



CARROLLTON
T E X A S

Where Connections Happen

**GUIDANCE DOCUMENT
FOR SIZING AND INSTALLATION
OF GREASE TRAPS AND INTERCEPTORS**

Part I: Guidance for Grease Trap Sizing and Design Criteria

A. Introduction

The City of Carrollton requires grease traps or interceptors in commercial food establishments to prevent the entry of grease, fats, oils and debris into the city's sanitary sewer system. These substances cause sewer back-ups, blockages, and sanitary sewer overflows.

The traps use the physical principal that fats, oils and grease are lighter than water and will rise to the top of a water surface and heavy debris will fall to the bottom of the trap when the mixture is allowed to stand for a period of time in quiet conditions. The longer the wastewater stays in the trap, the better the separation. But as the amount of retained grease and solids increase, the effective volume of the trap decreases, retention time decreases and physical separation decreases, resulting in pass through of solids, fats, oils and grease. To prevent this, grease traps and interceptors have to be regularly maintained by having a permitted liquid waste hauler remove both the top grease layer and the bottom solids.

Size, type, and location of grease traps shall be in accordance with the manufacturer's instructions and the requirements of City of Carrollton ordinances.

B. Applicability

The requirements contained in this guidance document 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 of ownership/occupancy
4. Facilities which may be experiencing difficulty in achieving compliance with maintenance and/or wastewater discharge limitations

C. Sizing Requirements

Sizing methods described herein are intended as guidance in determining grease trap/interceptor sizes that will provide a minimum degree of protection against grease and other materials that cause blockages in the City's sanitary sewer system. Sizing determinations are based on operational data provided by business owners or their contractors. 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.

Minimum acceptable grease trap/interceptor sizing shall be accomplished based on the type of food service or level of food preparation as defined in the City of Carrollton Food Establishment Policy, Oct. 2007 Revision.

- a. No food preparation: No grease trap/interceptor requirement.
- b. Light food preparation: A minimum of a 500-gal. grease interceptor with at least two baffles. There is no current requirement for a sampling well.
- c. Heavy food preparation: A minimum of a 1000-gal. grease interceptor with at least two baffles.

D. Alternative Proposals:

Alternate devices for grease removal (i.e. Great Basin, Trapzilla, Big Dipper, etc.) shall be approved on an individual basis by Environmental Services through a variance letter, and will be subject to monitoring for its effectiveness.

Subject to specific best management kitchen practices, set-up and maintenance procedures, the city is currently allowing the following alternative FOG pretreatment devices for specific food establishments:

- a. No food preparation: No grease trap/interceptor requirement.
- b. Light food preparation:
 - 1. Great Basin Model No. GB-75
 - 2. Trapzilla Model No. TZ-600
- c. Heavy food preparation:
 - 1. Great Basin Model No. GB-250
 - 2. There is no acceptable Trapzilla equivalent.

E. Construction/Installation:

All permitting, construction, and inspection activities must be completed in accordance with the City of Carrollton Plumbing Code. Additionally, the following specifications must be incorporated into grease trap design.

- a. The standard grease interceptor shall be constructed with a minimum of two baffles.
- b. Grease interceptors are to be installed at a distance of 8-10 meters from the last contributing fixture to allow for adequate cooling of the wastewater, while preventing grease solidification in the lines. Water temperatures must be less than 110 degrees Fahrenheit prior to entering grease trap.

- c. All grease bearing waste streams, such as: three-compartment sinks, pot/pan sinks, soup kettles, hand-washing sinks, dishwashers, mop sinks and floor drains should be routed through an appropriate grease trap/interceptor. *Notable Exceptions:* Drains that receive “clear waste” only, such as from ice machines, condensate from coils and drink stations, 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. Sampling Wells. All exterior or recessed Grease Traps and Interceptors of a thousand gallon or more capacity are to be installed with an Effluent Sampling Well, equivalent to:
 - a. Parks Environmental Equipment Company, 2010 Sample Well Drawing SWB-2;
 - b. PW Eagle WAC-15 or CSC-15; or
 - c. Uponor Sample Well.Sample wells will have a 15” diameter access cover and a minimum 4” drop from inlet to outlet piping through the sampling well. Mechanical Grease Traps and Interceptors that are installed above ground must be equipped with an influent flow regulator and an effluent valve assembly that allows for sample collection.

