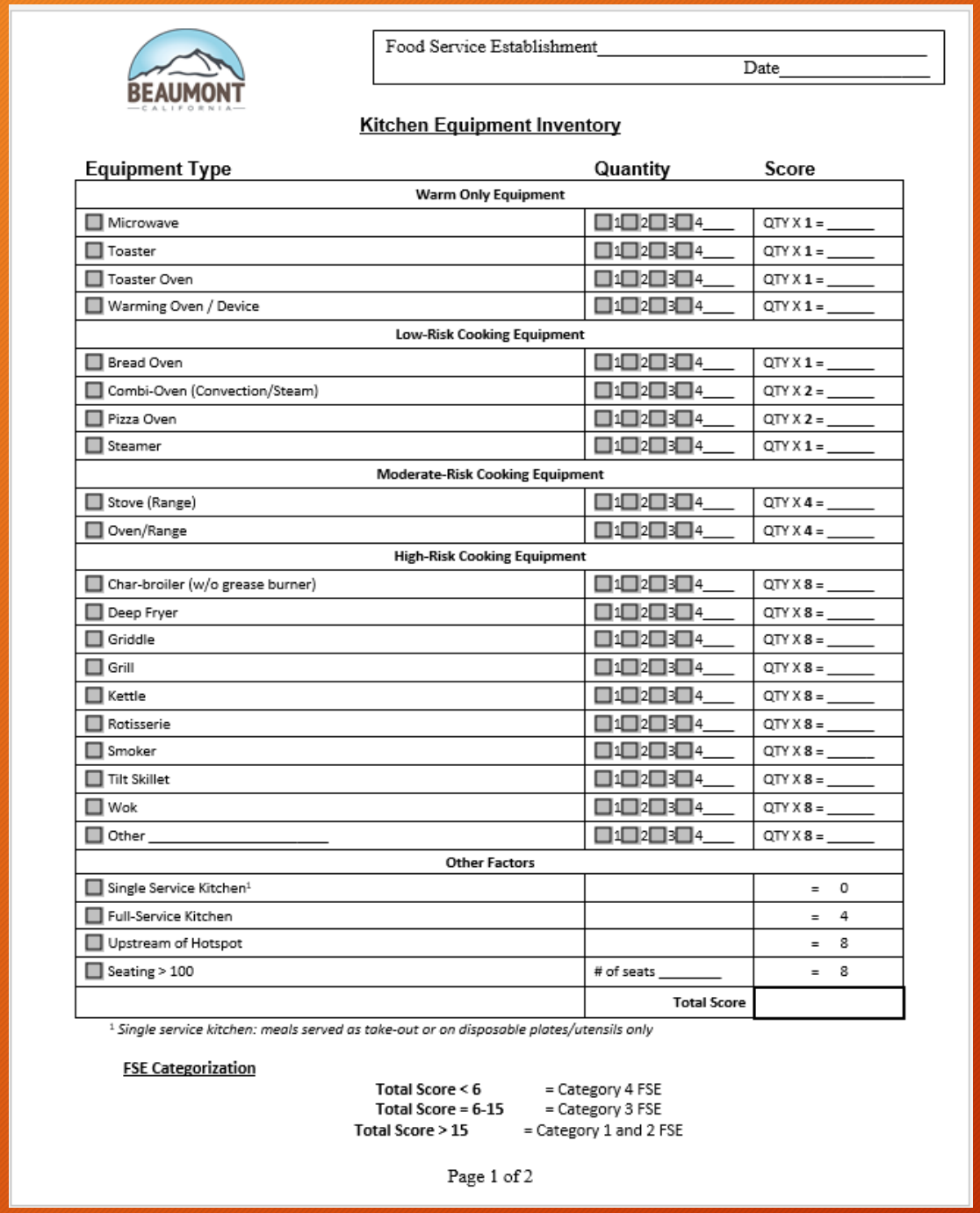
DRAINAGE FIXTURE UNITS[1,3] (DFUs)	INTERCEPTOR VOLUME[2] (gallons)
8	500
21	750
35	1000
90	1250
172	1500
216	2000
307	2500
342	3000
428	4000
576	5000
720	7500
2112	10000
2640	15000

F.O.G. Discharge Risk Scoring System

While the Beaumont Municipal Code 13.09, does address prohibitions against discharging fats, oils, and grease from F.S.E.'s and the maintenance requirements for grease removal devices (G.R.D.), the BMC does not address the requirement for a F.S.E. to install a grease removal device based on the amount of F.O.G. generated from that establishment

Keeping in mind the importance for the City to welcome and encourage new Food Service Establishments (F.S.E.) and to work with existing F.S.E.'s to comply with F.O.G. discharge requirements from multiple regulatory agencies, City staff is proposing to establish a:

F.O.G. Discharge Risk Scoring System.



