



Interceptor Sizing and Design Criteria

Updated 6/11/2024

Part I: Grease Interceptors

A. Introductions

The information contained within this document are based on standard industry practices and guidance found in 2021 International Plumbing Code (IPC) and the Uniform Plumbing Code (UPC), Appendix H. The size, type, and location of grease interceptors shall be in accordance with manufacturer instructions, City of Waxahachie Plumbing Codes, and Code of Ordinance Chapter 33, Article X.

B. Applicability

These requirements are applicable to all commercial food service establishments, including those that are undergoing:

1. New construction
2. Interior remodeling to accommodate expansion or operational modifications
3. Changes to ownership/occupancy
4. Any facility which may be experience difficulty achieving compliance with maintenance and/or wastewater discharge limitations.

C. Sizing Requirements

The sizing methods described herein are intended as guidance in determining grease interceptor size that will afford the City's sanitary sewer system a minimum degree of protection against grease and other obstructing materials. In approving a customer's plumbing or grease interceptor design, the City does not accept liability for the failure of a system to adequately treat wastewater to achieve effluent quality requirements specified under City of Waxahachie Code of Ordinance Section 33-53. It is the responsibility of the generator and/or contractors to insure the appropriate level of treatment necessary for compliance with wastewater regulations.

Minimum acceptable grease interceptor sizing shall be accomplished as follows:

1. Sizing according to City of Waxahachie Grease Interceptor Sizing Worksheet, see below.
2. The minimum size of a grease interceptor shall be 500 gallons.
3. The City of Waxahachie would discourage the use of interceptors above 2,500 gallons even if the sizing worksheet recommends larger.

D. Grease Interceptor Sizing Formulas

It is the responsibility of the generator and his/her contractors to ensure that the wastewater discharged from their facility is in compliance with the City's discharge limitations. For the purpose of plans review, a general assessment of grease interceptor design and size will be performed using the following formulas. These formulas have been demonstrated as industry standards capable of achieving the City's discharge criteria when systems are maintained in proper condition.

Method 1: Uniform Plumbing Code, Appendix H

Company		Calculated By		Date		
Project		Address				
Follow these six steps to determine grease interceptor size.						
Enter Calculations Here	No. of Meals per Peak Hours	Waste Flow Rate	Retention Time	Storage Factor	Calculated Size (Gallons)	Selected Interceptor Size (Gallons)
	<input type="text"/>	X <input type="text"/>	X <input type="text"/>	X <input type="text"/>	= <input type="text"/>	<input type="text"/>
	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Step 1	Number of Meals Per Peak Hour:				Notes:	
	Seating Capacity	Meal Factor	Meals Per Peak Hour			
	<input type="text"/>	X <input type="text"/>	<input type="text"/>			
	Establishment Type			Meal Factor		
	Fast Food (45 min)			1.33		
	Restaurant (60 min)			1.00		
	Leisure Dining (90 min)			0.67		
	Dinner Club (120 min)			0.50		
Step 2	Waste Flow Rate:				Notes:	
	Condition			Flow Rate		
	Commercial Kitchen			6		
	Commercial Kitchen To-Go Only			2		
	Garbage Disposal Only			1		
Step 3	Retention Time:				Notes:	
	Commercial Kitchen			2.5		
	Single Service Kitchen			1.5		
Step 4	Storage Factors:				Notes:	
	Kitchen Type			Storage Factor		
	Commercial with 8 hours Operation			1		
	Commercial with 16 hours Operation			2		
	Commercial with 24 hours Operations			3		
	Single Service Kitchen			1.5		
Step 5	Calculate Liquid Capacity:				Notes:	
	Multiple the values found in steps 1-4 of this sizing worksheet to find the approximate grease interceptor size.					
Step 6	Selected Grease Interceptor Size:				Notes:	
	Using the above calculated size as a recommendation, select a grease interceptor above that value. Please note that at this time the City of Waxahachie does not recommend interceptors over 2,500 gallons nor below 500 gallons.					

The Uniform Plumbing code includes a built-in safety factor that can yield very large grease interceptors. At this time, the City is not requiring interceptors larger than 2,500 gallons.

However, the decision to use a interceptor smaller than that specified by the formula and calculations above is to be addressed in the plan submission.

Method 2: Alternative Method Supplied by Professional Engineer or Master Plumber

1. Must include all calculations with specific site on submitted plans. This should include a completed method 1 calculation even if it is not selected.
2. Sealed plans must be submitted to the Utilities Department by a Texas Licensed Professional Engineer.
3. Must show all calculations with recommended size.
4. Plans must be submitted to the Utilities Department for review and approval.
5. Failure to include all of the above items will result in the use of the UPC sizing criteria.

