

**Fats, Oil and Grease Pretreatment Guidelines**  
**Somerville, MA**  
**Adopted \_\_\_\_\_**

**Part 1: Authority and Applicability**

**A. Purpose**

The purpose of this article is to outline the wastewater pretreatment requirements for Food Preparation Establishments and other commercial and industrial facilities that discharge fats, oils and grease (FOG) in their wastewater flow. All new and existing facilities that generate and discharge fats, oils and grease in their wastewater flow shall install, operate and maintain FOG Management Devices. The requirements of these guidelines shall supplement and be in addition to the requirements of the Somerville Sewer Use Ordinance, Massachusetts Plumbing Code, Massachusetts Water Resources Authority (MWRA) regulations, and any other applicable regulations.

**B. Definitions**

AGENT – Any authorized representative of the City of Somerville.

ALTERNATE FOG MANAGEMENT EQUIPMENT (AFME) – Grease removal device other than a FOG interceptor such as an interior grease trap as approved by the Board of Health. Interior grease traps shall incorporate an active indoor mechanical system designed to remove fats, oils and grease by physical separation from flowing wastewater, as further defined herein.

CONTACT PERSON – The Contact Person shall mean the individual responsible for overseeing daily operation of the Food Preparation Establishment, who is responsible for overseeing the Food Preparation Establishment's compliance with these guidelines.

FATS, OILS AND GREASE (FOG) - Animal and plant derived substances that may solidify or become viscous between the temperatures of 32°F and 150°F (0°C to 65°C), and that separate from wastewater by gravity. Any substance identified as grease per the most current EPA Analytical method as listed in 40- CFR 136.3.

FOG INTERCEPTOR - A passive tank installed outside a building and designed to remove fats, oils and grease from flowing wastewater while allowing wastewater to flow through it, and as further defined herein.

FOG MANAGEMENT DEVICES (FMD) - Refers to properly installed and operated FOG Interceptors and Alternate FOG Management Equipment as approved by the Board of Health.

**FOOD PREPARATION ESTABLISHMENTS (FPE)** - Food Preparation Establishments include establishments that use food preparation processes and that are regulated by the local Health Department and inspectional services. These facilities include:

- restaurants;
- cafeterias;
- hotels with facilities on site where food is served;
- hospitals;
- institutional facilities;
- clubs or bars where food is prepared and served;
- commercial kitchens;
- food and meat packing and processing establishments;
- supermarkets;
- bakeries;
- and any other establishments where, in the opinion of the Board of Health, fats, oils and grease may be introduced into the building sanitary drainage system in quantities that can cause waste line obstruction or hinder the wastewater collection system.

**NON-RENDERABLE FATS, OILS, AND GREASE** – Refers to food grade grease that has become in contact with or otherwise contaminated with sewage, detergents, or other constituents that make it unacceptable for rendering.

**NOTIFICATION OF APPROVED ALTERNATE FOG PRETREATMENT SYSTEM** – Written notification from the City of Somerville that the FPE is for authorized to install and/or operate Alternate FOG Management Equipment (AFME).

**RENDERABLE FATS, OILS, AND GREASE** – Refers to fats, oils, and grease not contaminated by contact with wastewater, and which can be recycled by a rendering company. Renderable fats, oils, and grease sources include but are not limited to fryolators, grills and exhaust hoods.

### **C. Program Applicability**

FOG Management Devices shall be provided for:

1. All new and existing Food Preparation Establishments, and similar non-industrial facilities using food preparation processes that have the potential to generate FOG in wastewater at concentrations in excess of the limits defined in this article.
2. New and existing facilities which, in the opinion of the Board of Health, require FMD for the proper management of wastewater containing fats, oils or grease, except that such FMD shall not be required for residential dwelling units.

### **D. Program Authority**

The FOG management regulations will be overseen by the Board of Health. The Somerville Inspectional Services Department will be responsible for the inspection and record keeping related to FMD. All sewer users are also under the authority of the Massachusetts Water Resources Authority (MWRA) and all Massachusetts regulations including, but not limited to the Massachusetts Plumbing Code.

