

A photograph of a commercial kitchen sink area. The sink is made of stainless steel and has multiple faucets. A spray nozzle is attached to one of the faucets. The background is a plain wall.

# Plumbing & The Food Code

## **Presenters:**

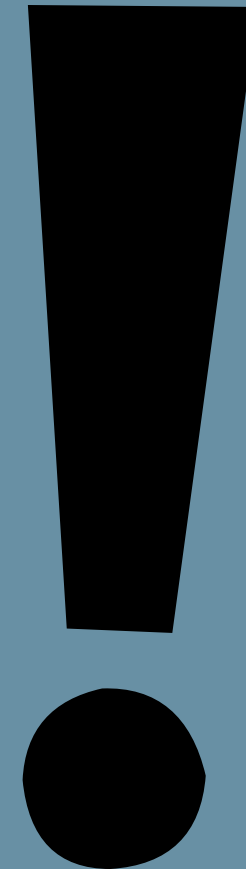
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**Franklin-Hampshire**  
**Public Health Field Training Hub**  
Franklin Regional Council of Governments

# DISCLAIMER

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# FOLLOW UP

PPT slides and the recording from today's presentation will be sent out to all registrants next week

All training PPTs, recordings, sample documents, etc. can also be found on our website following each training:

**<https://frcog.org/franklin-hampshire-field-training-hub-resource-library/>**



# AGENDA

- Review plumbing requirements in the FDA Food Code Merged with 105 CMR 590
- Questions





# Section 4-204.118

## Page 56

### 4-204.118 Warewashing Machines, Flow Pressure Device.

- (A) WAREWASHING machines that **provide a fresh hot water SANITIZING rinse shall be equipped with a pressure gauge** or similar device such as a transducer that measures and displays the water pressure in the supply line immediately before entering the WAREWASHING machine; and
- (B) If the flow pressure measuring device is upstream of the fresh hot water SANITIZING rinse control valve, the device shall be mounted in a 6.4 millimeter or one-fourth inch Iron Pipe Size (IPS) valve.
- (C) Paragraphs (A) and (B) of this section do not apply to a machine that uses only a pumped or recirculated SANITIZING rinse.

# Section 4-501.113

## Page 61

### **4-501.113 Mechanical Warewashing Equipment, Sanitization Pressure.**

The flow pressure of the fresh hot water SANITIZING rinse in a WAREWASHING machine, as measured in the water line immediately downstream or upstream from the fresh hot water SANITIZING rinse control valve, shall be within the range specified on the machine manufacturer's data plate and may not be **less than 35 kilopascals (5 pounds per square inch) or more than 200 kilopascals (30 pounds per square inch).**

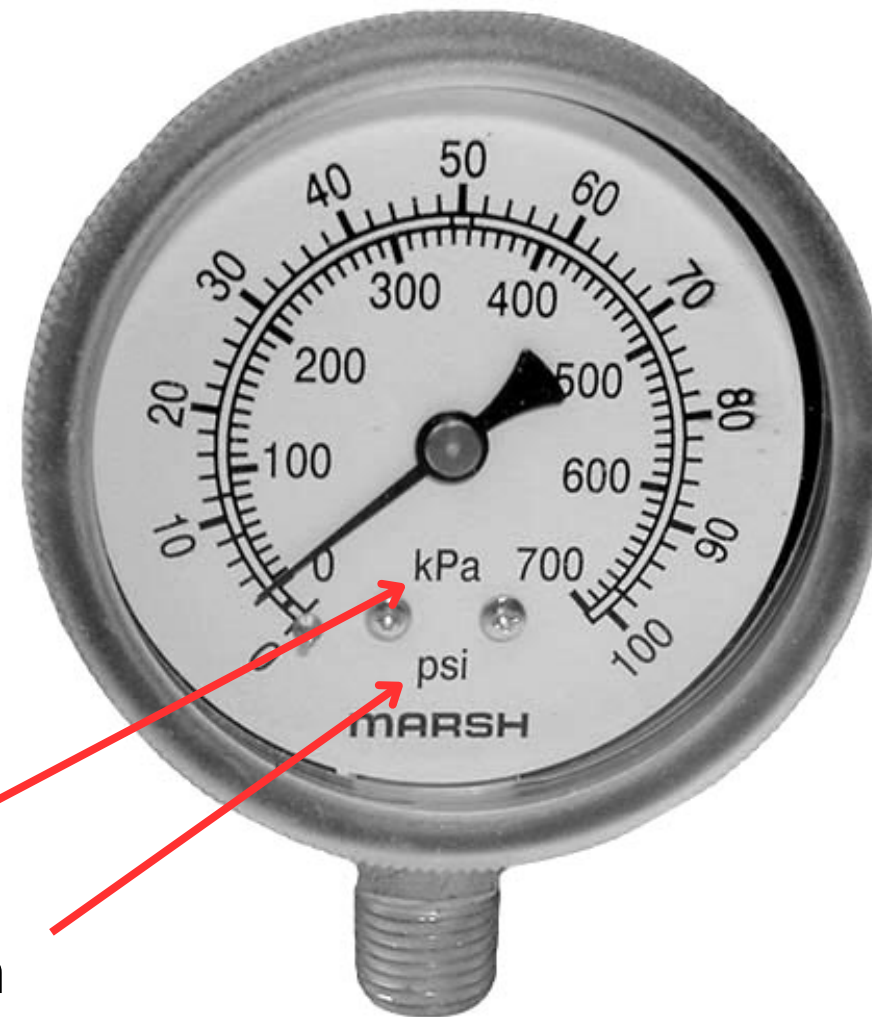
**35-200 kilopascals**

**or**

**5-30 PSI**

# Section 4-501.113

Page 61



kPa = kilopascals  
psi = pounds per square inch

Shall be within the range  
specified on the machine  
manufacturer's data plate

**and**

35 - 200 kilopascals per  
square inch

**or**

5 psi - 30 psi



# Section 4-501.112

## Page 61

### **4-501.112 Mechanical Warewashing Equipment, Hot Water Sanitization Temperatures.**

(A) Except as specified in ¶ (B) of this section, in a mechanical operation, the temperature of the fresh hot water SANITIZING rinse as it enters the manifold **may not be more than 90 C**

