Industrial Pretreatment Division

Gravity Grease Interceptor Design Form

Submit completed form and required attachments via mail, email, or fax to:

City of Northglenn
Industrial Pretreatment Division
12301 Claude Court
Northglenn, CO 80241

Email: ipprogram@northglenn.org
Phone: 303.450.4026
Fax: 303.450.4020

Project Name:	
Project Address:	
Date Grease Interceptor Sized:	
Company Sizing Grease Interceptor:	
Engineer Name:	
Engineer Phone:	
Engineer E-mail:	

Instructions

Form must be completed and stamped by a licensed Professional Engineer, or otherwise approved by City of Northglenn Public Works. Submit completed form and the following attachments to the Industrial Pretreatment Division:

1. Completed Industrial Waste Questionnaire
2. List of fixtures with manufacturer and model
3. Building or kitchen floor plan with fixtures noted
4. Anticipated Best Management Practices used to limit FOG entering system
5. Anticipated grease interceptor maintenance and pump-out schedule

Gravity grease interceptors are sized based on the expected flow rate of three categories of kitchen fixtures (listed below) in gallons per minute (gpm) with criteria of a hydraulic residence time of 30 minutes and a 25% FOG and solids storage factor. The design flow rate is one-third the maximum flow rate because of the bulk hydraulic compensation of short-term peak flow events. Refer to Water Research Foundation project reports 03-CTS-16Ta & b for design justification.

$$\textbf{Volume} = [\textbf{Maximum Flow Rate (gpm)}] \times \textbf{30 min} \times \textbf{1.25 Storage Factor} \div \textbf{3}$$

- **Drainage** fixtures are filled and completely drained at the end of their use and includes the 3-compartment sink and cooking equipment like tilt skillets, braising pans, rotisserie ovens and wok ranges. Flow is calculated using the Manning Formula (see page 2), which accounts for sink pipe drain size, pipe material types and pipe slope to determine the maximum flow rate from the fixture. Most Drainage fixtures connect to a single drain pipe; if the fixture connects to separate drain pipes, list it as multiple fixtures.
- **Faucet** fixtures are not filled, but instead drain at their faucet's flow rate and includes sinks for food preparation, pre-rinse, equipment cleaning and waste food disposal units. If floor drains are present, their combined flow equals the fixture(s) supplying the spray. Sinks with two faucets count as two fixtures. Ignore hand-wash-only fixtures for sizing.
- **Cleaning** fixtures have specific peak discharge rates that exceed faucet flow but are less than the maximum rate the drain pipe permits and includes dishwashers, clothes washers used for cleaning of food service-associated linens, and automatic hood cleaning systems. Enter the manufacturer-specified flow rate per discharge cycle.

Structurally, the gravity grease interceptor must be equipped a particular design of inlet, baffle wall and outlet tee. Refer to pages 3-4 for details.

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Drainage Fixtures

$$\text{Flow Rate (gpm)} = 669 \times A \times R^{2/3} \times S^{1/3} \div n$$

$$A = 0.7254 \times [\text{Pipe Diameter (inches)} \div 12]^2$$

$$R = 0.0251 \times \text{Pipe Diameter (inches)}$$

$$S = \text{Pipe slope}, n = \text{Roughness coefficient}$$

Drainage Pipe Diameter	Minimum Slope
2 ½ inches or smaller	0.0208
3 to 6 inches	0.0104
8 inches or larger	0.0052

87.5% of horizontal drainage pipe depth is assumed wettable due to flow caused by gravity alone. Contact City if sewage ejector pumps are used.

Manning's roughness coefficient, n, depends on the material and age of the drainage pipe:

	PVC	Copper
Minimum (new)	0.008	0.010
Normal (used)	0.009	0.011
Maximum (old)	0.010	0.012

	Fixture Name	Diameter (in)	Slope	Roughness (n)	Flow Rate
1.					
2.					
3.					
4.					
				Total Drainage Fixtures Flow Rate (DFQ) =	0

Faucet Fixtures

International Plumbing Code requires most faucets discharge a maximum 2.2 gpm at 60 psi and service/mop sinks should discharge a minimum 3 gpm at 8 psi. Measure flow rate if uncertain.