#### **E. FOG Effluent Limitations**

1. No facility shall discharge or cause to be discharged any wastewater with a FOG concentration in excess of 100 milligrams per liter, as determined by the currently approved test for total recoverable fats and grease listed in EPA Regulations (40 CFR 136.3), or in concentrations or in quantities by themselves or in combination with others, which will have a detrimental effect on either the sewers, pump stations, or the collection system infrastructure, as determined by the Board of Health.

### **Part 2: FOG Management Devices**

#### **A. FOG Management Device General Requirements**

1. All FOG Management Devices shall be designed, installed, operated and maintained in accordance with the most recent adopted version of MWRA regulations and Massachusetts Plumbing Code. Where conflicts occur between these regulations and the content of these guidelines, the most stringent requirement shall take precedent.
2. For all new installations, Fog Management Devices shall be FOG Interceptors installed underground whenever feasible.
  - a. For the purposes of these guidelines, it shall be considered feasible to install an outdoor, underground FOG Interceptor for any Food Preparation Establishment which meets one or more of the following:
    - i. The FPE is sited on a property which is greater than one-half acre in size; or
    - ii. The FPE property includes three or more on-site (on private property) parking spaces; or
    - iii. The FPE has a capacity of more than 200 patrons.
  - b. Food Preparation Establishments which meet one or more of the above criteria may submit a request for an exemption from the FOG Interceptor requirement to the Board of Health in writing. This request shall be submitted in accordance with Section 2.E of these guidelines.
  - c. Food Preparation Establishments which do not meet any of the criteria listed above shall manage FOG waste by using Alternate Fog Management Equipment. The Food Preparation Establishment shall submit their proposed AFME to the City for review, in accordance with Section 2.E of these guidelines.

3. An applicant for a plumbing permit that is subject to The Massachusetts Plumbing Code within the MWRA Service Area shall file a notice with the MWRA. This notice shall be filed at the same time as the plumbing application for a permit is filed with the Inspector.
4. The FOG Management Devices shall be installed on a separate building sewer servicing only kitchen flows and shall meet all the requirements of the Massachusetts Plumbing Code. No wastes other than those requiring treatment or separation shall be discharged into any FOG Management Device.
5. Plumbing fixtures to be protected by FMD shall include:
  - a. pot sinks (with bowl depths exceeding ten inches);
  - b. scullery sinks (with bowl depths exceeding ten inches),
  - c. floor drains, unless exempt under the Massachusetts Plumbing Code;
  - d. floor sinks;
  - e. automatic dishwashers regardless of temperature;
  - f. pre-rinse sinks;
  - g. soup kettles or similar devices;
  - h. work stations; and
  - i. automatic hood wash units;
6. The waste from dishwasher pre-rinse sinks that are not equipped with food waste grinders shall be discharged to the drainage system through a FMD. Dishwasher pre-rinse sinks equipped with food waste grinders shall not be discharged through a FMD and must be trapped separately in accordance with the Massachusetts Plumbing Code. Renderable or non-renderable FOG shall not be discharged to any plumbing fixture which is not discharged through a FMD.
7. The waste discharge from a commercial food waste grinder (garbage disposal) shall not discharge to the sanitary drainage system through a FMD. Fixtures required to have a FMD shall not have grinders unless approved by the Board of Health. Renderable or non-renderable FOG shall not be discharged to to any plumbing fixture which is not discharged through a FMD.

#### **B. FOG Management Device Design Submission**

1. All new Food Preparation Establishments which generate and discharge wastewater containing fats, oils and grease and which will require FMD, as required by these guidelines and determined by the Board of Health, shall submit the design and specifications for the FMD for review.
2. All existing Food Preparation Establishments which generate and discharge wastewater containing fats, oils and grease, shall meet the requirements of these guidelines in full no later than twelve months after the effective date of these regulations. Existing FPEs shall submit the design and specifications of their proposed FOG Management Device for review within nine months of the effective date of this article. Existing Food Preparation Establishments which have existing FMD shall keep the existing FMD in operation during the review process.

3. All costs and related expenses associated with the design, installation and connection of the FOG Interceptors or AFME shall be borne by the Food Preparation Establishment. The Food Preparation Establishment shall indemnify the City of Somerville and its Agents for any loss or damage that may directly or indirectly occur due to the installation of the AFME.