**(194 F), or less than:**

**(1)** For a stationary rack, single temperature machine, 74 C **(165 F); or**

**(2)** For all other machines, 82 C **(180 F). Pf**

(B) The maximum temperature specified under ¶ (A) of this section, does not apply to the high pressure and temperature systems with wandtype, hand-held, spraying devices used for the in-place cleaning and SANITIZING of EQUIPMENT such as meat saws.



'All other machines' i.e. conveyor  
**Minimum: 180 F**



Stationary, single-temperature machine  
**Minimum: 165 F**

# Section 4-204.113

## Page 56

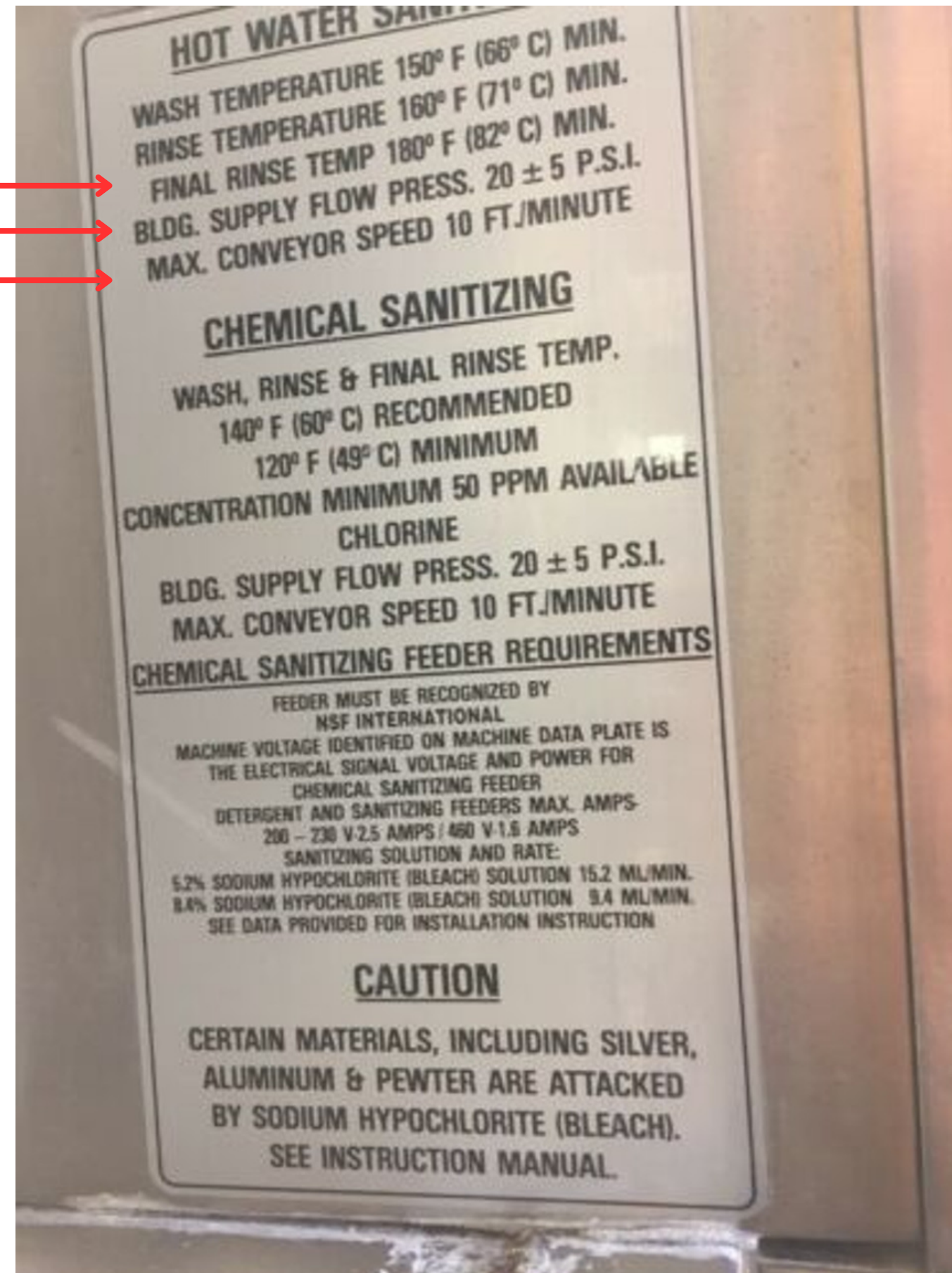
### 4-204.113 Warewashing Machine, Data Plate Operating Specifications.