All alternative grease interceptors, regardless of size, are to be installed with corresponding effluent sampling wells for monitoring purposes.

- e. Grease interceptors and lids must be graded to handle vehicular traffic.

F. Customer (Generator) Responsibilities:

It is the responsibility of the customer (waste generator) to ensure compliance with the City of Carrollton’s discharge limitations specified in Chapter 171, Industrial Wastewater, and grease trap maintenance in Chapter 172, Liquid Waste, of its Code of Ordinances.

Hazardous wastes, such as acids, strong cleaners, pesticides, herbicides, paint, solvents, or gasoline should not be disposed of where they would go through grease or grit traps.

If commercial dishwashers are discharged through a grease interceptor, care must be taken in system design. 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 traps in continuous proper working condition. Further, generators are responsible for inspecting, repairing, replacing, or installing apparatus and equipment as necessary to ensure proper operation and function of grease traps and compliance with discharge limitations at all times.

The generator must have grease traps serviced (pumped, cleaned, and inspected) by a City of Carrollton permitted liquid waste hauler, at a minimum frequency to ensure proper function. Records of grease interceptor maintenance are required to be maintained on site for at least three (3) years.

Enzymes, solvents, and emulsifiers are not permitted as these will only change the form of grease, allowing it to be carried out of the trap with the wastewater and deposited in the collection system. Biological treatment systems must be pre-approved by the Environmental Services Department. These systems will not alleviate the necessity for inspection and proper maintenance.

Part II: Other Types of Interceptors and Sizing Requirements

Interceptors are required for oil, grease, sand and other substances harmful or hazardous to the building drainage system, the public sewer or sewage treatment plant. A licensed plumbing contractor or professional engineer must submit the design, size and location of pretreatment devices to the City for review and approval.

A. Laundries

Typical applications include commercial/institutional Laundromats and dry-cleaners. The waste discharge from these facilities usually contains high quantities of lint, silt, dissolved and suspended solids, as well as detergents.

A lint interceptor is commonly referred to as a “lint trap”, typically located outside of the building and buried below grade. The principal advantage is the cooling effect obtained by the earth. The buried interceptor is typically constructed of precast concrete, providing years of continuous service. The interceptor contains several compartments where the lint will coagulate and float to the surface and heavier solids will sink to the bottom. The discharging effluent comprises of the clearer water between these layers. Inlet and outlet piping shall be a minimum of four (4”) inches or the size of the building sewer whichever is greater. In traffic areas, the trap shall be designed to have adequate reinforcement and cover (including piping), meeting HS-20 traffic loading specifications. Lint traps in traffic areas require a concrete driving surface over piping with structural backfill around piping.

Maintenance. The lint interceptor should be cleaned (or pumped out) routinely to prevent the escape of appreciable quantities of grease. Cleaning should be performed when the interceptor is at 75% of lint/silt retention. The frequency of cleaning at any given installation will vary depending on use. Pumping frequencies for Laundromats usually range from once a month, to once every six months.

Sizing criteria. The different variables include: number of washing machines, wastewater flow rate, wastewater detention time, and storage factor and detention time. Commercial laundries, laundromats, and dry-cleaners shall be equipped with an interceptor in order to reduce the quantity of lint and silt that enters 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. In addition, the interceptor must be “equipped with a wire basket or similar device, removable for cleaning, that prevents passage into the drainage system of solids 0.5 inch (12.7 mm) or larger in size, string, rags, buttons or other materials detrimental to the public sewerage system”. (1003.6 International Plumbing Code 2003).

