



## Requirements for Equipment and Structure of Molluscan Shellstock, Crustacean and Fin Fish Holding Warehouse

This document is intended to be used as a guide to the design and construction of live molluscan shellstock, crustacean, & fin fish holding warehouses or areas within food establishments.

For complete regulatory requirements, see the Regulations Governing Sanitation of Food Establishments.

1. Building construction (walls, floors, ceilings) minimum requirements:
  - a. Sealed, smooth concrete or tile floors. "Wet" areas should have floor drains to sewer.
  - b. Smooth and cleanable wall surfacing (painted with hard enamel paint minimum). "Wet" areas of the facilities, especially walls around tanks, shall have FRP panels to at least 8 feet (at a minimum), with sealed base cove.
  - c. Twenty foot/candles of light at 30 inches above the floor.
  - d. Light fixtures must be protected from accidental breakage.
  - e. Ceiling without exposed insulation (scrim-sheeting minimum).
  - f. Base-coving (epoxy grout "cove" allowed on concrete-block wall-to-concrete floor junctures).
  - g. Air Curtain(s), dock "boot" seals, doors with weather-stripping or other approved method for control of dust, rodents, insects, and birds.
  - h. A restroom (with commode and lavatory) within the facility, serviced with hot and cold water, approved soap and disposable towels, adequate ventilation, and a self-closing door. Lavatory walls must have a 4 foot wainscoting of sealed, impervious material, a sealed base cove, and sealed impervious flooring.
  - i. A mop-sink serviced with hot & cold water from a mixing faucet with integral vacuum breaker.
  - j. NSFI or equivalent dunnage racks and/or shelving, with 6 inches clearance between the floor and the bottom shelf, if needed for storage of dry product.
  - k. Palletized goods storage areas must have a "clear zone" of 18 inches between the walls and the pallets to facilitate rodent control and general cleaning, and for inspection access.
2. Molluscan shellstock, crustacean, & fin fish holding tanks and related equipment requirements. Tanks used as life support for animals intended for human consumptions shall meet the following criteria:
  - a. Molluscan shellstock tanks must be separate from, and share no water with, tanks for crustaceans or fin fish.
  - b. Holding tanks and stands shall be made of impervious, non-toxic, non-corrosive materials, and be constructed to allow regular cleaning and sanitizing. APPROVED materials include tempered glass, acrylic, polyester or epoxy gel coated fiber glass, or other material APPROVED by the HEALTH AUTHORITY.



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- c. All plumbing for recirculation and filtration piping and EQUIPMENT shall meet the standards for contact with potable water and shall be certified to meet applicable sections of NSF/ANSI Standards 14, 42, 53, 60 and 61, and shall be compatible for use in salt water applications. All pumping and filtration EQUIPMENT shall be certified to meet NSF/ANSI Standard 50.
- d. Each wet storage system shall have its own dedicated tank or aquarium, filter, pump, chiller, UV disinfection unit, and connecting piping.
- e. Filtration systems shall be designed for a minimum water turn-over rate of six hours and shall be fitted with flow meters to monitor the turn-over rates. Filtration and pumping systems shall be submitted to Plan Review for approval. The design shall ensure adequate oxygenation of the water.
- f. Ultra-violet disinfection systems shall:
  - i. Be provided and sized for flow rate and be compatible with the pump.
  - ii. Be capable of producing 15910 Microwatt seconds/cm<sup>2</sup> minimum killing dose.
  - iii. Have an indicator light for monitoring continuous operation while SHELLSTOCK, lobsters and/or crustacean are in the wet storage system.
- g. A flow meter shall be installed between the filter and the UV system.
- h. Pumps shall meet UL Standard 1081.
- i. If chiller systems are provided they shall be designed for use with potable water systems and be resistant to the corrosive effects of salt water. Chiller systems shall be installed before the disinfection unit and shall be capable of maintaining water at 45°F±2° or below.
- j. The tank shall have an indicating thermometer accurate to ±2°F.
- k. Adequate drainage to sewer shall be provided to accommodate backwashing of filter systems and tank drainage. Drainage to sewer shall be indirect to a floor sink or trough drain. Floor sinks shall be provided with appropriately sized mesh insert to prevent scales from clogging the drains.
- l. SHELLSTOCK, in spray type re-circulating wet storage systems, shall be supplied with water that is sprayed in a fan shape and stored in APPROVED trays at a minimum of 3 off the bottom of the tank to prevent submersion of SHELLSTOCK.
- m. Potable water systems shall be protected from re-circulated water systems using reduced pressure zone backflow prevention assemblies or air gaps. Hose bibs, and other connections to the potable water supply, shall be adequately protected using atmospheric vacuum breakers or pressure vacuum breakers.



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- n. Operational plans or HACCP PLANS shall be provided detailing the cleaning, sanitizing, and water testing schedules.
  - o. The system shall be capable of disinfecting storage water to a non-detectable coliform bacteria level (<2MPN/100ml), using the APHA Recommended Procedures for the Examination of Seawater and SHELLSTOCK.
  - p. A validation study of the systems' operation shall be performed prior to approval by the HEALTH AUTHORITY.
3. Refrigerated warehousing of food product in original boxes or pallets, with minimum breakdown. Minimum requirements– all of section 2 noted above, plus:
- a. NSF Standard 7 Refrigeration/freezer units, either walk-in, roll-in, or reach-in. Units meeting the requirements of NSF/ANSI 7, section 5.36, and the labeling requirements of NSF/ANSI 7, 5.34.9 (prefabricated walk-in and roll-in refrigerators and freezers used for the storage of food in the original sealed packaged must be labeled: "This equipment is intended for the storage of food in the original sealed package only") are acceptable for "warehousing" operations.
  - b. Twenty foot/candles required in refrigerators and freezers.
  - c. Refrigeration condensate properly drained to a floor-sink or by other approved method.
  - d. Warehouses intending to conduct any food-handling or processing will be handled as a "kitchen" for the purposes of Plan Review.
  - e. For other issues not addressed here, please see the General Food Establishment webpage.