



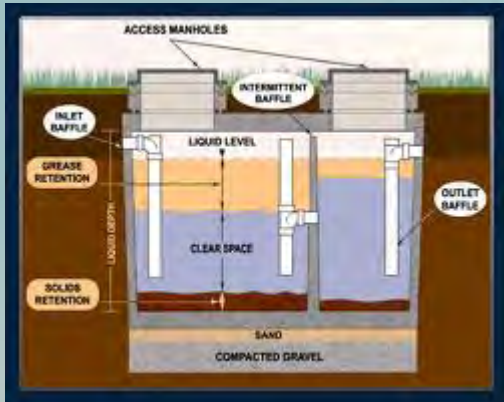
GREASE INTERCEPTION IN THE PLUMBING CODE

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GREASE INTERCEPTORS COME IN MANY SIZES AND CAN GO IN MANY PLACES



- Larger gravity grease interceptors generally are located outside of a structure
- Smaller grease interceptors can be located inside of a structure

WHO HAS AUTHORITY OUTSIDE THE BUILDING?



- Plumbing code regulates installations both inside and outside the structure
 - Does not apply to side sewer or public water system under control of the purveyor.
 - Must be a certified plumber to do plumbing inside, not outside



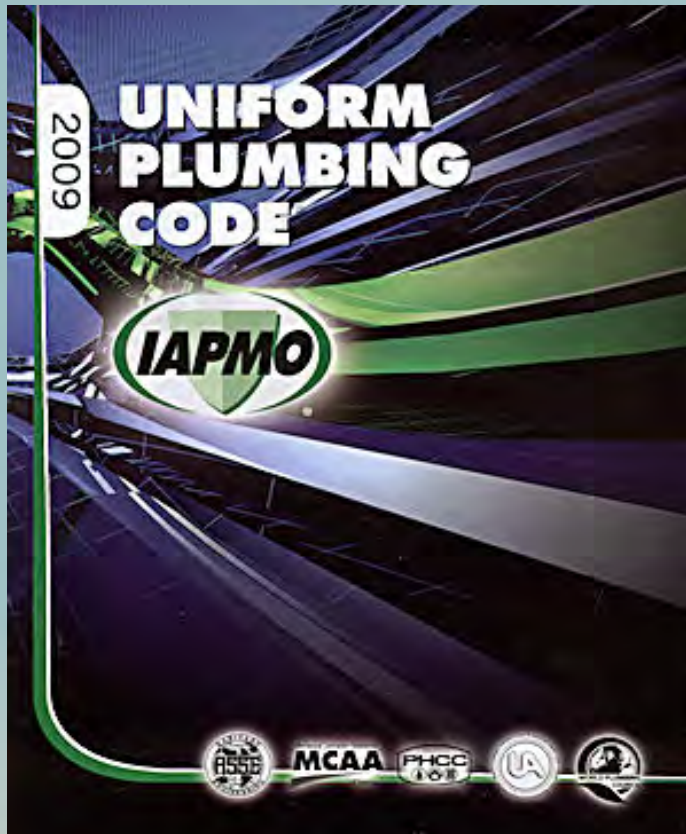


CHANGES IN THE PLUMBING CODE

- 2003 edition and earlier editions of the Uniform Plumbing Code (UPC) contained provisions for smaller grease traps located inside buildings
- Appendix H chapter covered large interceptors outside
- Appendix chapters not adopted by State of Washington, and generally not by local jurisdiction.
 - Most often left to the sewer utility to handle.