A WAREWASHING machine shall be provided with an easily accessible and readable data plate affixed to the machine by the manufacturer that indicates the machine's design and operation specifications including the:

- (A) Temperatures** required for washing, rinsing, and SANITIZING;
- (B) Pressure** required for the fresh water SANITIZING rinse unless the machine is designed to use only a pumped SANITIZING rinse; and
- (C) Conveyor speed** for conveyor machines **or cycle time** for stationary rack machines.



Rinse temperature  
Pressure  
Conveyor speed



# Section 4-501.114

## Page 61 & 62

### 4-501.114 Manual and Mechanical Warewashing Equipment, Chemical Sanitization - Temperature, pH, Concentration, and Hardness.

#### Chlorine

Minimum Concentration	Minimum Temperature
25-49 Mg/L	120 F
50-99 Mg/L	75-100 F
100 Mg/L	55 F

#### Quats

Minimum Concentration	Minimum Temperature
Manufacturer's Rec.	75 F



# Section 5-101.12

Page 69

## **5-101.12 System Flushing and Disinfection.**

A DRINKING WATER system shall be flushed and disinfected before being placed in service after construction, repair, or modification and after an emergency situation, such as a flood, that may introduce contaminants to the system. P



# Section 5-101.12

## Page 69

### How to flush & disinfect?

If the system doesn't lose pressure (i.e. restaurant closes for a week for vacation) - recommend flushing (run taps)

If the system loses pressure (i.e. water main break) then its the responsibility of the water system operator to determine next steps such as flushing and disinfecting

Possible solutions: to disinfect, chlorine tablets may be used or in some cases, a 200 ppm dilution of chlorine will sit in the pipes for 24 hours following by flushing and 2 samples

*These are general recomendations; please consult with your local water system operator*

# Section 5-101.12

## Page 69

### Different Water Systems

#### Municipal Public Water Systems

- City/Town-owned and operated
- The water system operator is typically a city employee
- Required to be licensed

#### Transient Non-Community Water Systems

- At least 15 service connections or serves water to 25 different persons at least 60 days of the year
- Restaurants, campgrounds, motels, ski areas
- Required to have a licensed water system operator
- [Find licensed operators on DEP website](#)

**In the event you believe a system needs to be flushed and/or disinfected, consult with the water system operator and/or MA DEP**

# Section 5-202.12

## Page 70

### 5-202.12 Handwashing Sink, Installation.

- (A) A HANDWASHING SINK shall be equipped to provide water at a temperature **of at least 38C (100F) through a mixing valve or combination faucet.** Pf
- (B) A steam mixing valve may not be used at a HANDWASHING SINK.
- (C) A self-closing, slow-closing, or metering faucet shall provide a flow of water for at least 15 seconds without the need to reactivate the faucet.
- (D) An automatic handwashing facility shall be installed in accordance with manufacturer's instructions.



# 5-202.12 Handwashing Sink, Installation continued...

## 5-202.12 Handwashing Sink, Installation.

(A) A HANDWASHING SINK shall be equipped to provide water at a temperature of **at least 38C (100F)** through a **mixing valve or combination faucet**. Pf



Mixing valve



Combination faucet



Combination faucet

# **5-202.12 Handwashing Sink, Installation continued...**

## **5-202.12 Handwashing Sink, Installation.**

(B) A steam mixing valve may not be used at a HANDWASHING SINK.

### **Annex Reasoning - Page 520**

Steam mixing valves are not allowed for this use because they are hard to control and injury by scalding is a possible hazard.

# 5-202.12 Handwashing Sink, Installation continued...

## 5-202.12 Handwashing Sink, Installation.

(C) A self-closing, slow-closing, or metering faucet shall provide a flow of water for **at least 15 seconds without the need to reactivate the faucet.**

(D) An automatic handwashing facility shall be installed in accordance with manufacturer's instructions.



# Section 5-202.13

## Page 70

### 5-202.13 Backflow Prevention, Air Gap.

An air gap between the water supply inlet and the flood level rim of the PLUMBING FIXTURE, EQUIPMENT, or nonFOOD EQUIPMENT shall be at least twice the diameter of the water supply inlet and may not be less than 25 mm (1 inch). P