Sizing must be in accordance with guidance found in the Uniform Plumbing Code (UPC), Appendix H which uses the following formula:

$$(TGC) \times (CPH) \times (RT) \times (ST) = \text{Size of Lint Interceptor (gallons)}$$

Where:

TGC = Total Gallons per Cycle

CPH = Cycles per hour

RT = Retention time

2.5 for Institutional Laundry

2.0 for Standard Commercial Laundry

1.5 Light Commercial Laundry

ST = Storage Factor, based on hours of operation;

1.0 for 8 hours of operation

1.5 for 12 or more hours

Currently, no effluent sample well is required for small commercial laundries. However, large and/or industrial laundries may be subject to Federal Pretreatment regulations. For more information please contact the City of Carrollton, Industrial Pretreatment Program at (972) 466-3060.

B. Car Washes

For commercial car washes, separators shall have a minimum capacity of 1000 gallons for the first bay, with an additional 500 gallons of capacity for each additional bay.

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 shall be required.

C. Automotive Repair Facilities (Garages and Service Stations)

Automotive repair shops which include a floor drain in its areas of operation shall be required to design, install and maintain a grit trap/oil separator, with a minimum capacity of 50 gallons for the first 100 square feet of area to be drained, plus 1 cu. ft (7.5 gals) for each additional 100 sq. foot of area to be drained into the separator.

An effluent sampling well shall be required.

