

CITY OF SAVANNAH
GREASE INTERCEPTOR STANDARD



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I. INTRODUCTION

The current City of Savannah Code of Ordinances, Section 5-2008 Item G, states:

“Grease, oil, and sand interceptors shall be provided when, in the opinion of the Administrator, and/or the Chatham County Health Department, they are necessary for the proper handling of liquid wastes containing FOG (Fats, Oil, and Grease) or any flammable wastes, sand, or other harmful ingredients; except that such interceptors shall not be required for residential living quarters or dwelling units. All interceptors shall be located as to be readily and easily accessible for cleaning and inspection. Grease and oil separators shall conform to City of Savannah’s Grease Interceptor Standards.”

All interceptors shall be supplied, installed, and properly and continuously maintained in a satisfactory and effective operational manner under the direction of and at the expense of the owner.

In addition, the City of Savannah Code of Ordinances, Section 5-2008 Item B(1), prohibits discharge to the wastewater system of:

“Any water or waste containing fats, wax, grease, or oils whether emulsified or not, in excess of 100 mg/L or containing substances which may solidify or become viscous at temperatures between 32° F and 150° F.”

The purpose of this grease interceptor standard is to provide specific guidelines for grease interceptor location, design, installation, construction and maintenance in conjunction and compliance with the above requirements. Failure to comply with this standard shall be considered a violation of the applicable sections of the existing City of Savannah Code of Ordinances and consequently will be subject to all applicable penalties and/or denial or discontinuance of service as specified in the code.

II. DEFINITIONS

The following are in addition to the definitions currently provided in the City of Savannah Code of Ordinances:

1. Food Service Establishment

Any commercial facility discharging kitchen or food preparation wastewaters including restaurants, motels, hotels, cafeterias, hospitals, schools, bars, etc., and any other facility which, in the administrator's opinion, would require a grease interceptor installation by virtue of its operation.

2. Gravity Grease Interceptor

A gravity grease interceptor is a large tank or vault typically installed outside of the building that provides the most efficient way to remove grease and oils. Such interceptors are often referred to as the "outdoor" units. The "outdoor" units shall be designed in accordance with the Water Environment Research Foundation (WERF), FOG Interceptor Design and Operation Guidance Manual, 2008 (document No. 03-CTS-16TB).

3. Hydro-mechanical Grease Interceptor

Hydro-mechanical grease interceptors are typically installed inside the building near the sink and act as a holding container for kitchen water before it is discharged into the side sewer. Such interceptors are often referred to as the "under-the-counter" or "in-floor" package units. The "under-the-counter" or "in-floor" units shall be designed, installed and maintained in accordance to the Plumbing and Drainage Institute Standard PDI-G101.

III. GENERAL REQUIREMENTS

The following design, administrative, operational, and other requirements are applicable to all food service establishments, new or existing. Particular requirements for grease interceptor construction, specifically pertaining to both new and existing food service establishments, can be found in Section IV of this standard.

1. All food service establishments shall have grease-handling facilities approved by the City of Savannah's Public Works and Water Resources Bureau. Establishments whose grease-handling facilities are not in accordance with this standard shall be given a compliance schedule with a deadline not to exceed six (6) months from initial notification date.
2. All food service establishment grease-handling facilities/operations shall be subject to periodic review, evaluation, and inspection by the City of Savannah's Public Works and Water Resources Bureau representatives at any time. Results of inspections will be made available to facility owners, with overall ratings assigned and recommendations for correction/improvement (if necessary) delineated.
3. Any facility receiving three (3) consecutive unsatisfactory evaluations shall be subject to penalties/restrictions for non-compliance with the City Code as described in Section 5-2023, 2024, and 2025.
4. Violations of this City of Savannah's Public Works and Water Resources Bureau's Grease Interceptor Standard shall be considered grounds for discontinuance of water and/or sewer service.
5. Food service establishments whose operations cause or allow excessive FOG to discharge or accumulate in the sanitary sewer collection system shall be liable to the Water Reclamation Department for all costs related to department service calls for line blockages, line cleanings, line and pump repairs, etc., including all labor, materials, equipment, and overhead costs. Failure to pay all service-related charges shall be grounds for discontinuance of water and/or sewer service.
6. Maintenance of grease interceptors requires the owner(s) to be responsible for proper removal and disposal of the captured material by appropriate means and for keeping records on-site of the dates and means of disposal, which shall be subject to review by the Water Reclamation Department.
7. Maintenance of grease interceptors must include thorough pump-out and/or cleaning as needed, (whenever 25% or more of the grease trap becomes full of grease and/or solids as determined by the measured depth), with a minimum frequency of four (4) times per year. Any removal and hauling of the collected materials not performed by owner(s) personnel must be performed by a (currently) licensed waste disposal firm. The owner, however, is ultimately responsible for the proper maintenance of the grease interceptor facility(s).