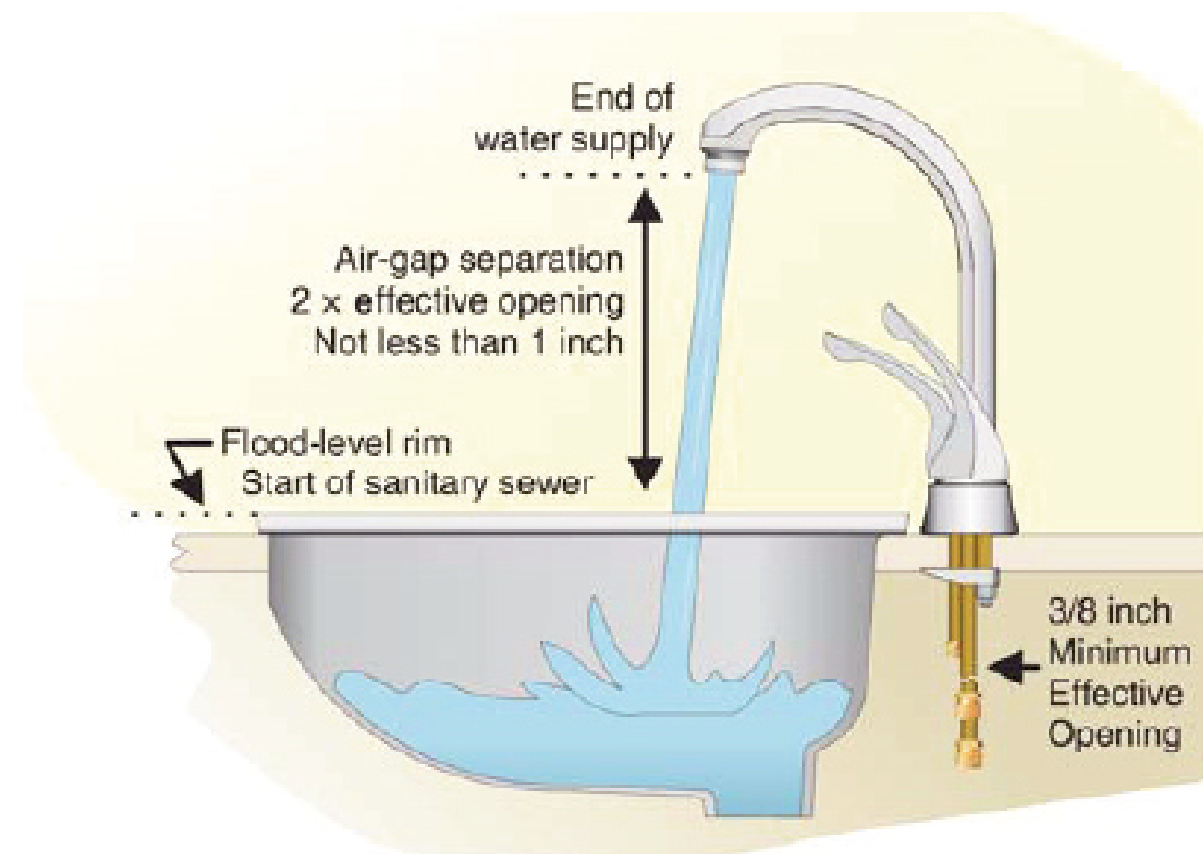


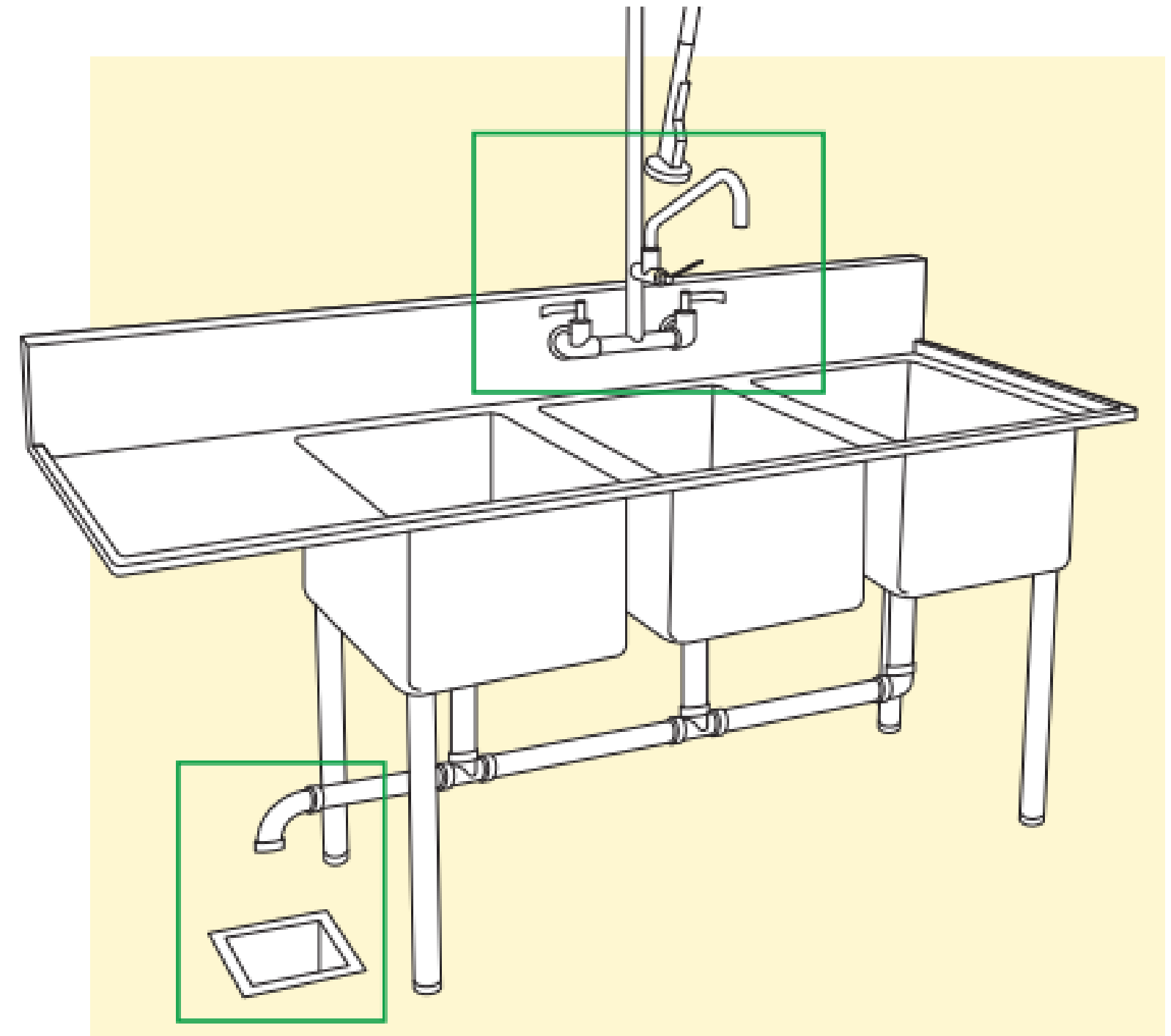