E. Alternate Sizing Formulas/Proposals:

Food service establishments that propose the use of alternate sizing techniques and/or procedures that result in specifications that differ from calculated requirements of method 1, or are less than the 500-gallon minimum, must submit:

1. Methodology for selection of different interceptor, frequently shown as a formula.
2. The ability for the selected interceptor to meet all effluent requirements.
3. Detailed specifications on the grease interceptors being proposed.
4. Signed by a master plumber or professional engineer licensed by the State of Texas.

F. Construction and Installation:

Grease interceptors shall be:

1. Constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature.
2. Watertight and equipped with easily removeable covers.
3. Installed exterior to the building and below or at grade.
4. Readily accessible for inspection, cleaning, and maintenance.
5. Installed in a location approved by the Utility and Health Department.

Proposed grease interceptors shall **not**:

1. Warp, twist, distort or deform when properly installed.
2. Made of materials that easily corrode by wastewater and/or the gases associated with wastewater. The City of Waxahachie is no longer allowing metal interceptors due to this requirement.

All permitting, construction, and inspection activities must be completed in accordance with the City of Waxahachie Plumbing Code – Chapter 8 Article 8. Additionally, the following specifications must be incorporated into grease interceptor design.

- a. The grease interceptor shall be constructed with a minimum of one baffle.

- b. Grease interceptors are to be installed at a minimum distance of 10 ft. from sinks and dishwashers to allow for adequate cooling of the wastewater. Water temperatures must be less than 120 degrees prior to entering grease interceptor.
- c. All grease bearing waste streams should be routed through an appropriate grease interceptor, including: three-compartment sinks, pot/pan sinks, soup kettles, hand-washing sinks, dishwashers, mop sinks and floor drains. Notable Exceptions: Drains that receive “clear waste” only, such as from ice machines, and condensate from coils a may be plumbed to the sanitary system without passing through the grease interceptor with the condition that the receiving drain is a “hub” type that is a minimum of two inches above the finished floor.
- d. All concrete grease interceptors will be equipped with two twenty-four-inch diameter metal manhole type rings and lids, one on the primary side and one on the secondary side, to serve as maintenance access ports. Interceptors with a center inspection port shall install a minimum eighteen-inch diameter cast iron ring and lid over the port.
- e. Acceptable materials that can be used to construct risers for manholes and/or center inspection ports on concrete interceptors are as follows:

Traffic Rated locations:

- 1. Concrete Grade Rings- 4,000 PSI minimum
- 2. Reinforced Concrete Pipe (RCP) – 4000 PSI minimum

Non-Traffic locations:

- 1. Concrete Grade Rings - 4,000 PSI minimum
- 2. Reinforced Concrete Pipe (RCP) - 4000 PSI minimum
- 3. High Density Polyethylene (HDPE) Grade Rings
- 4. Black Double Wall Corrugated HDPE Pipe

Composite, Polyethylene, and Fiberglass Grease Interceptors:

These interceptors may only use manufacture supplied manhole and inspection port risers. If located in traffic areas the interceptors, risers and lids must be H-20 rated.

Note: Bricks, cinder blocks, wood products, corrugated galvanized steel or aluminum pipe, PVC pipe and any other materials not listed above are not acceptable to construct manhole risers.

Grout & Sealants:

- 1. Ram-Nek or its equivalent must be used to seal between the grease interceptor lid, each grade ring and the manhole ring.
 - 2. The first grade ring must also be grouted to the grease interceptor lid.
- f. All Grease Interceptors are to be installed with an Effluent Sampling Well, installed in the drainage piping on the outlet side of the interceptor. Sample wells will have a minimum 10” diameter access cover and a minimum 6” drop from inlet to outlet piping through the sampling well. Sample wells must be located in non-traffic areas and must be of an approved type that is designed for this specific purpose.

G. Customer (Generator) Responsibilities:

It is the responsibility of the customer (waste generator) to ensure compliance with the City of Waxahachie's discharge limitations specified in our Code of Ordinance Sec 33-53.

Hazardous wastes, such as acids, strong cleaners, pesticides, herbicides, paint, solvents, or gasoline shall not be disposed of where they would go through grease or grit interceptors. Care must be taken in system design when commercial dishwashers are discharged through a grease interceptor. Dishwashers use detergents and elevated water temperatures that will melt grease. If the interceptor is either too small or too close to the commercial dishwasher, grease may pass through the interceptor and into the collection system.