8. At the discretion of the Water Reclamation Department, periodic submittal of maintenance contracts and/or records of grease removal frequencies for grease-handling facilities will be required to ensure routine and adequate system maintenance.
9. Any food service establishment whose effluent is suspected or perceived by the Water Reclamation Department to contain a concentration > 100 mg/L of FOG may be required to routinely sample their grease interceptor effluent for analysis by certified laboratory for FOG. Sampling and testing shall be at the expense of the owner, who shall furnish a copy of the analysis to the Water Reclamation Department.
10. All grease interceptors shall be designed and installed in accordance with this standard to allow for complete access to inspection, maintenance, etc.
11. The plumbing fixtures required to discharge through the grease interceptor are all: floor drains; floor sinks; mop sinks; pot sinks; food prep sinks; dishwashers without a pre-rinse sink; hub drains located in the kitchen flush with the floor; and/or any fixture or equipment that may allow FOG to be discharged into the plumbing system. Wastewater from garbage grinders shall not be discharged to grease interceptors.
12. Use of enzymes or other grease solvents, emulsifiers, grease consuming bacteria, etc., is prohibited and shall not be considered acceptable grease interceptor maintenance practice.

IV. CONSTRUCTION STANDARDS

A. New Facilities

1. All newly constructed food service establishments shall be required to install a grease interceptor, approved by the City of Savannah Public Works and Water Resources Bureau.
2. All grease interceptor plans and specifications, including hydraulic calculations signed by a registered Civil Engineer, must be reviewed and approved by the City of Savannah Public Works and Water Resources Bureau prior to installation.
3. Grease interceptors shall be constructed in accordance with the City of Savannah standard detail for grease interceptors.
4. Grease interceptors shall be located as close to the source of the grease as is practical, in an area that is readily accessible for inspection and cleanout. Access to the grease interceptor shall not interfere with the operation of the facility.
5. All grease interceptors must be directly accessible from the surface and must be fitted with an extended outlet sanitary tee that terminates 6 to 12 inches above the tank floor. The minimum access opening dimensions shall be 18 x 18 inches.
6. Where physically impossible to install “outdoor” units, “under-the-counter” or “in-floor” units may be allowed as with existing food service establishments provided prior approval of unit type, size, location, etc., is provided by the City of Savannah.
7. No new food service facility will be allowed to initiate operations until grease handling facilities are installed and approved by the City of Savannah Public Works and Water Resources Bureau.

B. Existing Facilities

1. All existing food service establishments shall have grease-handling facilities approved by City of Savannah Public Works and Water Resources Bureau. Food service establishments without grease-handling facilities will be given a compliance deadline not to exceed six (6) months from date of notification to install approved grease-handling equipment in compliance with this standard. Failure to do so will be considered a violation of the City of Savannah Code of Ordinances and will subject the establishment to penalties and/or service discontinuance.
2. Use of “Under-the-Counter” or “In-Floor” Grease Interceptors
 - a. For cases in which “outdoor” type grease interceptors are infeasible to install, existing food service establishments will be required to install adequate and approved “under-the-counter” or “in-floor” grease interceptors for use on individual fixtures, including dishwashers, sinks, and other potentially grease-containing drains. In such cases, units will be considered acceptable only if approved flow control fittings to the grease interceptor inlet are provided to prevent overloading of the

- grease interceptor and to allow for proper interceptor operation. The infeasibility of using an outdoor gravity grease interceptor shall be determined by the City of Savannah Public Works and Water Resources Bureau.
- b. When “under-the-counter” or “in-floor” grease interceptors are used, the owner(s) will be notified of the existing system deficiencies and given a compliance deadline not to exceed six (6) months, to have approved grease-handling facilities and/or appurtenances installed. City of Savannah approval of flow control devices and grease interceptor design must be given prior to installation.
 - c. Sizing of “under-the-counter” or “in-floor” grease interceptor units will be in accordance with (Standard PDI-G101) recommended ratings for commercial grease interceptors. The grease retention capacity rating in pounds shall be at least two (2) times the GPM flow rate of the type fixture which it serves. Approved flow control fittings must be provided to the inlet side of all “under-the-counter” or “in-floor” units.
 - d. Location of “under-the-counter” or “in-floor” units must be as close to the source of the wastewater as physically possible.
 - e. For cases in which “outdoor” units are feasible to install, construction requirements will be as specified in Section IV. A. (New Facilities).
3. In the event of an existing food service establishment’s grease-handling facilities are under-sized, substandard, and/or poorly operated; the owner(s) will be notified, in writing, of the required improvements and given a compliance deadline not to exceed six (6) months to conform to the requirements of this standard.

C. New Food Service Establishments in Existing Buildings

1. Where practical, new food service establishments located in existing buildings will be required to comply with the grease interceptor standards applicable to new facilities, i.e., outdoor-type grease interceptor units shall be installed. (Section IV. A.).
2. Where physically impossible to install “outdoor” units, “under-the-counter” or “in-floor” units may be allowed as with existing food service establishments provided prior approval of unit type, size, location, etc., is provided by the City of Savannah. Flow control fittings and/or automatically cleaned units will be required in all cases.

D. Sizing Grease Interceptors

The sizing methods presented in this section shall be used to determine the minimum required grease interceptor size. The designer may wish to consider multiple tanks in series to potentially reduce capital and/or maintenance costs.