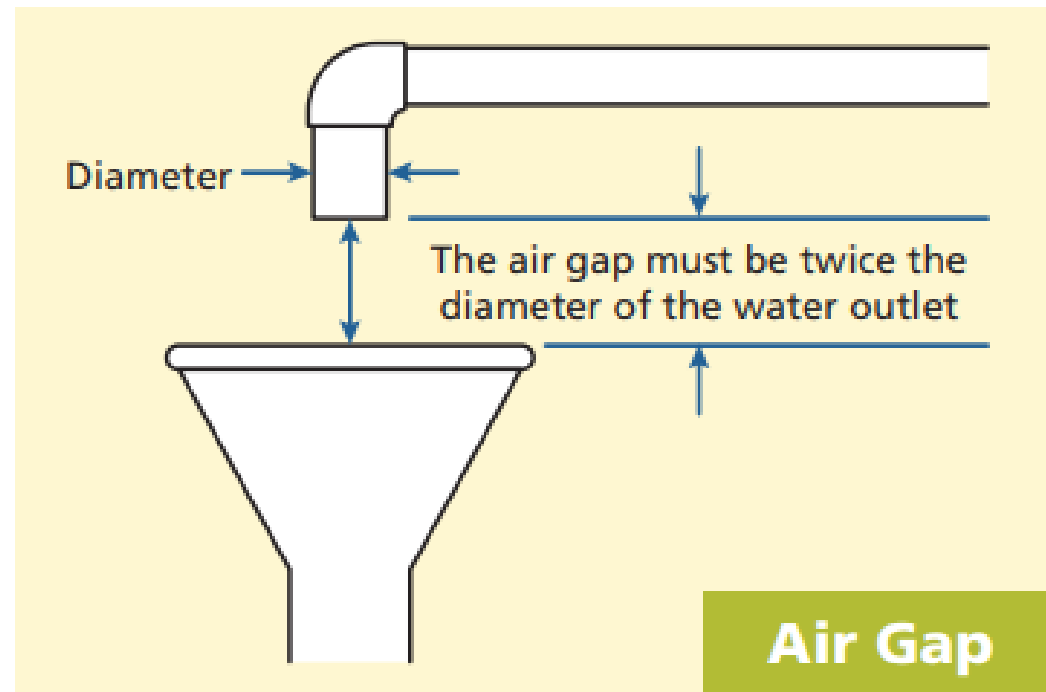
FIGURE 603.3.1A  
AIR GAP