#### **C. FOG Management Device Design Requirements - General**

1. The FOG Management Device shall be designed by a professional engineer registered in the Commonwealth of Massachusetts.
2. FMD must bear the certification seal of the Plumbing and Drainage Institute (P.D.I.) or AMSE.
3. FOG Management Devices shall have a flow control device designed to regulate the flow and discharge rate of waste water through the FMD unless the device is designed to provide a retention capacity of 30 minutes or less. The Flow Control Device shall be installed in accordance with the Massachusetts Plumbing Code.

#### **D. FOG Management Device Design Requirements – FOG Interceptors**

1. FOG Interceptors shall have a minimum of two compartments. The inlet compartment shall contain two-thirds of the interceptor volume and the outlet compartment shall contain one-third of the interceptor volume. The two compartments shall be separated by a baffle that extends from the bottom of the FOG interceptor to a minimum of five inches above the static water level. An opening in the baffle shall be located at mid-water level. The size of the opening shall be at least eight inches in diameter but not have an area exceeding 180 square inches.
2. FOG Interceptors shall be so designed that they will not become air bound, when closed covers are used. Each FOG interceptor shall be properly chamber vented to comply with 248 CMR 10.16, shall be piped to the inside of the building, and shall be not less than four inch minimum pipe diameter.
3. The inlet and outlet piping shall be PVC ASTM D 1785 Schedule 40 with rubber compression gaskets or solvent weld couplings. The joints must meet ASTM 3212 specifications. The Board of Health may approve other piping materials for use. The minimum diameter of the inlet and outlet piping shall be four inches. The inlet and outlet shall utilize a tee-pipe fitting on the interior of the FMD. The tee-pipe of the inlet and outlet shall extend to within twelve inches of the bottom and at least five inches above the liquid level of the tank.
4. Each FOG interceptor shall be so installed that it is readily accessible. The removal of the cover shall be accessible for the purpose of service and maintenance. The use of ladders or moving of heavy objects in order to service interceptors or separators shall constitute a violation of accessibility.

## **E. FOG Management Device Design Requirements – Indoor Units**

1. When it is not feasible for the Food Preparation Establishment to install an underground FOG Interceptor based on the criteria listed in Part 2.A of these guidelines, or if an FPE is requesting an exemption from this requirement, an alternate FOG Management Equipment (AFME) may be considered for approval by the Board of Health on a case-by-case basis. The following information shall be provided in the submission:
  - a. Information detailing the reasons why installation of a FOG Interceptor is not feasible.
  - b. Documented evidence that the Alternate FOG Management Equipment will not discharge FOG concentrations that exceed the discharge limits.
  - c. Plans and specifications for the proposed system including plans and profile of system installation, manufacturer's literature, documentation of performance and any other information detailing the alternate system.
  - d. A written Operation and Maintenance Plan, which shall include the schedule for cleaning and maintenance, copies of maintenance log forms, a list of spare parts to be maintained at the subject facility, and a list of contacts for the manufacturer and supplier. Following receipt of written Notification of Approved Alternate FOG Management Equipment from the Board of Health, the Operation and Maintenance Plan shall be maintained on the premises. The plan shall be made available for inspection on demand.
  - e. A written FOG Minimization Plan, which shall include procedures for all Food Preparation Establishment employees to minimize FOG entering the wastewater collection system.
  - f. Description of a FOG Pretreatment Training Program for Food Preparation Establishment employees in minimization procedures.
  - g. Identification and contact information for the Contact Person for the FPE for FOG related matters.
  - h. Identification and contact information for the company or person responsible for maintenance of the Alternate FOG Management Equipment.
2. The Board of Health shall review all requests to use alternate FOG Management Equipment within 60 days of receipt. The Board of Health, at his/her sole discretion, may either deny the request, or issue a Notification Of Approved Alternate FOG Pretreatment System. Any requests which have not been acted upon by the Board of Health within 60 days shall be considered denied.
3. A laminated sign shall be stenciled on or in the immediate area of the AFME or interceptor in letters one-inch high. The sign shall state the following in exact language:

- a. “IMPORTANT This grease trap/interceptor shall be inspected and thoroughly cleaned monthly. Failure to do so could result in damage to the piping system, and the municipal or private drainage system(s).”
4. AFME shall remove an average of 90 percent or more of the FOG in the wastewater.