Generators are responsible for maintaining grease interceptors in continuous proper working condition, by cleaning and vacating the entire interceptor at a minimum of once every ninety (90) days to ensure compliance with Sec 33-53 of the Code of Ordinance. If a user can, at his/her own expense, produce scientific evidence consisting of FOG test results analyzed in accordance with 40 CFR 136.3 that establishes that a ninety (90) day pumping schedule is not necessary to comply with this article, the Environmental Department may prescribe an alternate maintenance interval for such user. All such request shall be submitted in writing and all documentation shall be made available for five (5) years upon reasonable request. Evaluation of the disputed interceptor maintenance schedule shall be performed on a case-by-case basis requiring scientific evidence for each individual situation.

Furthermore, generators are responsible for inspecting, repairing, replacing, or installing apparatus and equipment as necessary to ensure proper operation and function of grease interceptors and compliance with discharge limitations at all times.

The City of Waxahachie require grease interceptor maintenance records be maintained on site for five (5) years.

The City of Waxahachie Utilities Department advises that the use of enzymes, solvents, and emulsifiers without prior written approval from the department is prohibited. Some of these chemicals only change the form of grease, allowing it to be carried out of the interceptor with the wastewater and deposited in the collection system.

Part II: Other Interceptors

A. Laundries

Commercial Laundries, Laundromats, and dry-cleaners shall be equipped with an interceptor in order to reduce the quantity of lint and silt that enter the collection system. The system must be of adequate size and design to allow for cool-down of wastewater so that separation can be more readily achieved. The interceptor must be installed with a wire basket or similar device, removable for cleaning, that prevents passage into the drainage system of solids ½ inch (12.7 mm) or larger in size, such as strings, rags, buttons or other materials detrimental to the public sewerage system.

Sizing must be in accordance with guidance found in the UPC, Appendix H.

Currently, an effluent sample well is not required for all small commercial laundries. However, large and/or industrial laundries may be subject to Federal Pretreatment regulations. For more information, please contact the Environmental Department at (469) 309-4347.

B. Car Washes

Self-service car washes shall have grit interceptors, with a minimum capacity of 1000 gallons for the first bay, with an additional 500 gallons of capacity for every other bay.

Additionally, wash racks must be constructed to eliminate or minimize the impact of run-off from rain/storm events. Minimum requirements are roofed structures with at least two walls and appropriate grading to prevent stormwater infiltration into the sanitary sewer.

An effluent sampling well is required, per specifications listed in Part I, Section F, Subpart f.

C. Automotive Repair Facilities

Where automobiles are serviced, greased, or repaired or where gasoline is dispensed, oil/water interceptor shall have a minimum capacity of 500 gallons for the first 1000 square feet of area to be drained, plus 250 gallons for each additional 1000 square feet of area to be drained into the interceptor.

An effluent sampling well is required, per specifications listed in Part I, Section F, Subpart f.

Note: Parking garages shall not require a grit interceptor unless vehicle servicing, repairing, washing or, gasoline dispensing occurs. Areas in commercial garages utilized only for storage of automobiles are not required to be drained through a grit interceptor.

D. Hydraulic Elevators

Where hydraulic elevators are in operation, an oil/water interceptor shall be in use. Sizing shall be provided by a licensed engineer and approved by the City of Waxahachie Environmental Department.

Grease Interceptor Sizing Worksheet



Company		Calculated By		Date	
Project		Address			

Follow these six steps to determine grease interceptor size.

	No. of Meals per Peak Hours		Waste Flow Rate		Retention Time		Storage Factor		Calculated Size (Gallons)		Selected Interceptor Size (Gallons)
Enter Calculations Here >	<input style="width:60px; height:40px;" type="text"/>	X	<input style="width:60px; height:40px;" type="text"/>	X	<input style="width:60px; height:40px;" type="text"/>	X	<input style="width:60px; height:40px;" type="text"/>	=	<input style="width:60px; height:40px;" type="text"/>		<input style="width:60px; height:40px;" type="text"/>
	Step 1		Step 2		Step 3		Step 4		Step 5		Step 6

