

CHAPTER 10

TRAPS AND INTERCEPTORS

1001.0 Traps Required

1001.1 Each plumbing fixture, excepting those having integral traps or as permitted in Section 1001.2, shall be separately trapped by an approved type waterseal trap. Not more than one (1) trap shall be permitted on a trap arm.

→ **1001.2** One (1) trap may serve a set of not more than three (3) single compartment sinks or laundry tubs of the same depth or three (3) lavatories immediately adjacent to each other and in the same room if the waste outlets are not more than thirty (30) inches (762 mm) apart and the trap is centrally located when three (3) compartments are installed.

1001.3 No food waste disposal unit shall be installed with any set of restaurant, commercial, or industrial sinks served by a single trap; each such food waste disposal unit shall be connected to a separate trap. Each domestic clotheswasher and each laundry tub shall be connected to a separate and independent trap; except that a trap serving a laundry tub may also receive the waste from a clotheswasher set adjacent thereto. No clotheswasher or laundry tub shall be connected to any trap for a kitchen sink.

1001.4 The vertical distance between a fixture outlet and the trap weir shall be as short as practicable, but in no case shall the tailpiece from any fixture exceed twenty-four (24) inches (610 mm) in length.

1002.0 Traps Protected by Vent Pipes

1002.1 Each plumbing fixture trap, except as otherwise provided in this Code, shall be protected against siphonage and back-pressure, and air circulation assured throughout all parts of the drainage system by means of a vent pipe installed in accordance with the requirements of this Code.

1002.2 Each fixture trap shall have a protecting vent so located that the developed length of the trap arm from the trap weir to the inner edge of the vent shall be within the distance given in Table 10-1, but in no case less than two (2) times the diameter of the trap arm.

1002.3 A trap arm may change direction without the use of a cleanout when such change of direction does not exceed ninety (90) degree (1.6 rad). All horizontal changes in direction of trap arms shall comply with Section 706.3.

Exception: For trap arms three (3) inches (80 mm) in diameter and larger, the change of

direction shall not exceed one hundred and thirty-five (135) degrees (2.36 rad) without the use of a cleanout.

1002.4 The vent pipe opening from a soil or waste pipe, except for water closets and similar fixtures, shall not be below the weir of the trap.

TABLE 10-1

**Horizontal Distance of Trap Arms
(Except for water closets and similar fixtures)***

Trap Arm Inches	Distance		Distance	
	Trap to Vent Feet	Trap to Vent Inches	Trap to Vent mm	Trap to Vent mm
1-1/4	2	6	32	762
1-1/2	3	6	40	1067
2	5	0	50	1524
3	6	0	80	1829
4 & larger	10	0	100 & larger	3048

Slope one-fourth (1/4) inch per foot (20.9 mm/m)

*The developed length between the trap of a water closet or similar fixture (measured from the top of the closet ring [closet flange] to the inner edge of the vent) and its vent shall not exceed six (6) feet (1829 mm).

1003.0 Traps – Described

1003.1 Each trap, except for traps within an interceptor or similar device shall be self-cleaning. Traps for bathtubs, showers, lavatories, sinks, laundry tubs, floor drains, urinals, drinking fountains, dental units, and similar fixtures shall be of standard design and weight and shall be of ABS, cast brass, cast iron, lead, PP, PVC, or other approved material. An exposed and readily accessible drawn brass tubing trap, not less than 17 B&S Gauge (0.045 inch) (1.1 mm), may be used on fixtures discharging domestic sewage. Exception: Drawn brass tubing traps shall not be used for urinals. Each trap shall have the manufacturer's name stamped legibly in the metal of the trap and each tubing trap shall have the gauge of the tubing in addition to the manufacturer's name. Every trap shall have a smooth and uniform interior waterway.

1003.2 No more than one (1) approved slip joint fitting may be used on the outlet side of a trap, and no tubing trap shall be installed without a listed tubing trap adapter.

1003.3 The size (nominal diameter) of a trap for a given fixture shall be sufficient to drain the fixture

rapidly, but in no case less than nor more than one (1) pipe size larger than given in Table 7-3. The trap shall be the same size as the trap arm to which it is connected.

1004.0 Traps – Prohibited

No form of trap which depends for its seal upon the action of movable parts shall be used. No trap which has concealed interior partitions, except those of plastic, glass or similar corrosion resisting material, shall be used. "S" traps, bell traps, and crown-vented traps shall be prohibited. No fixture shall be double trapped. Drum and bottle traps may be installed only when permitted by the Administrative Authority for special conditions. No trap shall be installed without a vent, except as otherwise provided in this Code.

