Guidelines for Grease Trap Design

The common factor used among the several formulas used for designing grease trap sizes is the incoming flow rate. The fixture unit method assesses the number of fixtures (fixture load) that will discharge wastewater to the grease trap (International Plumbing Code, 2006). The table below provides the drainage fixture units for various fixture types:

Fixture Type	Drainage Fix-	Fixture Type	Drainage Fix-
Automatic clothes washer, commercial	3	Laundry sink	2
Automatic clothes washer, residential	2	Lavatory	1
Bathtub	2	Shower	2
Bidet	1	Service sink	2
Combination sink and tray	2	Sink	2
Dental lavatory	1	Urinal	4
Dishwashing machine, domestic	2	Wash sink, each set of faucet	2
Drinking fountain	0.5	Water closet, private or public 1.6 gpf	4
Floor drain	2	Water closet, public >1.6 gpf	6
Kitchen sink, domestic	2		

Table 1: Drainage Fixture Units (International Plumbing Code, 2006)

The capacity of the grease trap is therefore calculated as:

Step 1: Compile design data Determine the type of fixtures and total the drain fixture units (Table 1) Total drainage fixture units, DFU_{total} Required detention time, HDT_{min} Liquid depth, D_{ft}
Step 2: Determine the wastewater flow rate from Table 3 – International Plumbing Code
Step 3: Multiply the flow rate (gpm) by the realistic peak discharge flow rate 0.7 – 0.8
Step 4: Multiply the result at step 3 by the retention time between 15 to 30 minutes.
Step 5: Calculate the required volume of grease trap, V_{gal} $V_{gal} = Q_{gpm} \times HDT_{min}$

Table 2: Example of grease trap calculations

Fixture Load	gpm	Fixture Load	gpm
1	3.0	12	28.6
2	5.0	13	29.4
3	6.5	14	30.2
4	8.0	15	31.0
5	15.0	16	31.8
6	17.4	17	32.6
7	19.8	18	33.4
8	22.8	19	34.2
9	24.6	20	35.0
10	27.0	25	38.0
11	27.8	30	42.0

Table 3: Estimating Water Demand (International Plumbing Code 2006)

Tables 2 and 3 provide guidance on the appropriate sizing of the grease traps which should be maintained at an appropriate frequency to prevent the discharge of grease from prolonged usage without cleaning. Operators of facilities are therefore advised to establish a maintenance scheduled which is supported by weekly inspections of the grease trap. A specimen grease trap is provided below for illustration purposes.

Specimen of Grease Trap