Step 1	<p>Number of Meals Per Peak Hour:</p> <table style="width:100%;"> <tr> <td style="text-align: right;">Seating Capacity</td> <td style="text-align: center;">X</td> <td style="text-align: right;">Meal Factor</td> <td style="text-align: center;">=</td> <td style="text-align: right;">Meals Per Peak Hour</td> </tr> <tr> <td><input style="width:60px; height:20px;" type="text"/></td> <td></td> <td><input style="width:60px; height:20px;" type="text"/></td> <td></td> <td><input style="width:60px; height:20px;" type="text"/></td> </tr> </table> <table style="width:100%;"> <tr> <td style="text-align: left;">Establishment Type</td> <td style="text-align: right;">Meal Factor</td> </tr> <tr> <td>Fast Food (45 min)</td> <td style="text-align: right;">1.33</td> </tr> <tr> <td>Restaurant (60 min)</td> <td style="text-align: right;">1.00</td> </tr> <tr> <td>Leisure Dining (90 min)</td> <td style="text-align: right;">0.67</td> </tr> <tr> <td>Dinner Club (120 min)</td> <td style="text-align: right;">0.50</td> </tr> </table>	Seating Capacity	X	Meal Factor	=	Meals Per Peak Hour	<input style="width:60px; height:20px;" type="text"/>		<input style="width:60px; height:20px;" type="text"/>		<input style="width:60px; height:20px;" type="text"/>	Establishment Type	Meal Factor	Fast Food (45 min)	1.33	Restaurant (60 min)	1.00	Leisure Dining (90 min)	0.67	Dinner Club (120 min)	0.50	Notes:
Seating Capacity	X	Meal Factor	=	Meals Per Peak Hour																		
<input style="width:60px; height:20px;" type="text"/>		<input style="width:60px; height:20px;" type="text"/>		<input style="width:60px; height:20px;" type="text"/>																		
Establishment Type	Meal Factor																					
Fast Food (45 min)	1.33																					
Restaurant (60 min)	1.00																					
Leisure Dining (90 min)	0.67																					
Dinner Club (120 min)	0.50																					
Step 2	<p>Waste Flow Rate:</p> <table style="width:100%;"> <tr> <td style="text-align: left;">Condition</td> <td style="text-align: right;">Flow Rate</td> </tr> <tr> <td>Commercial Kitchen</td> <td style="text-align: right;">6</td> </tr> <tr> <td>Commercial Kitchen To-Go Only</td> <td style="text-align: right;">2</td> </tr> <tr> <td>Garbage Disposal Only</td> <td style="text-align: right;">1</td> </tr> </table>	Condition	Flow Rate	Commercial Kitchen	6	Commercial Kitchen To-Go Only	2	Garbage Disposal Only	1	Notes:												
Condition	Flow Rate																					
Commercial Kitchen	6																					
Commercial Kitchen To-Go Only	2																					
Garbage Disposal Only	1																					
Step 3	<p>Retention Time:</p> <table style="width:100%;"> <tr> <td style="text-align: left;">Commercial Kitchen</td> <td style="text-align: right;">2.5</td> </tr> <tr> <td style="text-align: left;">Single Service Kitchen</td> <td style="text-align: right;">1.5</td> </tr> </table>	Commercial Kitchen	2.5	Single Service Kitchen	1.5	Notes:																
Commercial Kitchen	2.5																					
Single Service Kitchen	1.5																					
Step 4	<p>Storage Factors:</p> <table style="width:100%;"> <tr> <td style="text-align: left;">Kitchen Type</td> <td style="text-align: right;">Storage Factor</td> </tr> <tr> <td>Commercial with 8 hours Operation</td> <td style="text-align: right;">1</td> </tr> <tr> <td>Commercial with 16 hours Operation</td> <td style="text-align: right;">2</td> </tr> <tr> <td>Commercial with 24 hours Operations</td> <td style="text-align: right;">3</td> </tr> <tr> <td>Single Service Kitchen</td> <td style="text-align: right;">1.5</td> </tr> </table>	Kitchen Type	Storage Factor	Commercial with 8 hours Operation	1	Commercial with 16 hours Operation	2	Commercial with 24 hours Operations	3	Single Service Kitchen	1.5	Notes:										
Kitchen Type	Storage Factor																					
Commercial with 8 hours Operation	1																					
Commercial with 16 hours Operation	2																					
Commercial with 24 hours Operations	3																					
Single Service Kitchen	1.5																					
Step 5	<p>Calculate Liquid Capacity:</p> <p>Multiply the values found in steps 1-4 of this sizing worksheet to find the approximate grease interceptor size.</p>	Notes:																				
Step 6	<p>Selected Grease Interceptor Size:</p> <p>Using the above calculated size as a recommendation, select a grease interceptor above that value. Please note that at this time the City of Waxahachie does not recommend interceptors over 2,500 gallons nor below 500 gallons.</p>	Notes:																				