1005.0 Trap Seals

Each fixture trap shall have a water seal of not less than two (2) inches (51 mm) and not more than four (4) inches (102 mm) except where a deeper seal is found necessary by the Administrative Authority for special conditions or for special designs relating to handicapped accessible fixtures. Traps shall be set true with respect to their water seals and, where necessary, they shall be protected from freezing.

1006.0 Floor Drain Traps

Floor drains shall connect into a trap so constructed that it can be readily cleaned and of a size to serve efficiently the purpose for which it is intended. The drain inlet shall be so located that it is at all times in full view. When subject to reverse flow of sewage or liquid waste, such drains shall be equipped with an approved backwater valve.

1007.0 Trap Seal Protection

Floor drain or similar traps directly connected to the drainage system and subject to infrequent use shall be provided with an approved automatic means of maintaining their water seals, except where not deemed necessary for safety or sanitation by the Administrative Authority. When automatic trap priming devices are installed, they shall be accessible for maintenance.

1008.0 Building Traps

Building traps shall not be installed except where required by the Administrative Authority. Each building trap when installed shall be provided with a cleanout and with a relieving vent or fresh air

intake on the inlet side of the trap which need not be larger than one-half the diameter of the drain to which it connects. Such relieving vent or fresh air intake shall be carried above grade and terminate in a screened outlet located outside the building.

1009.0 Industrial Interceptors (Clarifiers) and Separators

1009.1 When Required. Interceptors (clarifiers) (including grease, oil, and sand interceptors (clarifiers), etc.) shall be provided when, in the judgment of the Administrative Authority, they are necessary for the proper handling of liquid wastes containing grease, flammable wastes, sand, solids, acid or alkaline substances, or other ingredients harmful to the building drainage system, the public or private sewer or to public or private sewage disposal.

1009.2 Approval. The size, type, and location of each interceptor (clarifier) or separator shall be approved by the Administrative Authority, in accordance with its standards. Except where otherwise specifically permitted, no wastes other than those requiring treatment or separation shall be discharged into any interceptor (clarifier).

1009.3 Design. Interceptors (clarifiers) for sand and similar heavy solids shall be so designed and located as to be readily accessible for cleaning and shall have a water seal of not less than six (6) inches (152 mm).

1009.4 Relief Vent. Interceptors (clarifiers) shall be so designed that they will not become air bound if closed covers are used. Each interceptor (clarifier) shall be properly vented.

1009.5 Location. Each interceptor (clarifier) cover shall be readily accessible for servicing and maintaining the interceptor (clarifier) in working and operating condition. The use of ladders or the removal of bulky equipment in order to service interceptors (clarifiers) shall constitute a violation of accessibility. Location of all interceptors (clarifiers) shall be shown on the approved building plan.

1009.6 Maintenance of Interceptors. Interceptors shall be maintained in efficient operating condition by periodic removal of accumulated grease, scum, oil, or other floating substances, and solids deposited in the interceptor.

1009.7 Discharge. The waste pipe from oil and sand interceptors shall discharge as approved by the Administrative Authority.

1010.0 Slaughter Houses, Packing Establishments, etc.

Every fish, fowl, and animal slaughter house or establishment and every fish, fowl, and meat

packing or curing establishment and every soap factory, tallow rendering, fat rendering and hide curing establishment, or any other establishment from which considerable amounts of grease are likely to be discharged into any plumbing system, sewer system, or private sewage disposal system, shall be connected to and shall drain or discharge into a grease interceptor (clarifier) of an approved design for this use.

1011.0 Minimum Requirements for Auto Wash Racks

Every private or public wash rack and/or floor or slab used for cleaning machinery or machine parts shall be adequately protected against storm or surface water and shall drain or discharge into an interceptor (clarifier) of an approved design for this use.

1012.0 Commercial and Industrial Laundries.

Laundry equipment in commercial and industrial buildings that does not have integral strainers shall discharge into an interceptor having a wire basket or similar device, that is removable for cleaning and that will prevent passage into the drainage system of solids one-half (1/2) inch (12.7 mm) or larger in maximum dimension, such as string, rags, buttons, or other solid materials detrimental to the public sewerage system.