**F. FOG Management Device Sizing**

1. Installed FMD shall have a grease retention capacity of not less than two pounds of grease for each G.P.M (gallon-per-minute) of flow. Size the interceptor so that its rated capacity is never less than 40% of the individual fixture capacity in gallons. The minimum size for outdoor devices shall be equal to the maximum daily flow (as calculated using 310 CMR 15.00) over a 24-hour period, but never less than 1,000 gallons.
2. FMD shall be sized in accordance with the following Recommended Procedures for Sizing Grease Interceptor and 248 CMR 10.22: Figure 22 as presented in The Massachusetts Plumbing Code.
  - a. Interceptors shall be sized in accordance with the formulas indicated in 248 CMR 10.09: Tables 2.
  - b. Where the size determined by the formulas below is less than the size determined above, the larger size shall dictate.
  - c. Where the device manufacturer recommends a size larger than required in these guidelines, the manufacturer sizing will dictate.

**SIZING FORMULAS FOR LARGE CAPACITY GREASE INTERCEPTORS (INSIDE OR OUTSIDE BUILDINGS)**  
 (adapted from 248 CMR 10.09 Table 2)

<b>For Restaurants:</b>	<b>Other Establishments with Commercial Kitchens:</b>
$(S) \times (GS) \times (HR/12) \times (LF)$ = Effective Capacity of Grease Traps and Interceptors in Gallons	$(M) \times (GM) \times (LF)$ = Effective Capacity of Grease Traps and Interceptors in Gallons
<b>WHERE:</b>	<b>WHERE:</b>
S = Number of Seats in Dining Area GS = Gallons of Waste Water Per Seat: <ul style="list-style-type: none"> <li>• Use 25 Gallons for Restaurants with China Dishes and/or automatic dishwashers</li> <li>• Use 10 Gallons for Restaurants with Paper or Baskets and No Dishwashers.</li> </ul> HR = Number of Hours Restaurant is Open. LF = Loading Factor – LF of 1.5 shall be used for all Food Preparation Establishments in the City of Somerville.	M = Meals Prepared Per Day GM = Gallons of Waste Water Per Meal (Use 5 Gallons) LF = Loading Factor Use 1.00 with dishwashing machines and 0.75 without dishwashing machine.

3. AFME shall be sized based on the manufacturer’s written recommendations. Design of the AFME shall be based on the FPE’s full seating capacity. Design flows for AFME shall be based on flow estimates for commercial establishments contained in 310 CMR 15.00. Minimum size/capacity of the AFME shall be as listed in the table below.
  - a. “Volume” as listed in the table below is defined as the maximum volume (e.g. length times width times height to the overflow) in cubic inches of all fixtures, vessels and receptacles which flow to the AFME.

Aggregate Volume (cubic inches)	Minimum grease retaining capacity of the AFME (lbs.)
Up to 1,200	8
1,201-1,600	14
1,601-3,000	20
3,001-4,500	30
4,501-6,000	40
6,001-7,700	50
7,701-10,800	70
10,801-15,400	100
15,401-23,100	150
23,101-30,800	200
30,801-46,200	300
46,201-61,600	400

**Part 3: FOG Management Device Operation and Maintenance**

**A. Operation standards**

1. The Food Preparation Establishment shall make every practical effort to reduce the amount of FOG contributed to the sewer system.
2. Renderable FOG shall not be disposed of, in any sewer, or FOG Interceptor.
3. Small quantities of FOG scraped or removed from pots, pans, dishes and utensils shall be directed to the municipal solid waste stream for disposal.
4. All Food Preparation Establishment shall have in place a pretreatment training program.

**B. Maintenance Standards**

1. The FMD shall be maintained continuously in satisfactory and effective operation, at the Food Preparation Establishment's expense.
2. The Food Preparation Establishment shall be responsible for the proper removal and disposal, by appropriate means, of the collected material removed from the FMD. (See Somerville Zoning Sec. 11-36: Grease Containers)
3. A record of all FMD maintenance activities shall be maintained on the premises for a minimum of three years.

