

*This manual is to be used as a Guidance Document only and does not replace the actual Rules and Regulations as written in Chapter 511-6-1 for food service establishments.*

## **SECTION J – WAREWASHING FACILITIES<sup>1</sup>**

### **REFERENCES (Chapter 511-6-1)**

- .05 Equipment and Utensils. Amended. (2) Design and Construction (y)(z)(aa)(bb)(cc)(dd)(ee)(jj)
- .05 Equipment and Utensils. Amended. (3) Numbers and Capacities (b)(c)(h)(i)
- .05 Equipment and Utensils. Amended. (6) Maintenance and Operation (d)(e)(f)(g)(h)(i)(j)(k)(l)(m)(n)(o)(p)
- .05 Equipment and Utensils. Amended. (7) Cleaning of Equipment and Utensils.(i)(j)
- .05 Equipment and Utensils. Amended. (8) Sanitization of Equipment and Utensils.(b)

### **I. Basic Requirement:**

1. In reviewing warewashing facility plans, there are *two objectives*:
  - A. *Recognize if there is adequate space for the movement of dirty dishes through cleaning operations to the point of storage/distribution without interruption; and*
  - B. *Recognize the proper size and placement of warewashing and pot washing machines and/or sinks based upon the nature and volume of utensils and other items to be cleaned.*
2. *The minimum requirement for warewashing in a food establishment is a 3-compartment sink. A mechanical warewashing machine may be installed in addition to the 3-compartment sink, but is not required and it is considered to be an adjunct to manual warewashing facilities.*

### **II. Manual Warewashing:**

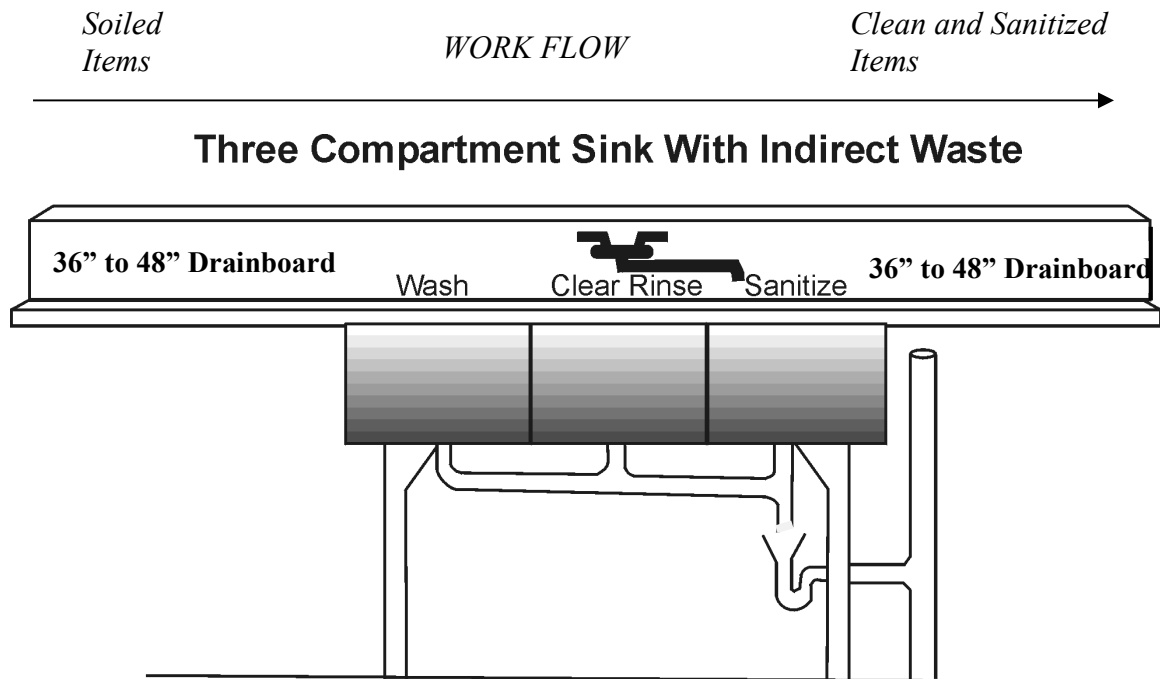
1. *At least one sink with no fewer than 3 compartments shall be provided for manual washing and sanitizing of utensils and equipment. This warewashing sink compartments shall be large enough to hold the largest pot, pan or piece of equipment. Each compartment shall be supplied with adequate hot and cold potable running water. Integral drainboards of adequate size shall be provided on both sides of the sink for soiled and cleaned utensils; see Illustration J-1. In existing establishments, mobile dish tables may be utilized as an adjunct to other drainboard facilities.*
2. *As recommended by FDA’s 2008 Plan Review for Food Establishments Guidance Document, drainboards and dish tables should be pitched at a minimum of 1/8” per foot and the drainage should be directed into the sink. Drainboards should generally be at least the same size as that of the sink compartments. The recommended size of*