1013.0 Bottling Establishments. Bottling plants shall discharge their process wastes into an interceptor which will provide for the separation of broken glass or other solids, before discharging liquid wastes into the drainage system.

1014.0 Grease Traps and Grease Interceptors

1014.1 When, in the judgment of the Administrative Authority, waste pretreatment is required, an approved type grease trap complying with the provisions of this section shall be installed in the waste line leading from sinks, drains, and other fixtures or equipment in establishments such as restaurants, cafes, lunch counters, cafeterias, bars and clubs, hotel, hospital, sanitarium, factory or school kitchens, or other establishments where grease may be introduced into the drainage or sewage system in quantities that can effect line stoppage or hinder sewage treatment or private sewage disposal. A grease trap is not required for individual dwelling units or for any private living quarters.

1014.2 No grease trap shall be installed which has an approved rate of flow of more than fifty-five (55)

gallons per minute (3.5 L/s), nor less than twenty (20) gallons per minute (1.3 L/s), except when specially approved by the Administrative Authority.

1014.3 Each plumbing fixture or piece of equipment connected to a grease trap shall be provided with an approved type vented flow control installed in a readily accessible and visible location. Flow control devices shall be so designed that the flow through such device or devices shall at no time be greater than the rated capacity of the grease trap. No flow control device having adjustable or removable parts shall be approved. The vented flow control device shall be located such that no system vent shall be between the flow control and the grease trap inlet. The vent or air inlet of the flow control device shall connect with the sanitary drainage vent system as elsewhere required by this Code or shall terminate through the roof of the building and shall not terminate to the free atmosphere inside the building.

Exception: Listed grease traps with approved type flow controls or restricting devices may be installed in an accessible location in accordance with the manufacturer's instructions.

1014.4 Each grease trap required by this section shall have an approved rate of flow which is not less than that given in Table 10-2 for the total number of connected fixtures. The total capacity in gallons (L) of fixtures discharging into any such grease trap shall not exceed two and one-half (2-1/2) times the certified gpm (L/s) flow rate of the grease trap as per Table 10-2.

Not more than four (4) separate fixtures shall be connected to or discharged into any one (1) grease trap.

For the purpose of this section, the term "fixture" shall mean and include each plumbing fixture, appliance, apparatus, or other equipment required to be connected to or discharged into a grease trap by any provision of this section.

1014.5 Each fixture discharging into a grease trap shall be individually trapped and vented in an approved manner.

1014.6 Grease traps shall be maintained in efficient operating condition by periodic removal of the accumulated grease. No such collected grease shall be introduced into any drainage piping, or public or private sewer.

1014.7 No water jacketed grease trap or grease interceptor shall be approved or installed.

1014.8 Grease Interceptors for Commercial Kitchens. Required grease interceptors, installed outdoors, shall comply with the provisions of Appendix H.

1015.0 Food Waste Disposal and Dishwasher Prohibited

Unless specifically required or permitted by the Administrative Authority, no food waste disposal unit or dishwasher shall be connected to or discharge into any grease trap.

TABLE 10-2
Grease Traps

Total Number of Fixtures Connected	Required Rate of Flow per Minute, Gallons	Grease Retention Capacity, Pounds
1	20	40
2	25	50
3	35	70
4	50	100

TABLE 10-2
Grease Traps (Metric)

Note: For installations with more than four (4) fixtures, the Administrative Authority may permit the use of larger grease traps designed not to exceed the parameters of Section 1014.4, but not to exceed seventy-five (75) GPM (284 liters per minute).

Total Number of Fixtures Connected	Required Rate of Flow per Minute, Liters	Grease Retention Capacity, kg
1	76	18
2	95	22
3	132	31
4	189	45

1016.0 Sand Interceptors

1016.1 Where Required

1016.1.1 Whenever the discharge of a fixture or drain may contain solids or semi-solids heavier than water that would be harmful to a drainage system or cause a stoppage within the system, the discharge shall be through a sand interceptor. Multiple floor drains may discharge into one sand interceptor.

1016.1.2 Sand interceptors are required whenever the Administrative Authority deems it advisable to have a sand interceptor to protect the drainage system.

1016.2 Construction and Size

Sand interceptors shall be built of brick or concrete, prefabricated coated steel or other watertight material. The interceptor shall have an interior baffle

for full separation of the interceptor into two (2) sections. The outlet pipe shall be the same size as the inlet size of the oil interceptor, the minimum being three (3) inches (80 mm), and the baffle shall have two (2) openings of the same diameter as the outlet pipe and at the same invert as the outlet pipe. These openings shall be staggered so that there cannot be a straight line flow between any inlet pipe and the outlet pipe. The invert of the inlet pipe shall be no lower than the invert of the outlet pipe.

