



## Kitsap County Department of Public Works

614 Division Street (MS-27), Port Orchard, WA 98366-4699

R.W. Casteel, P.E., Director

### OIL/WATER SEPARATORS & GREASE INTERCEPTORS

#### Requirements for Oil/Water Separators and Grease Interceptors discharging into Kitsap County Sewer mains

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#### Unlawful Wastes and Concentration Limits

It is unlawful to discharge or cause to be discharged into the sewer system the following substances: gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides, and sulfides. Also prohibited are any substances that create a fire or explosion hazard, create a public nuisance or hazard to life, prevent entry into the sewer for maintenance and repair or is injurious in any other way to the operation of the system or the operating personnel.

Concentrations of various substances being discharged to the County's sewers are subject to limitations. The concentration of fats, oils and greases of animal or vegetable origin, petroleum oil, non-biodegradable cutting oil or mineral oils shall not exceed 100 mg/l. Concentrations of metals are limited as follows: arsenic, 1 mg/l; cadmium, 3 mg/l; chromium, 6 mg/l; copper, 3 mg/l; cyanide, 2 mg/l; lead, 3 mg/l; mercury, 0.1 mg/l; nickel, 6 mg/l; silver, 1 mg/l; zinc, 5 mg/l.

If your project or business will discharge any of the prohibited substances or exceed the limitations listed above, you will be required to take the appropriate action to control those discharges. That action may include the installation of a grease trap, a commercial grease interceptor, an oil/water separator, or some other form of pre-treatment.

#### Businesses Requiring Separator Systems

Kitsap County requires the following businesses to have a separator system:

Restaurants & Delis  
Car Washes  
Machine Shops  
Car Dealers  
Buildings with bays or floor drains

Service Stations  
Fueling Facilities (trucks/buses)  
Businesses using auto/steam equipment  
Quick Lube Shops

## **General Plan Submittal Requirements**

Projects incorporating oil/water separators or commercial grease interceptors require information for review that shall include plans, calculations, and reports which are prepared, stamped, signed, and dated by a Washington State Licensed Professional Civil Engineer. Design plans and reports shall include but not be limited to the following:

1. Calculations for determining flow into the separator and for sizing the separator or interceptor.
2. Standard detail of the separator or interceptor.
3. Building floor or parking lot layout and finish elevations.
4. A completed "Application to Construct Sanitary Sewer Extension." (Required only if one has not been previously submitted as a part of the County's "plan review" procedure.
5. A detailed maintenance program and employee education program.

Plans and supporting information may be submitted directly to the Kitsap County Department of Public Works - Wastewater Division for review and approval. Upon approval of the plans and prior to construction, the owner will be required to purchase a Building Side Sewer Permit.

Upon satisfactory completion of construction, the developer shall be required to submit to the County an as-built drawing certified by the engineer of record. The review and approval of the as-built shall be required prior to approving the system for operation.

## **Minimum Design Requirements**

### **Oil/Water Separators**

Design and sizing of oil/water separators shall conform to the Department of Ecology's Best Management Practices (BMP) for Stormwater Treatment. For most applications the American Petroleum Institute (API) separator will suffice. Coalescing plate interceptors (CPI) may be used when space limitations preclude the installation of the API type or when the removal of fine suspended solids is required. Use of a spill control (SC) separator will be allowed only when small spills may be anticipated.

Regardless of the type of separator used, the following requirements apply:

1. Appropriate removal covers or hatches must be provided that allow access for inspection and maintenance. Separators which are subject to vehicular traffic shall have covers or hatches capable of sustaining H-20 loadings.
2. Any pump mechanism shall be installed downstream of the separator to prevent oil emulsification.
3. API and CPI separators shall have a forebay to collect floatables and large settleable solids. Its surface area shall not be less than 20 square feet per 10,000 sf of the area draining into the separator.
4. API and CPI separators shall have an afterbay in which absorbent pillows or similar material are placed. Absorbent materials for SC separators shall be placed in the manhole/vault. Used absorbent materials shall be disposed of in a manner acceptable to the Bremerton/Kitsap County Health Department.
5. The separator shall have a valve on the discharge pipe which can be closed during cleaning and in the event of a spill.
6. Sanitary sewer pipes from the building shall be connected to the service lateral at least four feet downstream from the separator, providing the slope of the lateral is at least 2%. For laterals with a slope of less than 2%, the connection point shall be a minimum of eight feet downstream from the separator.