<sup>1</sup> Reference: 2008 FDA Plan Review for Food Establishments Guidance Document

*drainboards is 36"- 48" long and 30" wide; however, the Health Authority may require them to be larger to hold the anticipated volume of soiled and clean items during operation.*

3. *Locate a floor drain in the immediate vicinity of the sink in areas where wet pots, utensils and equipment are air-drying.* Approved racks, shelves or dish tables are to be provided adjacent to the warewashing sink.
4. *Provide adequate facilities for preflushing or prescraping equipment and utensils.* A pressure spray nozzle, if used, should be used only on the first compartment of a four (4) compartmented sink. A pressure spray nozzle should not be used on a three (3) compartmented sink.
5. *An approved chemical test kit for determining sanitizer strength shall be available and used.* These test kits are normally supplied by the sanitizer supplier or manufacturer.
6. *Working supplies of cleaners and sanitizers* must be stored in an approved location. A recommended storage location is on a shelf below the drainboard of the 3-compartment sink.
7. *The flow of cleaning for a manual warewashing sink* shall be such that soiled items enter one side and exit to drainboard at the other end.

**ILLUSTRATION J-1**



*At least one 3-compartmented sink is required by Chapter 511-6-1. Drainboards for soiled dishes and for cleaned utensils must be adequate to hold expected quantities of equipment and utensils. Generally, drainboards should be same size as that of sink compartments. Minimum recommended size is 36 – 48 inch long by 30 inch wide drainboards and they should have at a minimum pitch of 1/8" per foot slope toward the sink.*