CHANGES IN THE PLUMBING CODE

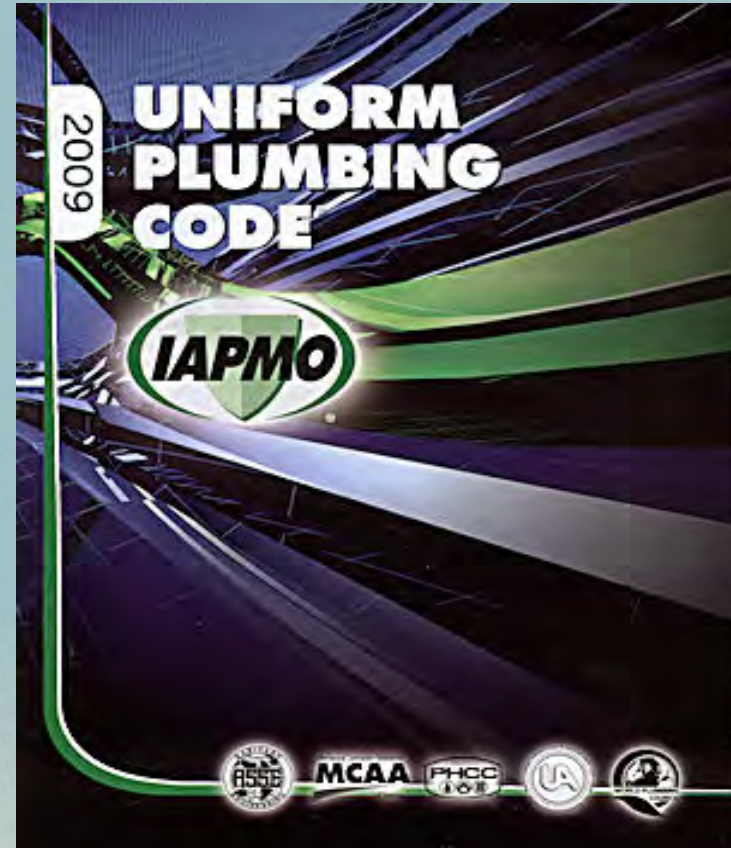


- 2006 UPC deleted Appendix H, and all interceptor provisions now in Chapter 10
 - 2 types based on PDI definitions
 - Gravity
 - Hydromechanical, with or without GRD
- Adopted statewide effective July 1, 2007.



CHANGES IN THE PLUMBING CODE

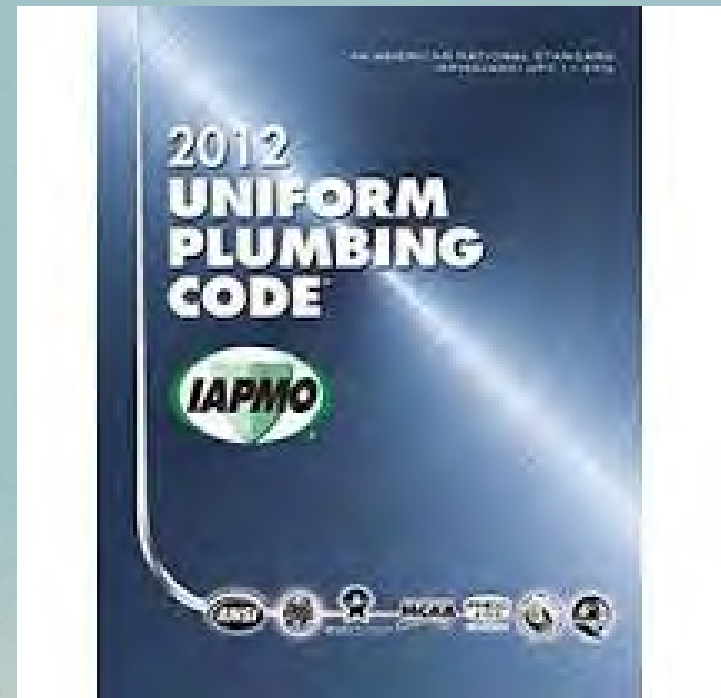
- 2009 UPC
 - Included hydromechanical sizing based on
 - Gravity flow rates, or
 - Fixture capacity
 - Retained fixture unit loading for gravity type
- Adopted statewide effective July 1, 2010





CHANGES IN THE PLUMBING CODE

- Slight modification to the 2012 UPC that points to manufacturers installation instructions for location and access
- Adopted statewide effective July 1, 2013





SIZING GREASE INTERCEPTORS

- Table 1014.2.1 provides 2 methods for sizing hydromechanical grease interceptors:
 - Option 1 is based on the size of drain line discharging to the interceptor
 - Option 2 is based on gallon capacity of fixture(s) discharging to the interceptor.
 - Section 1014.2.1 applies – fixture capacity not to exceed 2-1/2 times flow rate of interceptor per Table 1014.2.1
 - Always follow manufacturer's instructions – codes cannot keep up!
- Table 1014.3.6 applies to gravity grease interceptors.