# Air Gap Continued...

## Annex Reasoning - Page 520

The water outlet of a drinking water system must not be installed so that it contacts water in sinks, equipment, or other fixtures that use water



# Section 5-203.14

## Page 71

### 5-203.14 Backflow Prevention Device, When Required.

A PLUMBING SYSTEM shall be installed to preclude backflow of a solid, liquid, or gas contaminant into the water supply system **at each point of use at the FOOD ESTABLISHMENT**, including on a hose bibb if a hose is attached or on a hose bibb if a hose is not attached and backflow prevention is required by LAW, by:

- (A) Providing an **air gap** as specified under § 5- 202.13 P ; or
- (B) Installing an **APPROVED backflow prevention device as specified under § 5-202.14. P**

# Section 5-202.14

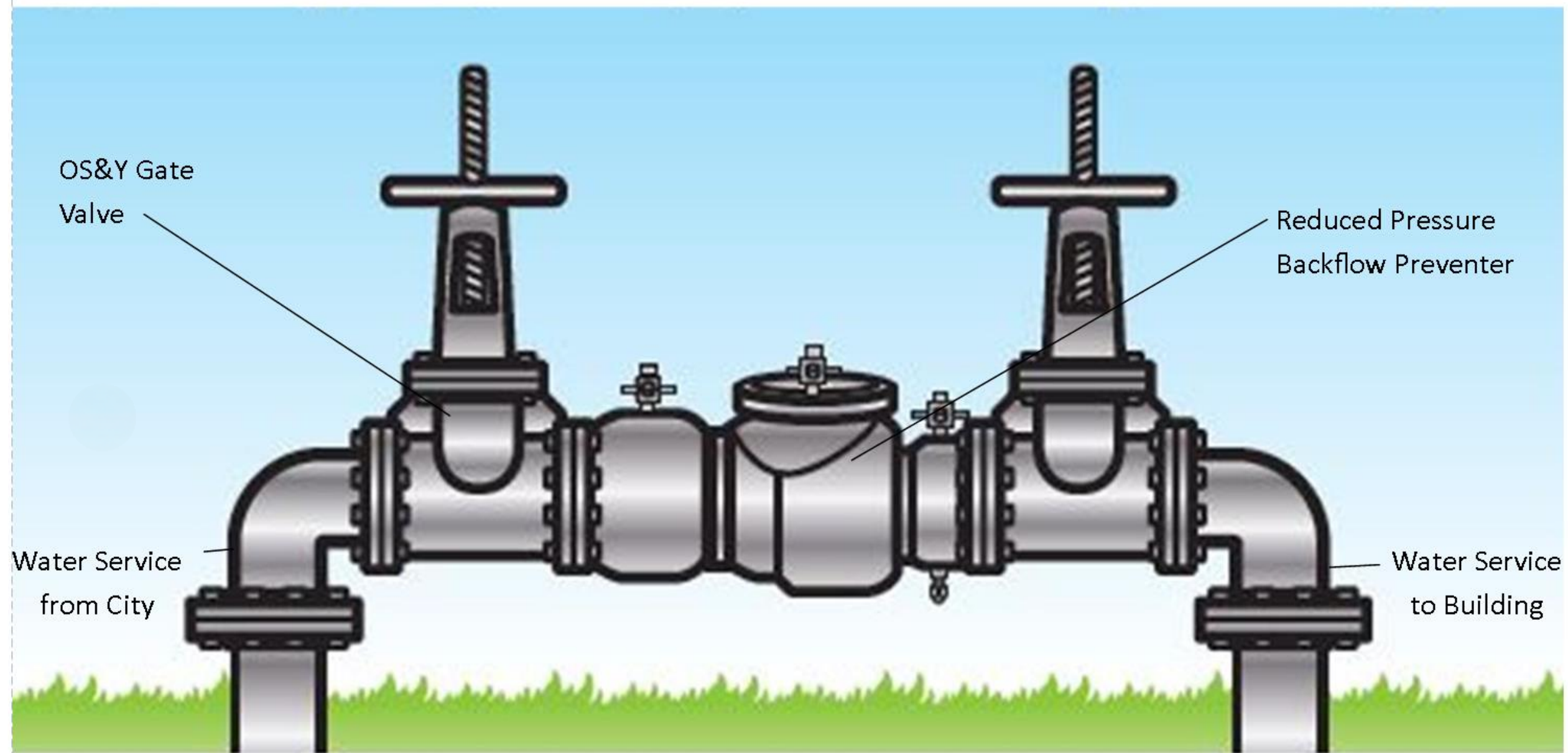
## Page 70

### **5-202.14 Backflow Prevention Device, Design Standard.**

A backflow or backsiphonage prevention device installed on a water supply system shall meet American Society of Sanitary Engineering (A.S.S.E.) standards for construction, installation, maintenance, inspection, and testing for that specific application and type of device. P



# Backflow prevention continued...



Backflow prevention assemblies protect our drinking water supply.



# Backflow prevention continued...

## **Annex Reasoning - Page 520 + 521**

In some instances an air gap is not practical such as is the case on the lower rinse arm for the final rinse of warewashers.

This arm may become submerged if the machine drain becomes clogged. If this failure occurs, the machine tank would fill to the flood level rim, which is above the rinse arm.

A backflow prevention device is used to avoid potential backflow of contaminated water when an air gap is not practical.

# Backflow prevention continued...

## **Annex Reasoning - Page 520 + 521**

The device provides a break to the atmosphere in the event of a negative pressure within the system.

Minerals contained in water and solid particulate matter carried in water may coat moving parts of the device or become lodged between them over time. This may render the device inoperative.

To minimize such an occurrence, only devices meeting certain standards of construction, installation, maintenance, inspection, and testing for that application may be used.



## Who needs to comply?

**Auto Repair Shops**  
**Car Washes**  
**Dry Cleaners & Laundromats**  
**Film & Photo Processors**  
**Funeral Homes**  
**Hair and Nail Salons**  
**Laboratories**  
**Manufacturers**  
**Medical Offices**  
**Residential Apartment Owners**  
**Restaurants**

For a full list, go to [nyc.gov](https://nyc.gov) and search ***backflow FAQ***



# Section 5-202.15

## Page 70

### 5-202.15 Conditioning Device, Design.

A water filter, screen, and other water conditioning device installed on water lines shall be designed to facilitate disassembly for periodic servicing and cleaning. A water filter element shall be of the replaceable type.





# Section 5-205.12

## Page 71

### 5-205.12 Prohibiting a Cross Connection.

- (A) A PERSON may not create a cross connection by connecting a pipe or conduit between the DRINKING WATER system and a nonDRINKING WATER system or a water system of unknown quality.P
- (B) The piping of a nonDRINKING WATER system shall be durably identified so that it is readily distinguishable from piping that carries DRINKING WATER. Pf



# Section 5-205.13

## Page 72

### **5-205.13 Scheduling Inspection and Service for a Water System Device.**

A device such as a water treatment device or backflow preventer shall be scheduled for inspection and service, in accordance with manufacturer's instructions and as necessary to prevent device failure based on local water conditions, and **records demonstrating inspection and service shall be maintained by the PERSON IN CHARGE. Pf**

*You can ask the PIC for these records during inspections!*

# Section 5-205.14

## Page 72

### 5-205.14 Water Reservoir of Fogging Devices, Cleaning.

(A) A reservoir that is used to supply water to a device such as a produce fogger shall be:

- (1) Maintained in accordance with manufacturer's specifications; P and
- (2) Cleaned in accordance with manufacturer's specifications or according to the procedures specified under ¶ (B) of this section, whichever is more stringent. P





# 5-205.14 Water Reservoir of Fogging Devices, Cleaning continued...

## 5-205.14 Water Reservoir of Fogging Devices, Cleaning.

(B) Cleaning procedures shall include at least the following steps and shall be conducted **at least once a week**:

- (1) Draining and complete disassembly of the water and aerosol contact parts; P
- (2) Brush-cleaning the reservoir, aerosol tubing, and discharge nozzles with a suitable detergent solution; P
- (3) Flushing the complete system with water to remove the detergent solution and particulate accumulation; P and
- (4) Rinsing by immersing, spraying, or swabbing the reservoir, aerosol tubing, and discharge nozzles with at least 50 MG/L hypochlorite solution.