The sand interceptor shall have a minimum dimension of two (2) feet square (0.2 m²) for the net free opening of the inlet section and a minimum depth under the invert of the outlet pipe of two (2) feet (610 mm).

For each five (5) gallons (18.9 L) per minute flow or fraction thereof over twenty (20) gallons (75.7 L) per minute, the area of the sand interceptor inlet section is to be increased by one (1) square foot (0.09 m²). The outlet section shall at all times have a minimum area of fifty (50) percent of the inlet section.

The outlet section shall be covered by a solid removable cover set flush with the finished floor, and the inlet section shall have an open grating set flush with the finished floor and suitable for the traffic in the area in which it is located.

1016.3 Separate Use. Sand and similar interceptors for every solid shall be so designed and located as to be readily accessible for cleaning, shall have a water seal of not less than six (6) inches (152 mm), and shall be vented.

1016.4 Alternate Design. Alternate designs for construction or baffling of sand interceptors complying with the intent of this Code may be submitted to the Administrative Authority for approval.

1017.0 Oil and Flammable Liquids Interceptors

1017.1 Interceptors Required. All repair garages and gasoline stations with grease racks or grease pits, and all factories which have oily, flammable, or both types of wastes as a result of manufacturing, storage, maintenance, repair, or testing processes, shall be provided with an oil or flammable liquid interceptor which shall be connected to all necessary floor drains. The separation or vapor compartment shall be independently vented to the outer air. If two (2) or more separation or vapor compartments are used, each shall be vented to the outer air or may connect to a header which is installed at a minimum of six (6) inches (152 mm) above the spill line of the lowest floor drain and vented independently to the outer air. The minimum size of a flammable vapor vent shall not be less than two (2) inches (50 mm), and when vented through a sidewall, the vent shall

not be less than ten (10) feet (3048 mm) above the adjacent level at an approved location. The interceptor shall be vented on the sewer side and shall not connect to a flammable vapor vent. All oil and flammable interceptors shall be provided with gastight cleanout covers which shall be readily accessible. The waste line shall not be less than three (3) inches (80 mm) in diameter with a full-size cleanout to grade. When an interceptor is provided with an overflow, it shall be provided with an overflow line (not less than two (2) inches (50 mm) in diameter) to an approved waste oil tank having a minimum capacity of five hundred fifty (550) gallons (2080 L) and meeting the requirements of the Administrative Authority. The waste oil from the separator shall flow by gravity or shall be pumped to a higher elevation by an automatic pump. Pumps shall be adequately sized and accessible. Waste oil tanks shall have a two (2) inch (50 mm) minimum pump-out connection at grade and a one and one-half (1-1/2) inch (40 mm) minimum vent to atmosphere at an approved location at least ten (10) feet (3048 mm) above grade.

1017.2 Design of Interceptors. Each manufactured interceptor that is rated shall be stamped or labeled by the manufacturer with an indication of its full discharge rate in gpm (L/s). The full discharge rate to such an interceptor shall be determined at full flow. Each interceptor shall be rated equal to or greater than the incoming flow and shall be provided with an overflow line to an underground tank.

Interceptors not rated by the manufacturer shall have a depth of not less than two (2) feet (610 mm) below the invert of the discharge drain. The outlet opening shall have not less than an eighteen (18) inch (457 mm) water seal and shall have a minimum capacity as follows: where not more than three (3) motor vehicles are serviced and/or stored, interceptors shall have a minimum capacity of six (6) cubic feet (0.2 m³), and one (1) cubic foot (0.03 m³) of capacity shall be added for each vehicle up to ten (10) vehicles. Above ten (10) vehicles, the Administrative Authority shall determine the size of the interceptor required. Where vehicles are serviced only and not stored, interceptor capacity shall be based on a net capacity of one (1) cubic foot (0.03 m³) for each one hundred (100) square feet (9.3 m²) of surface to be drained into the interceptor, with a minimum of six (6) cubic feet (0.2 m³).

1017.3 Combination Oil and Sand Interceptor. A combination oil and sand interceptor may be installed when the design is approved in writing by the Administrative Authority.

See also Appendix H, Procedures for Sizing Commercial Kitchen Grease Interceptors.