

## **Design and Installation Specification for In-ground Grease Interceptors**

This document has been created by the Town of Seabrook to provide useful information and general design specifications grease interceptors (Interceptors) to be used in conjunction with the municipal sewer system. To ensure compliance with the Town's oil & grease discharge requirements, the user should always consult the Seabrook Sewer Department directly before committing to a particular device or installation plan. Alternative designs and installations may be acceptable but must have the prior written approval of the Wastewater Superintendent.

### **Applicability**

Grease management equipment is required where, in the opinion of the Wastewater Superintendent, it is necessary for the preliminary treatment of wastewater containing quantities of fats, oils, and grease that can damage or interfere with the municipal sewer system. The affected group of users includes most commercial food service establishments, as well as other facilities where significant food preparation takes place (such as schools and company cafeterias). It also includes all producers of food for commercial distribution where such food production results in the generation of significant fat, oil, or grease-laden wastewater. It does NOT include private residences.

Grease management equipment can be divided into two general types: small indoor devices (commonly called "grease traps") and large, in-ground grease interceptors. Interceptors are the grease removal solution of choice for food service establishments, food manufacturers, and others for whom the frequent – sometimes daily – cleanings required for a grease trap are not practical.

### **Interceptor Sizing**

The *working capacity* of an Interceptor is defined as the equivalent volume of water in U.S. gallons that can be contained within the interceptor (total of all chambers) when the Interceptor is filled to the bottom of the outlet opening. The working capacities of Interceptors connected to the municipal sewer system must be at least 750 gallons but generally no more than 2000 gallons. Interceptors must be sized to provide a minimum hydraulic retention time of 24 minutes. This is calculated by multiplying the maximum peak wastewater flow in gallons per minute times 24 minutes.

As an example, if the maximum peak wastewater flow is calculated to be 60 gallons per minute, then the smallest acceptable interceptor will have a working capacity of 60 times 24, or 1440 gallons. Contact the Sewer Department for assistance in calculating maximum peak wastewater flow.

### **Interceptor Design**

The basic configuration and dimensional characteristics of a typical Interceptor are shown in Figures 1 and 2. Interceptors are normally constructed of precast concrete and have to have a minimum of two compartments. In a two stage interceptor, the first (upstream) compartment should be approximately twice the liquid volume of the second (downstream) compartment. A minimum liquid depth of 42 inches in each compartment is required. The intermediate baffle(s) must extend the full width of the Interceptor, and from the bottom to within six (6) inches of the top. A rectangular interceptor having a minimum 2:1 length to width ratio is the preferred shape. The design and construction of the interceptor must ensure that there is no flow between compartments around the bottom or side edges of the baffle(s). The Interceptor must also be sealed to prevent leakage to or from the adjacent soil. It is important that all Interceptors be engineered to withstand anticipated surface loads such as vehicular traffic.

The Interceptor's inlet, outlet, and baffle fittings must be constructed of minimum four (4) inch PVC. Each of these three fittings must be of a "tee" design, with the tops of the vertical risers extending well above the water line with adequate support to reduce failure.

The inlet opening must be a minimum of four inches higher than the outlet, and the opening for the interior baffle tee must be below the depth of the maximum anticipated grease mat.

- The lower end of the outlet tee must extend to 12 inches above the tank floor.
- The lower end of the baffle tee should extend to a point approximately one-third of the total wetted depth of the Interceptor above the tank floor
- The lower end of the vertical segment of the inlet tee must terminate 24 inches below the waterline. A terminal tee at this location facing sideways to direct flow to the side of the interceptor is preferred.

In the Town of Seabrook, the internal compartments of grease Interceptor's must be tall enough so that the top of the interceptor is between six and 12 inches below the ground surface when the unit is properly installed. No manholes or brick risers with a height greater than six inches shall be used to provide access to the interceptor. The reason for this is to allow ready access to the interior of the interceptor for proper cleaning and inspection. Service personnel must be able to easily view the grease interceptor's interior walls and baffle from above ground.

All Interceptors must be equipped with an air intake that allows air into the open space of the Interceptor to prevent siphonage and backpressure. Venting of the tank may be provided through the inlet plumbing to a roof vent, or through a separately installed vent line terminating within the tank above the water line.