# Section 5-302.12

## Page 72

### Inspection and Cleaning Port, Protected and Secured (Mobile Food Establishments)

If a water tank is designed with an access port for inspection and cleaning, the opening shall be in the top of the tank and:

- (A)** Flanged upward at least 13 mm (one-half inch); and
- (B)** Equipped with a port cover assembly that is:
  - (1)** Provided with a gasket and a device for securing the cover in place, and
  - (2)** Flanged to overlap the opening and sloped to drain.



# Section 5-402.11

## Page 74

### 5-402.11 Backflow Prevention (Mobile Food Establishments)

(A) Except as specified in (B), (C), and (D) of this section, a direct connection may not exist between the SEWAGE system and a drain originating from EQUIPMENT in which FOOD, portable EQUIPMENT, or UTENSILS are placed. P

**Sewage** definition: means liquid waste containing animal or vegetable matter in suspension or solution and may include liquids containing chemicals in solution.



# Section 5-402.11

## Page 74

### **5-402.11 Backflow Prevention cont... (Mobile Food Trucks)**

#### **Exemptions:**

(B) Paragraph (A) of this section does not apply to floor drains that originate in refrigerated spaces that are constructed as an integral part of the building.

(C) If allowed by law, a warewashing machine may have a direct connection between its waste outlet and a floor drain when the machine is located within 1.5 m (5 feet) of a trapped floor drain and the machine outlet is connected to the inlet side of a properly vented floor drain trap.

(D) If allowed by law, a warewashing or culinary sink may have a direct connection

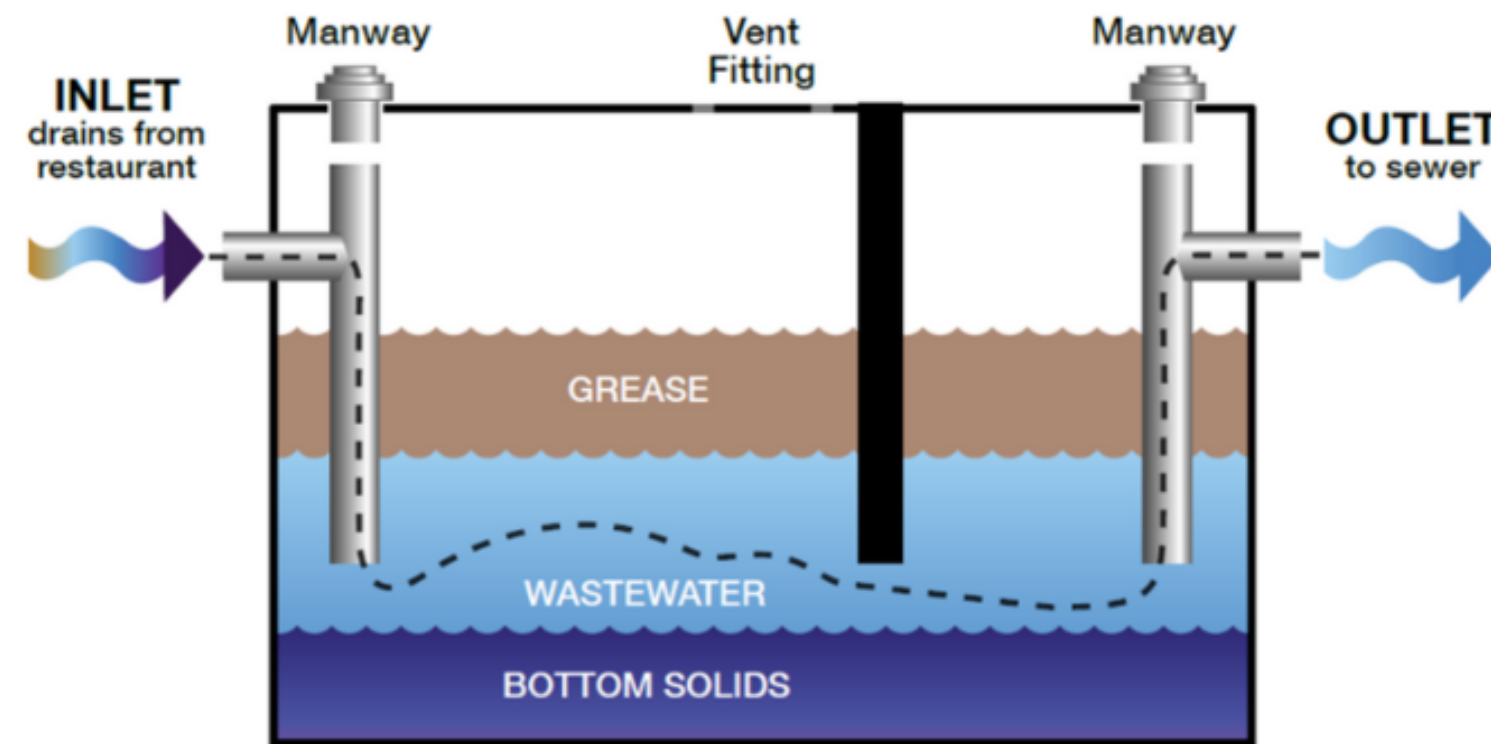
# Section 5-402.12

## Page 74

### 5-402.12 Grease Trap

If used, a grease trap shall be located to be easily accessible for cleaning.