	Fixture Name	Maximum Flow Rate
1.		
2.		
3.		
4.		
	If floor drains exist, use flow rate for spray-supplied fixture(s)	
	Total Faucet Fixtures Flow Rate (FFQ) =	0

Cleaning Fixtures

Provide manufacturer and model with list of fixtures that is provided with this form.

	Fixture Name	Mfg. Specified Flow Rate
1.		
2.		
3.		
4.		
	Total Cleaning Fixtures Flow Rate (CFQ) =	0

Grease Interceptor Volume

[DFQ +	FFQ +	CFQ] ×	30 minutes ×	1.25 ÷ 3 =	Volume in gallons
0	0	0	× 12.5 =		0

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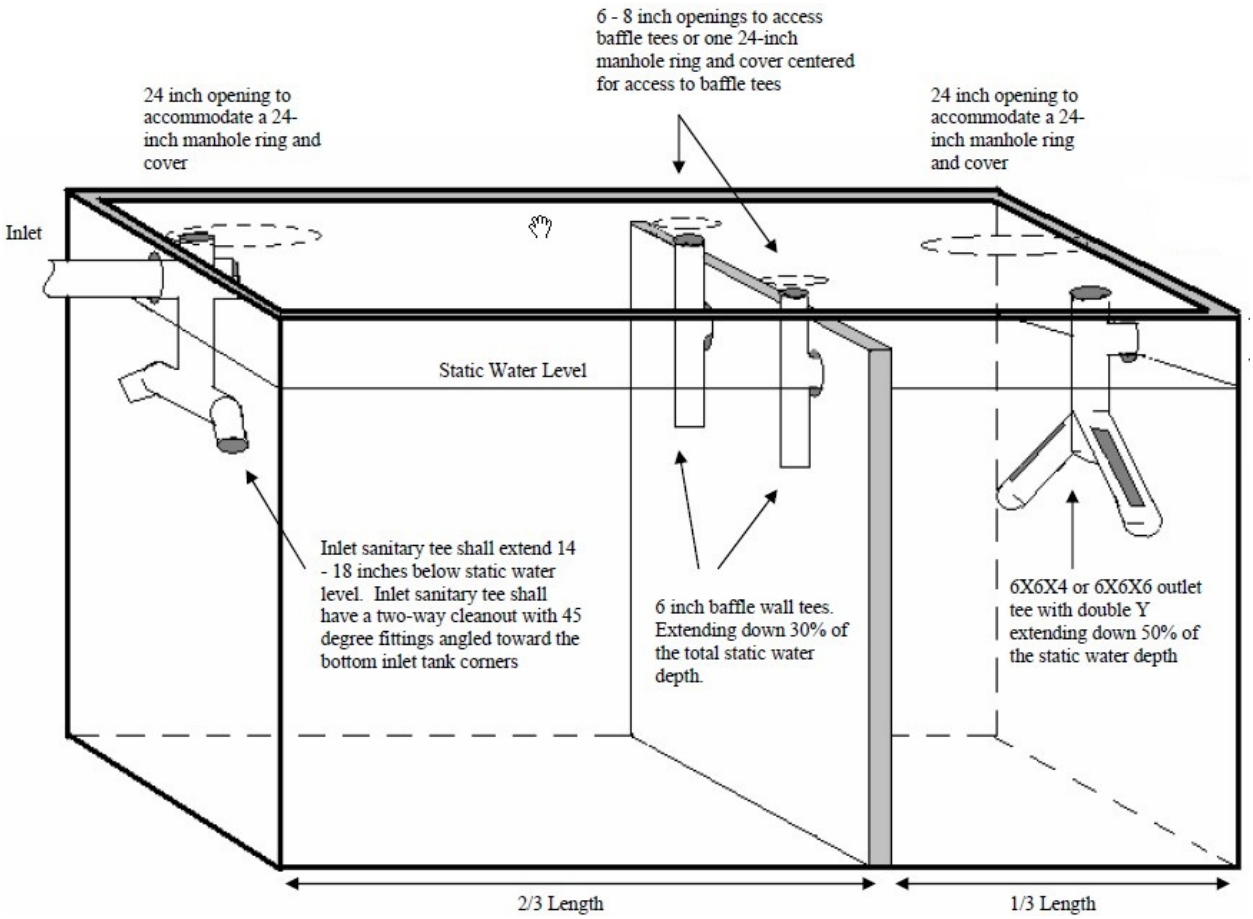
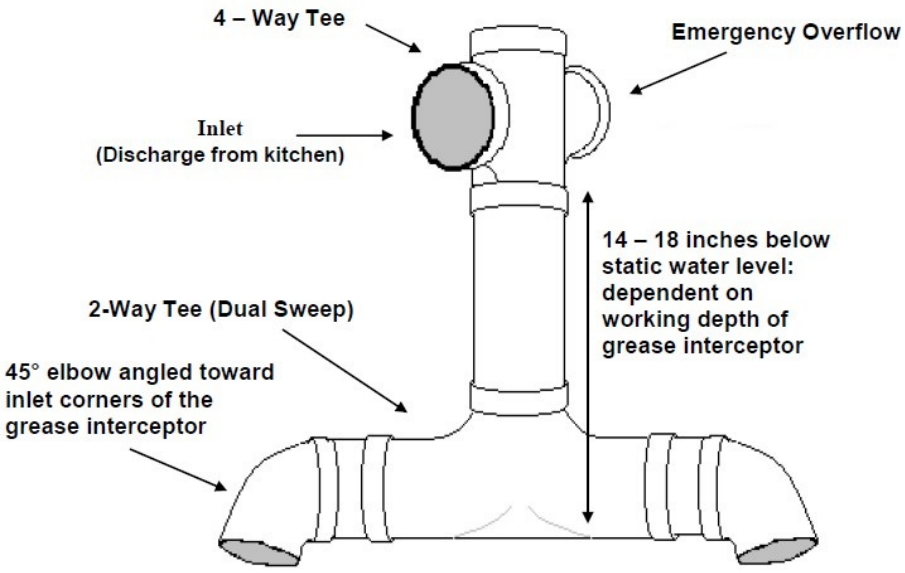
Inlet, Baffle Wall and Outlet Tee Design Overview