Should the grease interceptor fail to perform as required, by either the failure to properly maintain the units or the presence of additional and/or larger fixtures and/or flows than used for interceptor sizing, the owner shall be responsible for correcting the issue(s). Such corrective actions could include the permanent removal of the fixtures and/or flows, or the enlargement of the grease interceptor, and shall be reviewed by the Public Works and Water Resources Bureau prior to implementation.

1. Gravity Grease Interceptor Connected Fixtures Sizing Method

Using this method, the size of the gravity grease interceptor is based on the total flow rate from each fixture connected to the unit. The total flow rate is then multiplied by a 30-minute detention time. Storage volume is added so that 25% of the grease interceptor volume is dedicated for the accumulation of FOG and other solids in between maintenance events. Gravity grease interceptors shall be sized using Table 1 and the equations immediately following. The values in Table 1 must be re-calculated for non-PVC pipes and for slopes other than the one provided.

Table 1 – Gravity Grease Interceptor Sizing by Connected Fixtures

Fixture Connected to Interceptor	Drain Pipe Diameter (Inches)	Flow* (GPM)	Quantity	Flow x Number (Total GPM)
Sink to wash pots, pans and other kitchen utensils, e.g. - 3 compartment sinks	1.5	14		
	2	30		
	2.5	54		
	3	61		
Cooking equipment, e.g. - tilt skillets, tilt kettles, brazing pans, rotisserie ovens, and woks	1.5	14		
	2	30		
	2.5	54		
	3	87		
Sink used for preparation of meats, vegetables, & seafood		2		
Sink for rinsing of ware prior to washing		2		
Automatic dishwasher or clothes washer		5		
Equipment cleaning fixture, e.g. - can washers, mop, sinks, automated hood cleaning systems & washing stations		5		
Waste food grinder or garbage disposal		2		
Kitchen and serving areas with standalone floor drains **		5		

* Flow calculations based on a PVC drain pipe with Manning Coefficient of 0.009 and a full-flow depth of 7/8 x pipe diameter. A 1/4" per foot slope is used for drain pipes with diameter 2.5" and smaller; a slope of 1/8" per foot is used for 3" drain pipes.

**Include the number of kitchen and serving areas with floor drains (not the number of drains). Do not include the area if the sole discharge to the floor drain is from a fixture accounted for above.

Total Flow (Sum of all the Fixture Flow Rates) _____ GPM

Discharge Volume (Total Flow x 30-Minute Detention Time) _____ Gallons

FOG and Solids Storage (Discharge Volume / 3) _____ Gallons

Size of the Gravity Interceptor (Discharge + Storage Volume) _____ Gallons

Next Gravity Grease Interceptor Standard Size _____ Gallons

2. Hydro-Mechanical Grease Interceptor Sizing Method

In the event that the City of Savannah allows for the installation of a hydro-mechanical grease interceptor, Table 2 shall be used to size the unit. This table shows the standard formulas for sizing grease interceptors to suit requirements of specific fixtures in a stepwise fashion, and includes an example of their use. Table 3 provides the standard sizes for hydro-mechanical grease interceptors.

Table 2 – Procedure for Sizing Grease Interceptors

Step	Step / Formula	Example
#1	Determine Volume of Fixture Length x Width x Depth	48" long by 24" wide by 12" deep sink 48" x 24" x 12" = 13,824 cubic inches
#2	Determine Capacity in Gallons 1 gallon = 231 cubic inches	13,824 cubic inches / 231 cubic inches per gallon = 59.8 gallons
#3	Determine Actual Drainage Load <i>(Fixtures typically 75% full, items inside displace volume)</i> Capacity x 75% = Actual Drainage Load	Actual Drainage Load = 0.75 x 59.8 gallons = 44.9 gallons
#4	Determine Flow Rate for Drain Time <i>(Use 1-Minute Drain Time)</i> Flow Rate = Actual Drainage Load / Drain Time	Flow Rate = 44.9 gallons / 1 minute = 44.9 GPM
#5	Select Standard Interceptor Size <i>(if between sizes, select larger unit)</i> Use Table 3 below	From Table 3: 35 GPM < 44.9 GPM < 50 GPM Use PDI Size 50

Table 3 - Hydro-Mechanical Grease Interceptor Standard Sizes

PDI Size Symbol	4	7	10	15	20	25	35	50	75	100
Flow Rate (GPM)	4	7	10	15	20	25	35	50	75	100
Flow Rate (L/min)	15	26	38	57	77	95	132	191	230	378
Grease Capacity (lbs)	8	14	20	30	40	50	70	100	150	200
Grease Capacity (kg)	3.6	6.4	9.1	13.8	18.2	22.7	31.8	45.4	68.0	90.8

V. ENFORCEMENT

Enforcement of this standard shall be in accordance with the provisions of the most current City of Savannah Code of Ordinances. Failure to comply with this standard may be grounds for penalty imposition and/or discontinuance of water and/or sanitary sewer service. Additionally, failure to comply may result in notification to the County Health Department to request enforcement of enforcement action which may lead to revocation of food service permit.