#### HOW A GREASE TRAP WORKS:



# 105 CMR 15

## Title 5

**Grease trap** - A watertight structure located on a building sewer before a septic tank in which grease and oils are separated from other solid and liquid constituents of sewage and accumulated in accordance with 310 CMR 15.230

**105 CMR 15.230** - Grease traps shall be provided for kitchen flows at restaurants, nursing homes, schools, hospitals and other facilities from which grease can be expected to be discharged

**Minimum sizing** - 15 gallons per day \* number of seats (minimum capacity is 1,000 gallons)

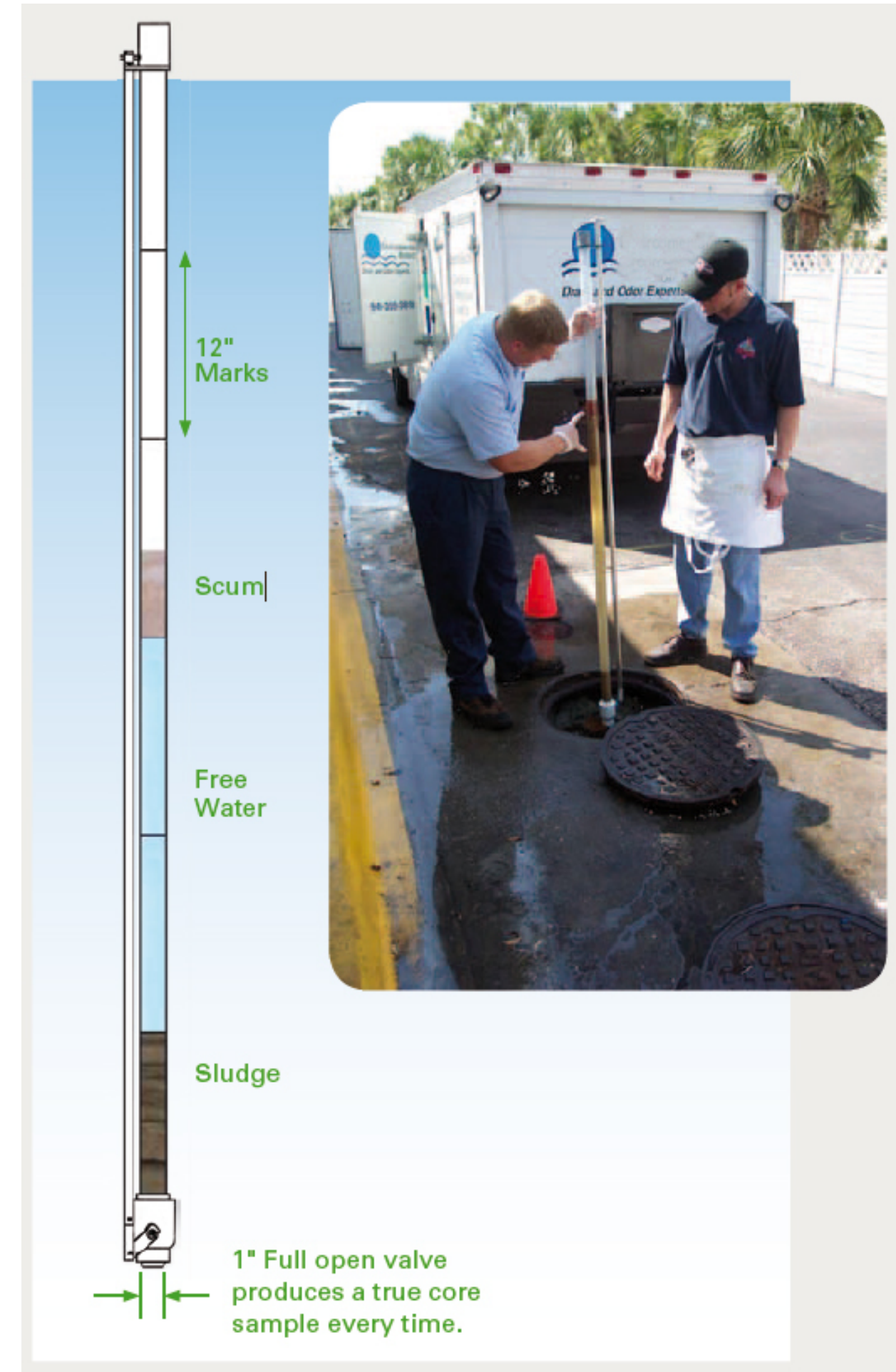


# 105 CMR 15

## Title 5

### Pumping Requirements

105 CMR 15.351 - Grease traps shall be inspected monthly by the owner/operator and shall be cleaned by a **licensed** septage hauler **whenever the level of grease is 25% of the effective depth of the trap, or at least every three months, whichever is sooner.** The owner/operator shall keep all inspection and pumping records.





# Seating & # of Bathrooms

If seating is provided for customers, bathrooms must be available

At least 1 gender neutral bathroom  
required:  
<2,000 SF  
or  
<20 seats

What about seasonal increases to seating?  
i.e. outdoor dining?



# Resources

## **Food Code Annex:**

[https://scdhec.gov/sites/default/files/media/document/2017%20FDA%20Food%20Code%20Annex%203\\_0.pdf](https://scdhec.gov/sites/default/files/media/document/2017%20FDA%20Food%20Code%20Annex%203_0.pdf)

## **Merged Food Code:**

<https://www.mass.gov/doc/merged-food-code-111618/download>

# Questions?

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