OPTION #1 – HYDROMECHANICAL INTERCEPTOR BY GRAVITY FLOW RATES



- Table provides GPM flow rate based on size of drain discharging to interceptor @ 1/4" per foot slope

Pipe Diameter	Maximum Flow Rate (gpm)	Size of Interceptor 1-minute drain period (gpm)	Size of Interceptor 2-minute drain period (gpm)
2-inch	20	20	10
3-inch	60	75	35
4-inch	125	150	75

OPTION #2 – HYDROMECHANICAL



INTERCEPTOR BASED ON FIXTURE CAPACITY

- Determine total gallons for each sink compartment at 75% full
- Determine gallon discharge of appliances
- Determine drainage period of 1 or 2 minutes
 - $[\text{Length}] \times [\text{Width}] \times [\text{Depth}] / [231] = \text{Gallons} \times [0.75 \text{ fill factor}] / [\text{Drain Period (1 or 2 min.)}]$
- Total gallon capacity not to exceed $2\frac{1}{2}$ times the gpm flow rate of interceptor
 - 20 gpm interceptor $\times 2\frac{1}{2} = 50$ gallons maximum discharging into the interceptor

SIZING GRAVITY GREASE INTERCEPTORS

- Gallon capacity (volume) of the interceptor is based on fixture units discharging into the interceptor
 - Fixture unit values are identified in Chapter 7 and based on type of occupancy or use

Drainage Fixture Units	Interceptor Volume	Fixture	Fixture Units Private	Fixture Units Public
8	500	Floor drain, non-emergency	2	2
21	750	Special purpose sink w/1½" trap	2	3
		Special purpose sink w/2" trap	3	4
35	1000	Special purpose sink w/3" trap	--	6
90	1250	Commercial sink w/food waste w/1½" trap	--	3
172	1500	Bar sink	1	2
		Mop sink	--	3
216	2000	Laundry sink	2	2



LET'S TALK SIZING!

- IS BIGGER BETTER?
- Some say that field experience has shown that over sizing can result in the generation of hydrogen sulfide gas and sulfuric acid that can destroy the inteceptor and drainage system.
- While smaller hydromechanical inteceptors will most often include a vented flow control, the unit may not be affected by excessive fixtures or drains discharging to it, but a busy restaurant kitchen drainage system may be significantly affected.



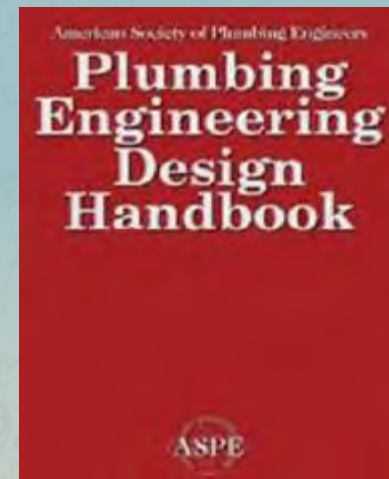
LET'S TALK SIZING!

- Shell buildings, such as a multi-tenant mall building may designate specific units for future food service establishments, or
- A food service tenant may move out and another move in with a totally different menu.
- All that may be known for sizing an interceptor is the size of the drain pipe that will discharge to the interceptor.
- And, plumbing engineers know flow rates, but plumbers know fixture units.

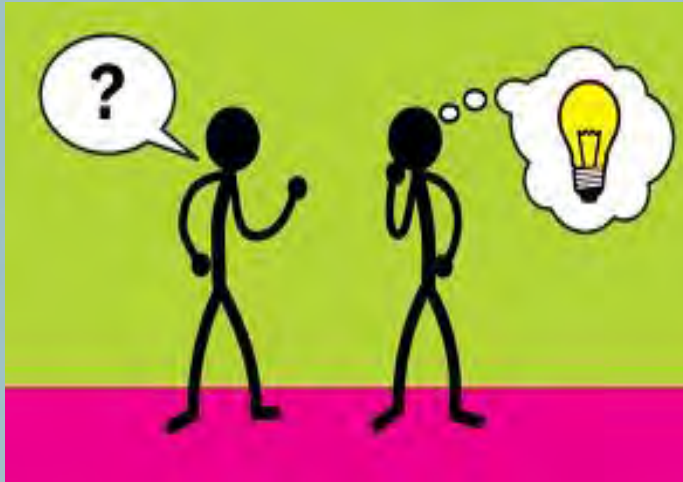


LET'S TALK SIZING!