4. Chemical and/or biological additives that are used to reduce cleaning frequency or cause FOG to be released from the FMD are not permitted.
5. The Food Preparation Establishment shall ensure that the FOG Interceptor is inspected when pumped to ensure that all fittings and fixtures inside the interceptor are in good condition and functioning properly. The depth of grease inside the tank shall be measured and recorded in the maintenance log during every inspection along with any deficiencies, and the identity of the inspector.
6. The Food Preparation Establishment shall determine the frequency at which its FOG Interceptor(s) shall be pumped according to the following criteria:
  - a. The FOG Interceptor shall be completely cleaned by a licensed waste hauler when 25 percent of the operating depth of the FOG Interceptor is occupied by solids or a minimum of once every three months, whichever is more frequent.
  - b. The Board of Health may require a more stringent frequency than that which is established herein if it is determined to be insufficient to prevent the discharge of FOG into the public sewer or that the discharge does or has the potential to cause downstream blockages.
  - c. If the Food Preparation Establishment can provide data demonstrating that less frequent cleaning of the FOG Interceptor will not result in grease and settled solids level in excess of 25 percent of the operating depth of the FOG Interceptor, the Board of Health may authorize less frequent cleaning. The Food Preparation Establishment shall provide data including pumping receipts for four consecutive cleanings of the FOG Interceptor, complete with a report from the FOG hauler indicating the grease level at each cleaning, and the FOG Interceptor maintenance log.
  - d. A maintenance log shall be maintained on the premises, and shall include the following information: dates of all activities, volume pumped, grease depth, hauler's name, location of the waste disposal, means of disposal for all material removed from the FOG Interceptor, and the name of the individual recording the information. The maintenance log and waste hauler's receipts shall be made available to the City for inspection on demand. Interceptor cleaning and inspection records shall be maintained on file a minimum of three years.
7. Alternative FOG Management Devices, such as indoor units, shall be maintained in accordance with the Operation and Maintenance plan submitted by the FPE and reviewed by the City of Somerville.
  - a. All waste generated from the AFME shall be disposed of by a licensed waste hauler a minimum of once every month or on intervals as recommended by the manufacturer, whichever is more frequent.
  - b. The Board of Health may require a more stringent frequency than that which is established herein if it is determined to be insufficient to prevent the discharge of FOG into the public sewer or that the discharge does or has the potential to cause downstream blockages.

- c. If the Food Preparation Establishment can provide data demonstrating that less frequent cleaning of the AFME is not required based on the installation characteristics, the Board of Health may authorize less frequent cleaning. The Food Preparation Establishment shall provide data including maintenance receipts for four consecutive cleanings of the AFME, complete with a report from the service contractor, indicating the grease level at each cleaning, and the AFME maintenance log.
  - d. A maintenance log shall be maintained on the premises, and shall include the following information: dates of all activities, grease quantity removed, hauler's name, location of the waste disposal, means of disposal for all material removed from the AFME, and the name of the individual recording the information. The maintenance log and waste hauler's receipts shall be made available to the City for inspection on demand. Interceptor cleaning and inspection records shall be maintained on file a minimum of three years.
8. All removal and hauling of the collected materials must be performed by a Board of Health licensed waste hauler. Pumping shall include the complete removal of all contents, including floating materials, wastewater and settled sludge. Decanting back into the FOG Interceptor shall not be permitted. FOG interceptor cleaning shall include scraping excessive solids from the wall, floors, baffles and all piping.
  9. Pumped material must be disposed at a licensed Disposal Facility in accordance with all local and state laws.
  10. The Food Preparation Establishment shall be responsible for the cost and scheduling of all repairs to FMD components. Repairs required by the Board of Health shall be completed within 30 days after the date of written notice of violation is received by the Food Preparation Establishment.

**C. Somerville Inspections**

1. All Food Preparation Establishments shall allow immediate entry to the property and access to all FOG Management devices and records upon request by the Board of Health. The frequency and number of inspections shall be at the sole discretion of the Board of Health.

**D. Penalties**

1. The Food Preparation Establishment shall rectify any items which are found to be out of compliance with these guidelines during an inspection by the City of Somerville or its agents. These corrections shall be completed within the time limits as given below:

<u>Violation</u>	<u>Days to Correct Violation</u>
Equipment not registered	30 days
Installation Violations	90 days
Operational Violations	30 days

2. If the Food Preparation Establishment has not corrected the violations within these timeframes, the FPE will be considered in violation of the Board of Health

requirements and additional enforcement actions may be taken in accordance with the Board of Health regulations until such time as the violations are rectified. (See Somerville Zoning Sec. 11-36: Grease Containers)

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