## **Minimum Design Requirements (Cont.)**

### **Grease Interceptors**

A commercial grease interceptor will be required when it is determined that an interior grease trap will not adequately restrict the flow of grease into the sanitary sewer. Grease interceptors may be constructed of concrete or cast iron.

Regardless of the type of interceptor used, the following requirements apply:

1. All grease interceptors shall be located outside of the building to facilitate inspection and maintenance.
2. Appropriate removal covers or hatches must be provided that allow access for inspection and maintenance. Interceptors which are subject to vehicular traffic shall have covers or hatches capable of sustaining H-20 loadings.
3. Any pump mechanism shall be installed downstream of the interceptor to prevent grease emulsification.
4. The interceptor shall have a valve on the discharge pipe which can be closed during cleaning.
5. Sanitary sewer pipes from the building shall be connected to the service lateral at least four feet downstream from the interceptor, providing the slope of the lateral is at least 2%. For laterals with a slope of less than 2%, the connection point shall be a minimum of eight feet downstream from the interceptor.

Commercial grease interceptors shall be sized to accommodate the anticipated flow without discharging grease to the sewer main. We recommend the use of Appendix H of the latest edition of the Uniform Plumbing Code for determining interceptor size. For your convenience, the sizing criteria are reproduced on the following page:

### **Automatic Grease Removal Systems**

Where conversion of existing buildings make it impossible to install separate plumbing and an exterior grease interceptor, the County *may* authorize the installation of an automatic grease removal system. The system shall be located after the discharge of the pre-rinse sink, pot sink, and/or three-compartment sinks, but before the dishwasher, and shall be adequately sized in conformance with the manufacturers recommendation.

## **Minimum Design Requirements (Cont.)**

### **H4 Sizing Criteria**

(a) **Parameters.** The parameters for sizing a grease interceptor are hydraulic loading and grease storage capacity, for one or more fixtures.

(b) **Sizing Formula.** The size of the interceptor shall be determined by the Following Formula:

$$\text{Number of meals per peak hour}^1 \times \text{Waste flow rate}^2 \times \text{retention time}^3 \times \text{storage factor}^4 = \text{Interceptor size (liquid capacity)}$$

*1. Meals Served at Peak Hour*

*2. Waste Flow Rate*

<i>a. With dishwashing machine</i>	<i>6 gallon flow</i>
<i>b. Without dishwashing machine</i>	<i>5 gallon flow</i>
<i>c. Single service kitchen</i>	<i>2 gallon flow</i>
<i>d. Food waste disposer</i>	<i>1 gallon flow</i>

*3. Retention times*

<i>Commercial kitchen waste</i>	
<i>Dishwasher</i>	<i>2.5 hours</i>

<i>Single service kitchen</i>	
<i>Single serving</i>	<i>1.5 hours</i>

*4. Storage factors*

<i>Fully equipped commercial kitchen</i>	<i>8 hour operation: 1</i>
	<i>16 hour operation: 2</i>
	<i>24 hour operation: 3</i>

<i>Single Service Kitchen</i>	<i>1.5</i>
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*(Source: Uniform Plumbing Code, 1991 edition)*

## **Maintenance Requirements**

Oil water separators, grease traps, and commercial grease interceptors shall be properly operated and cleaned regularly to prevent the release of appreciable quantities of oil, grease, or other prohibited or limited substances into the sewer system. Generally, cleaning should be done when 75% of the retention capacity of the device has been reached. The extracted material shall not be reintroduced into the sanitary sewer at another location.

Although we are not a policing agency, we will at random take samples from the separator or interceptor to insure compliance with County Ordinance 55.