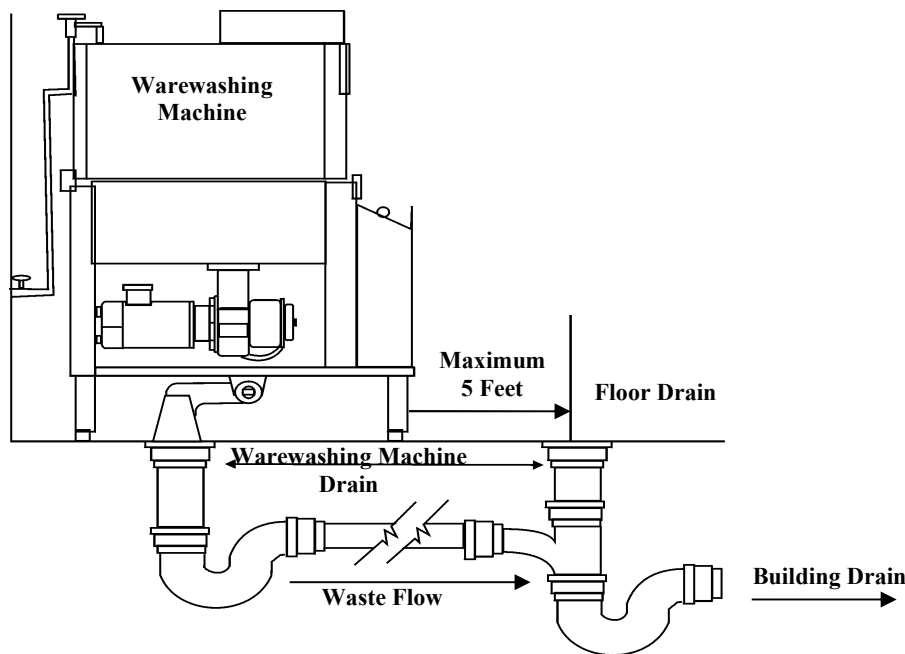
**III.**

**Mechanical Warewashing:**

**1. General Requirements:**

- A. The waste line for all mechanical warewashing machines must not be directly connected to the sewer line. Except that, if allowed by applicable State and local plumbing code, the waste line may be connected directly on the inlet side of a properly vented floor drain when the floor drain is within 5 feet of the warewashing machine and the drain line from the machine is properly trapped and vented. *Illustration J-2* represents a type of connection that may no longer be allowed by applicable plumbing codes. It is recommended that the local building/plumbing code officials be consulted whenever this type of plumbing connection is proposed.

**ILLUSTRATION J-2**



B. A warewashing machine that is installed after adoption of Chapter 511-6-1 shall be designed and equipped to: automatically dispense detergents and sanitizers and incorporate a visual means to verify that detergents and sanitizers are delivered or a visual or audible alarm to signal if the detergents and sanitizers are not delivered to the respective washing and sanitizing cycles.

C. *Adequate facilities shall be provided to air-dry washed utensils and equipment.* Storage facilities shall be provided to store cleaned and sanitized utensils and equipment at least 6" above the floor on fixed shelves or in enclosed cabinets protected from splash, dust, overhead plumbing or other contamination.

**IV. Determining Warewashing Machine Capacity:**

1. *The capacity of the dishwashing machines should be based on the peak number and type of dishes, utensils, flatware, etc. that must be washed per hour.* One way to find the capacity in racks per hour for each make and model of machine is to refer to the manufacturer's specification sheets. To determine the required capacity refer to the following guide:
  - A. Each 20 inch by 20 inch warewashing rack will accommodate: 16 – 9 inch dinner plates, 25 – Water glasses, 16 – Coffee cups, and 100 – Pieces of flatware.

Note: Only 70% (.70) of the listed capacity (in racks per hour) should be considered as an average capacity. Consult the manufacturers' specification sheets ("cut sheets") for optimum capacity.

B. To determine the number of warewashing racks per hour for a food service establishment serving divide the number of meals by the number of dishes, water glasses, coffee cups and pieces of silverware by the number of each item per rack as given in "1A" above.

C. For example:

A food service establishment plans to serve 200 meals at lunch. The number of warewashing racks that the ware washing machine must wash per hour would be as follows:

$$200 \text{ Plates} = \frac{200 \text{ Plates}}{16 \text{ plates per Rack}} = 12.5 \sim 13 \text{ Racks}$$

$$200 \text{ Water Glasses} = \frac{200 \text{ Glasses}}{25 \text{ Glasses per Rack}} = 8 \text{ Racks}$$

$$200 \text{ Coffee Cups} = \frac{200 \text{ Coffee Cups}}{16 \text{ Cups per Rack}} = 13 \text{ Racks}$$

$$200 \text{ Pieces of Flatware} = \frac{200 \text{ Pieces of Flatware}}{100 \text{ Pieces of Flatware per Rack}} = 2 \text{ Racks}$$

Required total working capacity of warewashing machine = 36 Racks per Hour

Since this Illustration is 70% of the listed capacity, a warewashing machine with a minimum listed capacity of  $\frac{36}{.70 (70\%)} = 51 \text{ Racks per Hour}$  will be required

Note: *As a rule-of-thumb*, four (4) seats in the dining area will equal one warewashing rack in a warewashing machine. Assuming that the establishment has only 200 seats in its dining area and that eat seat will only be occupied once during the lunch period, then the projected 200 meals during lunch will equal 200 seats. Therefore, 200 seats divided by 4 seats per rack will equal 50 racks. As a result, one can estimate a warewashing machine's required capacity per hour by either number of projected meals or by number of dining room seats.