Figure 1, Typical Kitchen Plumbing Layout

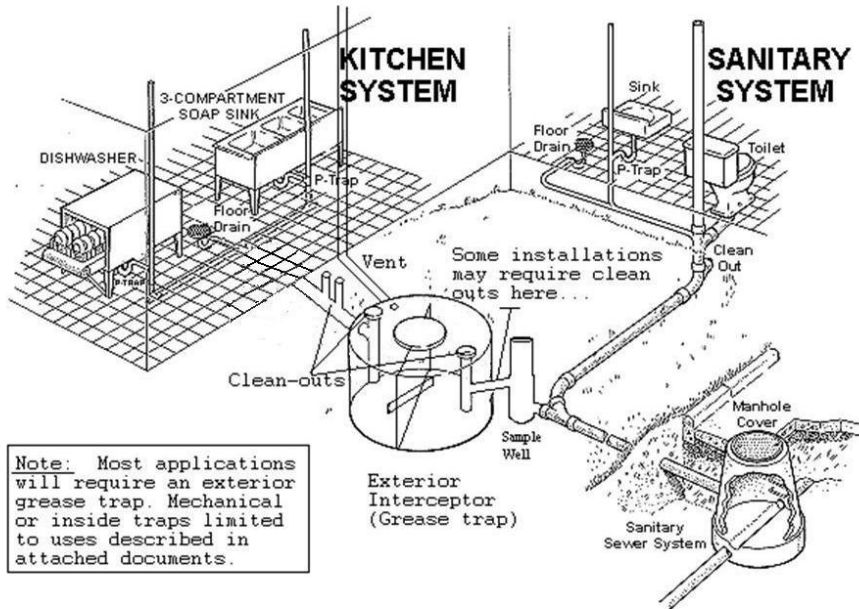


Figure 2, Typical Grease Interceptor Schematic

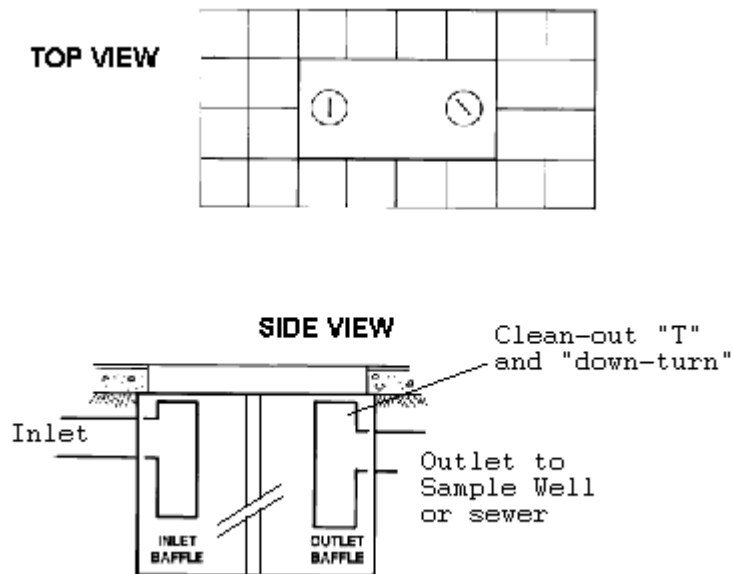


Figure 3, Typical Sampling Well

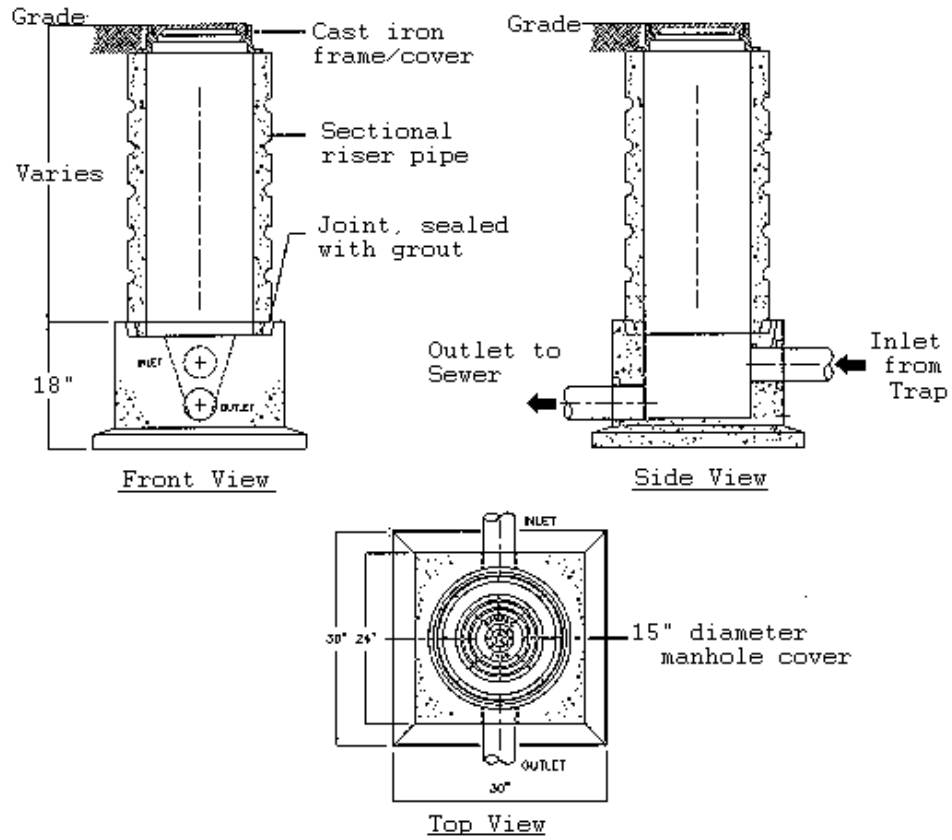
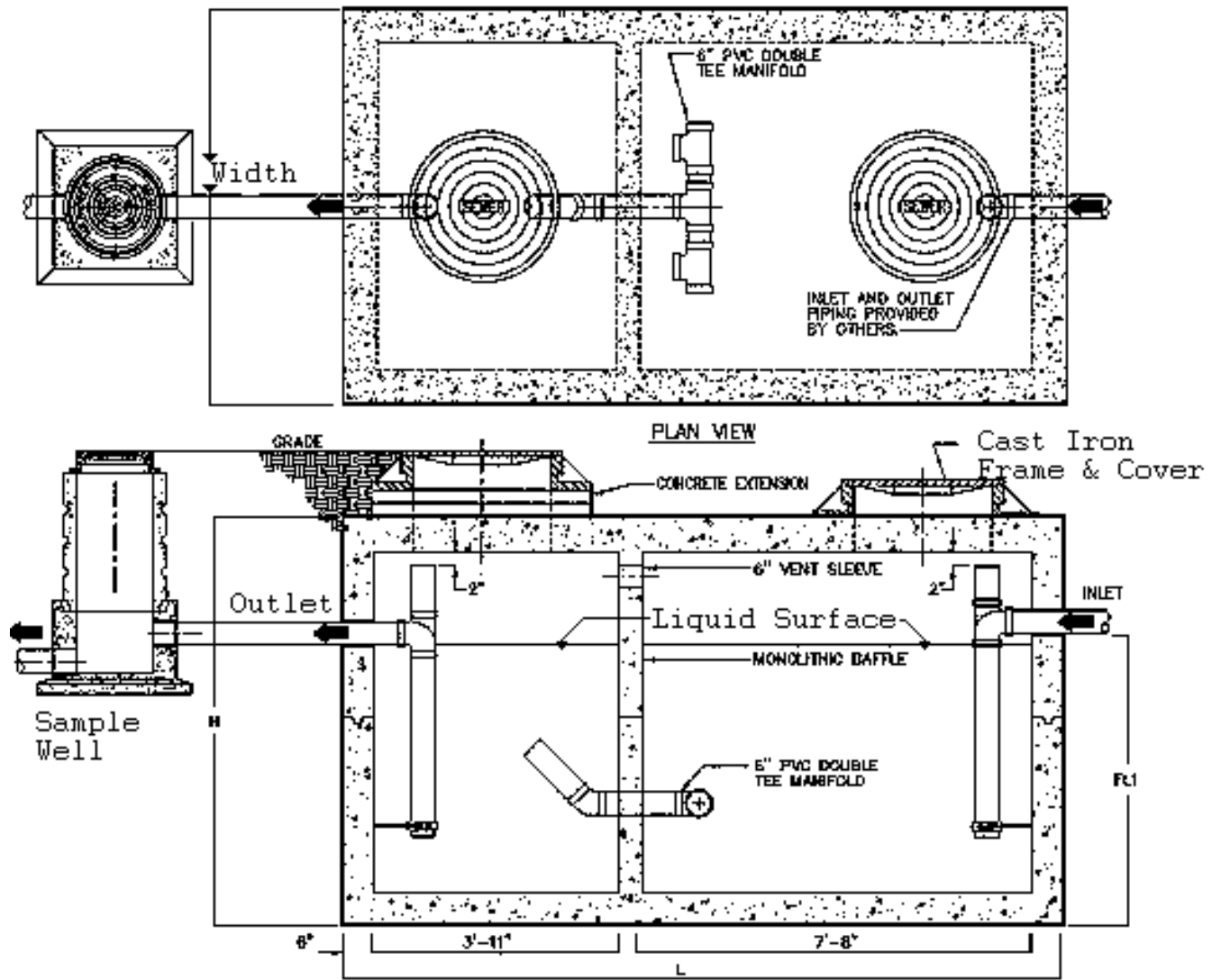


Figure 4: Typical Grease Trap and Sample Well Installation



Known Vendors

(This is just informational and does not serve as an endorsement nor recommendation)

COMPANY	PHONE	PRODUCTS
Hanson Pipe and Precast (Formerly CPI) Grand Prairie, Texas	972.262.3600 800.441.0128	Grease Traps, Interceptors Sample Test Wells
Old Castle Precast Mansfield, Texas www.oldcastleprecast.com	817.453.1054 888.965.3227	Grease Traps, Interceptors Sample Test Wells
Park Environmental Equipment Dallas, Texas www.park-usa.com	972.842.8874 888.611.7275	Grease Traps, Interceptors Sample Test Wells
PW Eagle (Formerly Uponor, ETI) Plano, Texas (via Montgomery Sales)	972.712.6418 cell: 972.467.9084	Wastewater Access Chamber Clean Out Sampling Chamber
Schier Products www.schierproducts.com	800.827.7119	Great Basin
Thermaco www.trapzilla.com	800.633.4204	Trapzilla