Inlet Tee Design



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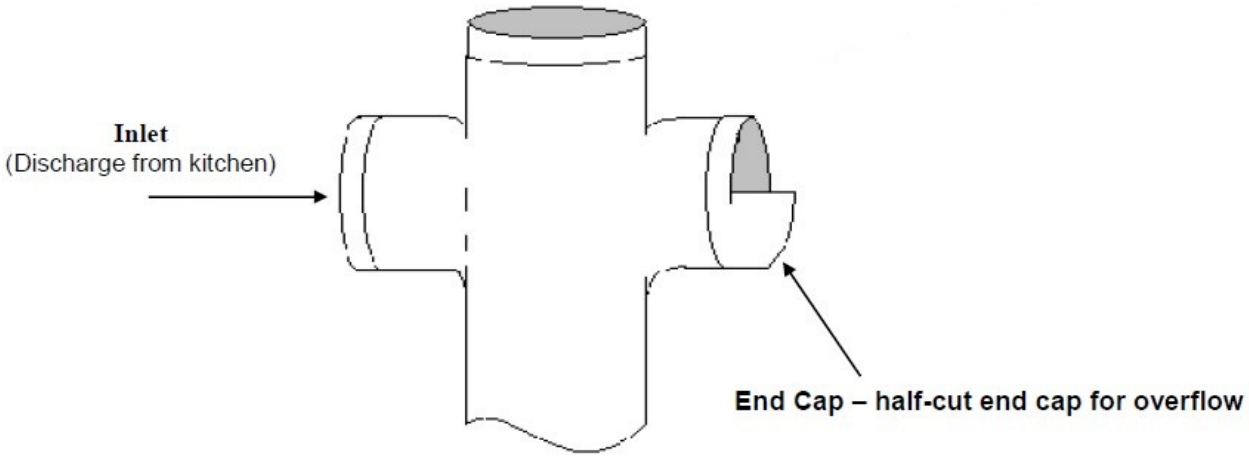
Emergency Overflow Close-up



Outlet Tee Design