- D. *An adequate facility for preflushing or prescraping shall be provided on the soiled dish side of the warewashing machine.*
- F. *Drainboards shall be provided, be of adequate size for the proper handling of utensils, and located so as not to interfere with the proper use of the warewashing facilities. In existing establishments, mobile dish tables may be utilized as an adjunct to other drainboard facilities.*

**V. Chemical Warewashing:**

1. *Chemical warewashing machines shall be in compliance with the standards of an ANSI/NSFI accredited certification program. The installation must conform to applicable code requirements. Among the specific requirements for the installation of an approved chemical warewashing machine are the following:*
  - A. *The chemical sanitizing feeder must be in compliance with the standards of an ANSI accredited certification program and be compatible with the specific make and model of machine in question.*
  - B. *An approved chemical test kit for determining sanitizer strength shall be available and used.*
  - C. *A visual flow indicator must be provided to monitor the operation of the sanitizing agent feeder. Other indication devices such as audible alarms may also be used. The flow indication devices must be installed so as to be conspicuous to the operator.*
2. *Adequate facilities shall be provided to air-dry washed utensils and equipment. Storage facilities shall be provided to store cleaned and sanitized utensils and equipment at least 6" above the floor, protected from splash, dust, overhead plumbing or other contamination; on fixed shelves; or in enclosed cabinets. The plan must specify location and facilities used for storing all utensils and equipment.*
3. *If sanitizer dispensers are not equipped with an integral backflow prevention device, the installation point of the dispenser shall be below the vacuum breaker on the warewashing machine. See Illustration J-3.*
4. *Some warewashing machines, such as recirculation pump rinse sanitizers, will have dispenser discharge points (indirect connection) at the sump drain.*

**VI. Warewashing Utilizing Hot Water:**

1. *A commercial warewashing machine for mechanical warewashing utilizing hot water for sanitization shall be provided that is in compliance with the standards of an*

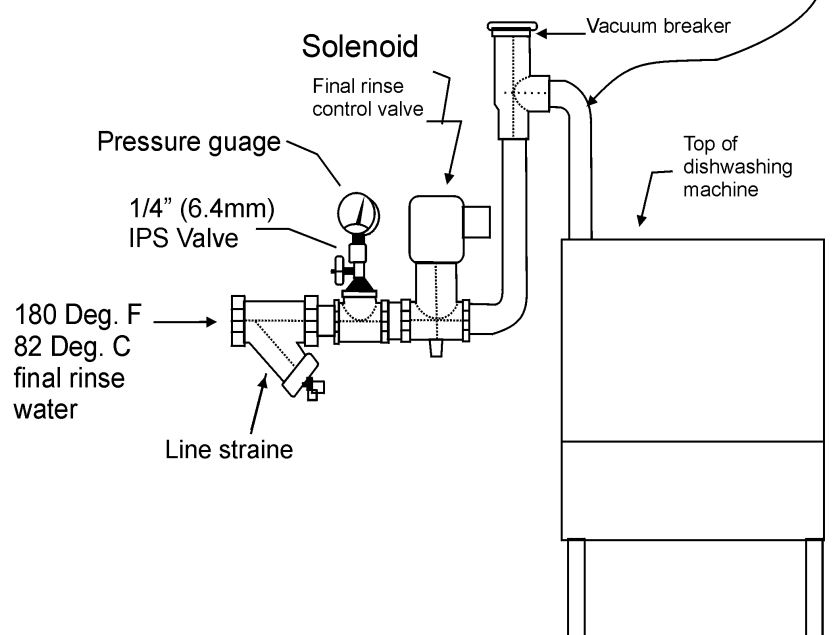
- ANSI/NSFI accredited certification program. The installation and required accessories shall be in conformance with local applicable plumbing codes.
2. *An approved maximum registering thermometer or high temperature test papers shall be available and used.*
  3. *If the detergent dispenser or drying agent dispenser is not equipped with an integral backflow prevention device, the installation point of the dispenser shall be below the vacuum breaker on the warewashing machine. See Illustration J-3.*
  4. *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. 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; see Illustration J-3 for location of IPS valve. The IPS valve allows for the ease of removal of water pressure gauge and the installation of water pressure testing gauge.*
  5. The diagram in *Illustration J-4* illustrates a typical warewashing machine installation. Note that an *atmospheric vacuum breaker* is installed above the rim of the pre-rinse sink.