To allow for proper maintenance, manholes at finish grade must be provided above the inlet and outlet tees, and an inspection port provided over the baffle tee(s). Gas tight manhole covers at least 30 inches in diameter must be provided to prevent odors and provide maintenance access.

A sampling access point is required downstream of the Interceptor. Generally, the sampling point will be an invert located within a downstream manhole either prior to or at the confluence with any other wastewater stream.

The guidelines presented above represent generally accepted design standards for grease interceptors, and most installations should conform to or exceed these standards. Grease interceptors are designed and manufactured commercially by a number of specialized sources. Design of these systems may vary from the above recommendations. Town approval for commercially provided units will be contingent upon receipt from the supplier of a statement identifying the unit's intended application and confirming it's suitability for that use. In approving a grease interceptor design, the Town does not accept liability for the failure of the system to adequately treat wastewater to achieve effluent quality requirements specified in the town's sewer use ordinance. It is the responsibility of the wastewater generator to ensure compliance with the Town of Seabrook's discharge limitations.

## **Installation Requirements**

Interceptors are to be buried in the ground so as to intercept the building sewer. All wastewater from grease-bearing fixtures must be routed to the Interceptor. Under no circumstances shall any wastewater from sanitary facilities be routed to the Interceptor. Interceptors must be installed level and as close as is practicable to the wastewater source. Influent and effluent piping must be a minimum of four (4) feet below the ground surface in compliance with the Seabrook Municipal Sewer System Ordinance. Interceptors must be located so as to afford easy access for cleaning and inspection at all times.

## Maintenance Requirements

Interceptors must be cleaned regularly to ensure their effectiveness. As a rule, an Interceptor is considered “full” when the sum of (1) the thickness of the floating grease mat plus (2) the thickness of settled solids in any chamber reaches 25 percent of the total wetted depth of that chamber. All interceptors must be cleaned prior to exceeding this “full” level, but in every case at a frequency of no less than once every 90 days. The Superintendent may, at his discretion, establish a specific minimum Interceptor cleaning frequency for the permittee.

Cleaning may only be performed by a contractor that is acceptable to the Town of Seabrook. Owners of Interceptors are required to maintain a service contract for the care of their Interceptor – “on demand” service is not permitted. Interceptors may only be cleaned between the hours of 7:00 AM and 7:00 PM, Monday – Friday excluding holidays. Users are required to notify the Sewer Department at least one working day prior to scheduled cleanings.

The cleaning of Interceptors includes the complete removal of the entire contents of all compartments – including gray water. **Under no circumstances may any material - solid, semisolid, or liquid - that has been removed from an Interceptor be returned to an Interceptor or introduced into the municipal sewer system.**

The cleaning of Interceptors includes washing down the interior walls of the compartments and inspecting the tank, walls, floor, and all PVC fittings for excessive wear or damage. Excessive wear or damage must be reported to the owner immediately.

## Records Requirements

Users must maintain a logbook record of all Interceptor service that is performed. These records must include:

- the date and time of each cleaning,
- the waste contractor and the name of the individual who did the cleaning,
- the quantity of material removed from the Interceptor,
- the destination to which the removed material was taken for disposal,
- a record of the physical condition of the Interceptor as determined by the waste contractor, and
- a record of any repairs that were performed.

The interceptor service logbook must be stored on-site for a period of not less than three (3) years following the final entry, and must be available to authorized Town personnel upon request. Other records of interceptor service events must be retained for a minimum period of three years following the date of the service.

## Contact Information

The Seabrook Sewer Department strives to work closely with commercial and institutional sewer users to ensure that the management of fats, oil and grease is performed in an efficient and cost effective manner. We encourage your frequent communication with the Department. Key contacts are:

Thomas Campbell  
Industrial Pretreatment Manager

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Warner Knowles  
Sewer Superintendent

(603) 474-8030  
[lwillwerth@seabrooknh.org](mailto:lwillwerth@seabrooknh.org)

## References

1. United States Environmental Protection Agency. *Design Manual: Onsite Wastewater Treatment and Disposal Systems*. EPA 625/1-80-012. October 1980.
2. Water Environment Federation and U.S. Environmental Protection Agency. *Control of Fats, Oils, & Grease (FOG) Advanced Training Course*. September 14-15, 2004. Boston, Massachusetts.
3. 2001 Florida Plumbing Code.