BEAUMONT
CALIFORNIA

Food Service Establishment_____
Date_____

Kitchen Equipment Inventory

Equipment Type	Quantity	Score
Warm Only Equipment		
☐ Microwave	☐1☐2☐3☐4___	QTY X **1** = _____
☐ Toaster	☐1☐2☐3☐4___	QTY X **1** = _____
☐ Toaster Oven	☐1☐2☐3☐4___	QTY X **1** = _____
☐ Warming Oven / Device	☐1☐2☐3☐4___	QTY X **1** = _____
Low-Risk Cooking Equipment		
☐ Bread Oven	☐1☐2☐3☐4___	QTY X **1** = _____
☐ Combi-Oven (Convection/Steam)	☐1☐2☐3☐4___	QTY X **2** = _____
☐ Pizza Oven	☐1☐2☐3☐4___	QTY X **2** = _____
☐ Steamer	☐1☐2☐3☐4___	QTY X **1** = _____
Moderate-Risk Cooking Equipment		
☐ Stove (Range)	☐1☐2☐3☐4___	QTY X **4** = _____
☐ Oven/Range	☐1☐2☐3☐4___	QTY X **4** = _____
High-Risk Cooking Equipment		
☐ Char-broiler (w/o grease burner)	☐1☐2☐3☐4___	QTY X **8** = _____
☐ Deep Fryer	☐1☐2☐3☐4___	QTY X **8** = _____
☐ Griddle	☐1☐2☐3☐4___	QTY X **8** = _____
☐ Grill	☐1☐2☐3☐4___	QTY X **8** = _____
☐ Kettle	☐1☐2☐3☐4___	QTY X **8** = _____
☐ Rotisserie	☐1☐2☐3☐4___	QTY X **8** = _____
☐ Smoker	☐1☐2☐3☐4___	QTY X **8** = _____
☐ Tilt Skillet	☐1☐2☐3☐4___	QTY X **8** = _____
☐ Wok	☐1☐2☐3☐4___	QTY X **8** = _____
☐ Other _____	☐1☐2☐3☐4___	QTY X **8** = _____
Other Factors		
☐ Single Service Kitchen[1]		= 0
☐ Full-Service Kitchen		= 4
☐ Upstream of Hotspot		= 8
☐ Seating > 100	# of seats _____	= 8
	Total Score	

[1] *Single service kitchen: meals served as take-out or on disposable plates/utensils only*

FSE Categorization

Total Score < 6 = Category 4 FSE
Total Score = 6-15 = Category 3 FSE
Total Score > 15 = Category 1 and 2 FSE

Page 1 of 2

F.O.G. Discharge Risk Scoring System

The F.O.G. Discharge Risk Scoring System will be used as a guidance for determining the risk of each food service establishment to discharge F.O.G. into the sewer system. The primary objective criteria for determining the F.S.E.'s score is the type of kitchen equipment used in each establishment. Kitchen equipment that may generate more F.O.G. will score higher and those that generate less F.O.G. will score less. Other criteria used will be the number of seats, single or full-service kitchens, and the location of the F.S.E. relative to sewer line hotspots

Kitchen Equipment Inventory

Warm Only Equipment

Microwave

Toaster Oven

Warming Oven

Toaster

Kitchen Equipment Inventory

Low-Risk Cooking Equipment

Bread Oven

Pizza Oven

Steamer

Convection / Steam Oven

Kitchen Equipment Inventory

Moderate-Risk Cooking Equipment

Stove (Range)

Oven/Range

Kitchen Equipment Inventory

High-Risk Cooking Equipment

Char-Broiler

Deep Fryer

Griddle

Grill

F.S.E. Discharger Category

Category 4 F.S.E. = Total Score = <6
A facility is likely to be a Category 4 F.O.G. Discharger if:

- They are a single use kitchen, and their cooking equipment is limited to Warm Only and/or several pieces of Low-Risk cooking equipment

Category 3 F.S.E. = Total Score = 6 – 15
A facility is likely to be a Category 3 F.O.G. Discharger if:

- They are a single use kitchen, and their cooking equipment is limited to several pieces of Moderate equipment and/or a single piece of High-Risk cooking equipment; or
- They are a full-service kitchen, and their cooking equipment is limited to a few pieces of Low and/or Moderate-Risk

Category 1 and 2 F.S.E. = Total Score > 15
A facility is likely to be a Category 1 or 2 F.O.G. Discharger if:

- They are a full-service kitchen with High-Risk cooking equipment; or
- They are a single service kitchen with several pieces of Moderate and/or High-Risk cooking equipment

- **A facility is a Category 2 if they have already installed a grease removal device**
- **A facility is a Category 1 if they do not have a grease removal device**

Grease Interceptor Installation Requirements

- **Category 1 F.O.G. Dischargers:** Shall install a Gravity Grease Interceptor in accordance with the provisions of this Article within __?__ months of notification (BMC 13.09.130 (a))

- **Category 2 F.O.G. Discharger:** Shall upgrade an existing Gravity Grease Interceptor in accordance with the provisions of this Article within a specific time period, if one or more of the following conditions apply: (BMC 13.09.130 (b))

- **Category 3 F.O.G. Discharger:** Shall install a grease control device that meets all Building & Plumbing Code requirements in accordance with the provisions of this Article, and within a specific time period, if one or more of the following conditions apply: (BMC 13.09.130 (c))

*****Please refer to BMC 13.09.130 for complete grease removal device Installation requirements*****

Conclusion

City staff is proposing:

- Amend BMC 13.09.050 “Definition” of a **Food Service Establishment**, to include the 4 categories of FOG dischargers

- Adoption of BMC 13.09.130 “Grease Interceptor Installation Requirements”

With the proposed changes to the Beaumont Municipal Code, City staff and business owners will have a clear understanding and direction as to the requirements for the installation of a grease removal device for existing and future Food Service Establishments here in the City of Beaumont

QUESTIONS / COMMENTS ?