**ILLUSTRATION J-3**



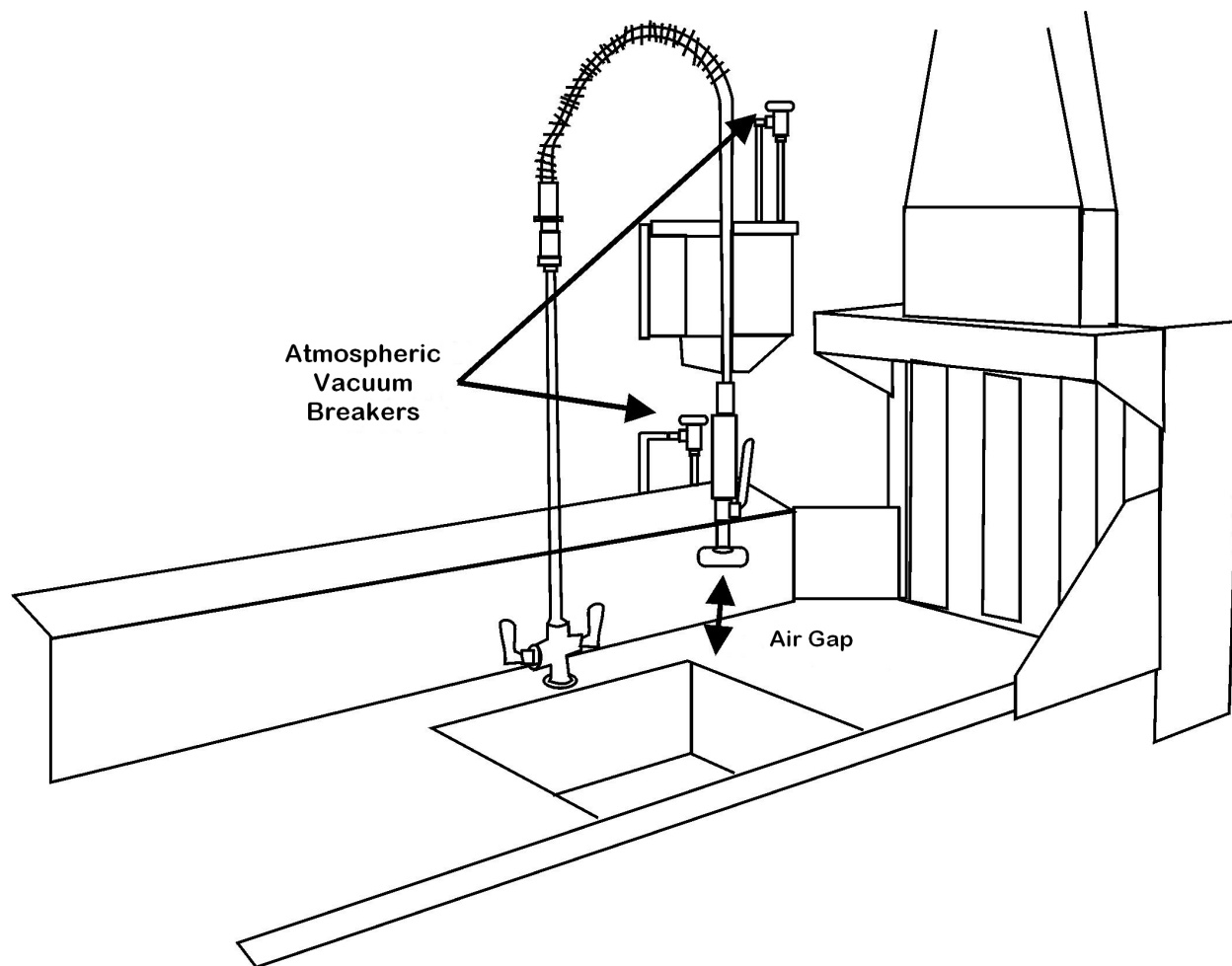
*Point of installation of dispensers*

Point of installation for detergent dispenser and drying agent dispenser





**ILLUSTRATION J-4**  
Pre-Rinse Back Flow Protection



*This is a typical warewashing machine installation where atmospheric vacuum breakers can be easily seen.*