Grease Interceptor Sizing and Installation Guidelines

Why are grease interceptors required?

Grease interceptors are required by the Uniform Plumbing Code (UPC), as adopted by Duvall Municipal Code (DMC 10.01.100). Grease protection is an essential element for restaurants, cafes, catering facilities, commissaries, hotels, cafeterias, convenience stores, full-service grocery stores, schools, hospitals, and food manufacturing plants. Grease interceptors are installed on "gray" water drain lines and are designed to remove fats, oils and grease (FOG) from wastewater. The retained FOG should be regularly removed or pumped out of the interceptor and should be properly disposed of. The interceptor must be cleaned whenever 25% of any chamber becomes filled with FOG or other solids.

Definitions

- *Hydromechanical Grease Interceptors* (HGI) can be located inside or outside the facility and are required to have an approved type of vented flow restrictor. Flow restrictors slow the flow of water entering the grease interceptor. The total capacity of the fixtures discharging into an HGI, in gallons, shall not exceed two and one-half (2 ½) times the certified gallons-per-minute (gpm) flow rate of the interceptor.
- *Gravity Grease Interceptors* (GGI) are generally installed in the ground outside the facility, upstream from the "black" water (sanitary waste) drain line and have a 500-gallon minimum capacity. In existing buildings like the downtown corridor, space for a GGI usually does not exist. Breaking down the fixtures into smaller groups and running them through an appropriately sized HGI is typically the best solution.
- A *Drainage Fixture Unit* (DFU) is a unit of measure for the load-producing effects on a plumbing system from different kinds of plumbing fixtures. Things like produce prep sinks and hand washing sinks do not need to be connected to the grease device. If they are not plumbed into the device then they should not be included in the sizing calculation

Examples of DFU Calculations

Table 1 – Determining DFUs (on the following page) lists the number of DFUs per fixture

Table 2 – Fixture Equivalents (on the following page) lists the number of DFUs per pipe diameter

Example 1: Restaurant with 40 seats, serving 120 meals per hour*:

*Meals per hour is determined by multiplying the number of seats by 60 and dividing by the estimated time (minutes) it takes for a patron to eat.

3-compartment sink (9DFUs)
2-compartment sink (6 DFUs)
mop sink (3 DFUs)
3 hand washing sinks (3 DFUs)
2 floor drains (4 DFUs)
+ dishwasher with 2-inch pipe to floor sink(2-inch drain line 4 DFUs)

Total = 29 DFUs

Example 2: Restaurant with 40 seats, serving 40 meals per hour*:

3-compartment sink (9 DFUs)
2-compartment food prep sink (6 DFUs)
mop sink (3 DFUs)
hand wash sink (not connected)
pre-rinse sink (3 DFUs)
+ dishwasher (not connected)

Total = 15 DFUs

Table 4 – Hydromechanical Grease Interceptor (HGI) Sizing Chart (on the following page) is used to determine the size of HGI needed, if that is the type of grease interceptor being installed. In Example 1, based on 29 DFUs a 75 gallon per minute (gpm) unit would be required. In Example 2, a 50 gpm unit would be required.

Table 5 – Gravity Grease Interceptor (GGI) Sizing Chart (on the following page) is used to determine the size of GGI needed. Example 1 would require a 100-gallon unit. Example 2 would require a 750-gallon unit.

Table 1 – Determining DFUs		
Type of Fixture	**# of DFUs**	**Comments**
3-compartment sink	9	
2-compartment sink	Use floor sink criteria based upon drain size or number of sinks, whichever is larger	Each compartment is 3 DFUs.
Floor sinks	DFUs based upon sink drain size*	See table 2 below or section 702.1 in the UPC. *Floor sinks that receive only ice machine and cooler condensate are not counted.
Mop sink	3	If cooking meat, then new mop sinks must be connected to grease protection.
Work sink	3	
Floor drains	2	
Trench drains	2 DFUs per lineal foot of drain	
Soup Kettle	2 DFUs per lineal foot of trench drain	
Braziers	2 DFUs per lineal foot of trench drain	
Steam tables	Use floor sink or trench drain criteria, whichever is appropriate.	
Dishwasher pre-rinse sink	3	
Dishwashers	Use floor sink criteria	
Food waste disposers, including pulpers	Use next larger size of GGI than would otherwise be required	FOG bearing food waste disposers can only discharge to properly sized GGIs

Table 2 – Fixture Unit Equivalents from UPC 702.1	
Drain Size (inches)	**# of DFUs**
1 ¼	1
1 ½	3
2	4
3	6
4	8

Table 3 – Pipe Size, Flow, DFU Count		
Pipe Size (inches)	**Max. Full Pipe Flow (gpm)**	**Max DFU Count**
2	20	8
2 ½	38.2	14
3	60	35
4	125	216
5	230	428
6	375	720

Table 4 – Hydromechanical Grease Interceptor (HGI) Sizing Chart	
DFUs[1]	**HGI Flow (gpm)**
8	20
10	25
13	35
20	50
35	75
172	100
216	150
342	200
428	250
576	350
720	500

[1]The maximum allowable number of DFUs that can be connected to the grease interceptor.

Table 5 – Gravity Grease Interceptor (GGI) Sizing Chart	
DFUs[1]	**GGI Volume (gallons)**
8	500
21	750
35	1,000
90	1,250
172	1,500
216	2,000
307	2,500
342	3,000
428	4,000
576	5,000
720	7,500
2,112	10,000
2,640	15,000