- Follow manufacturer's installation instructions for hydromechanical interceptors
- Sound engineering judgment should be applied to gravity interceptors



ARE SEWER UTILITIES OUT OF THE PICTURE?



- Not so fast!
- Sewer utilities and building departments need to work together cooperatively – Why?
- That's why we are here today – the trouble with grease!

WHEN IS GREASE PRETREATMENT REQUIRED?

- Section 1014.1 *Where it is determined by the AHJ that waste pretreatment is required....*
- *Not required for individual dwelling units or for private living quarters*
 - We need to work together to make proper determination that is reasonable and in the best interest of the public, industries, agencies, and the environment



Grease on walls of a sewer pipe



WHEN IS GREASE PRETREATMENT REQUIRED?



WHEN IS GREASE PRETREATMENT NOT REQUIRED?





WHAT DOES THE CODE ADDRESS?

- Design, product standard
- Installation
 - Sizing
 - Venting
 - Location / Access
 - Connections
- Adhere to manufacturer's instructions





JURISDICTIONS CAN AMEND THE CODE



- Washington State process allows local jurisdictions to amend the Plumbing Code through local ordinances
 - Must get State Building Code Council approval when affecting single family

COMMERCIAL DISHWASHER

- Commercial dishwashers should go to gravity grease interceptor.
 - See state amendment to Section 1014.1.3
- Pre-rinse can go to hydromechanical.
- Best management practice is essential.

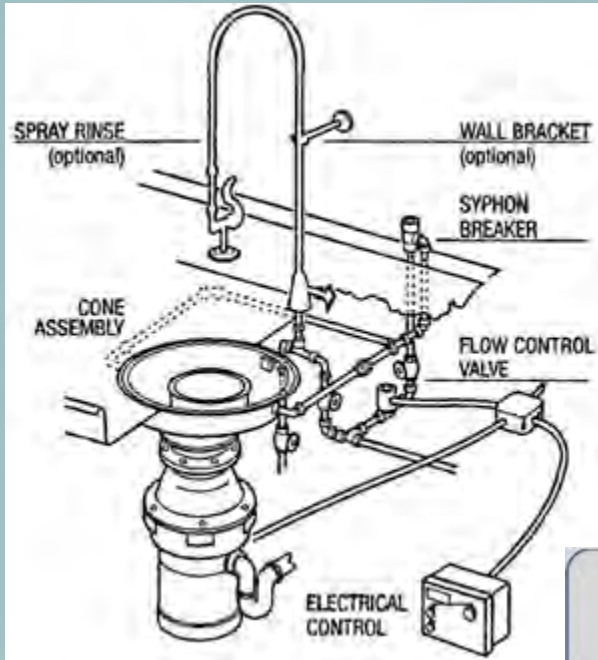


KEY CODE SECTION: *STATEWIDE AMENDMENT*



- Section 1014.1.3 – Unless specifically required or permitted by the Authority Having Jurisdiction, no food waste disposal unit or dishwasher shall be connected to or discharge into any hydromechanical grease interceptor. Commercial food waste disposers shall be permitted to discharge directly into the building's drainage system.

COMMERCIAL FOOD WASTE DISPOSAL



COMMERCIAL FOOD WASTE DISPOSAL

- The plumbing code does not prohibit discharge of a food waste disposer downstream of the interceptor.
- Mixed reviews on this:
 - Studies have indicated that dishwasher prerinse sinks are a significant source of grease and food waste grinders are often installed with the prerinse sink
 - Since a food waste grinder operates best with a cold water flow and chops the food waste (and grease therein) into solidified particles, congealing problems associated with hot or warm grease laden waste is low.

COMMERCIAL FOOD WASTE DISPOSAL

- Generally not a good idea to run food waste disposal through a hydromechanical interceptor
 - Manufacturer's installation instructions may prohibit or recommend against, or at least require a solids interceptor
- Large gravity interceptors with large pathways for internal flow, limited number of baffles, and significant storage capacity can handle food waste
 - However, regular maintenance is a must, usually on a weekly or monthly basis



TO SUM IT UP!

- Not any interceptor will do.
- Proper design is a must.
- Consider the menu and the service, and with the proper layout one can capture most if not all grease producing discharges
- Proper access and maintenance cannot be ignored
- Best management practices!
- Code official, utility, designer, installer, owner & operator – communication and coordination.

QUESTIONS?

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