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 E - FACILITIES TO PROTECT FOOD

REFERENCES (Chapter 511-6-1)

.04 Food. (4) Protection from Contamination After Receiving. (g) Washing Fruits and Vegetables.
.04 Food (6) Limiting Growth of Pathogens. (j) Variance Required.
.04 Food. (4) Protection from Contamination After Receiving. (k) In-Use Utensils, Between-Use Storage.
.04 Food. (4) Protection from Contamination After Receiving. (u) Food Display.
.04 Food. (4) Protection from Contamination After Receiving. (v) Condiments, protection.
.05 Equipment and Utensils. Amended. (3) Numbers and Capacities. (f) Utensils, Consumer Self-Service**.**
.05 Equipment and Utensils. Amended. (3) Numbers and Capacities. (j) Sinks for Washing Raw Fruits and Vegetables
.05 Equipment and Utensils. Amended. (2) Design and Construction. (p) Dispensing Equipment.
.05 Equipment and Utensils. Amended. (2) Design and Construction. (v) Molluscan Shellfish Life-Support System.

I. **Purpose**: As a basic requirement of Chapter 511-6-1, a*dequate equipment and facilities* must be *provided to promote good hygienic practices, sanitary food handling and to minimize the potential for cross-contamination between ready-to-eat and raw products*. As a result, this Section has as its purpose to provide guidance and interpretations to satisfy this basic requirement.

II. Food Preparation Sinks and Associated Equipment:

1. *Separate areas* shall be designed to segregate food-handling operations involving raw and ready-to-eat foods. Sinks used in preparing or thawing of foods must be made of stainless steel. If cooling of cooked, ready-to-eat food is planned and if raw fruits and vegetables are included on the menu as an item or ingredient, a sink or sinks sized for the volume of food to be processed shall be provided for washing raw fruits and vegetables and for cooling activities. It must be equipped with hot and cold water under pressure and be equipped with a recommended minimum 18" drain-board or sufficient counter/worktable space to separate unwashed fruits and vegetables from those that are ready for preparation or service. Further, there must be provided sufficient space between these raw fruits and vegetable washing/cooling sinks and other food preparation sinks to preclude the possibility of cross-contamination from other uncooked foods such as meat, fish, poultry, etc.

2. *If the menu and the volume of food to be prepared requires* sinks for the preparation of other foods such as meats, poultry and fish, separation by species of food due to cooking time/temperatures, as required in *DPH Rule 511-6-1-.04(5)*, must be considered in planning the placement of these sinks. The purpose of this consideration is to prevent the occurrence of cross-contamination which may occur between foods. This cross-contamination between foods could lead to inadequate time/temperature kill step application during the cooking process or provide a pathway for pathogens to cause

illness as a result of consuming contaminated raw, ready-to-eat fruits and vegetables. Likewise, preventing cross-contamination of food in regards to allergens such as shellfish should be considered in planning the placement and use of these food preparation sinks.

3. *Should separate areas for sink installation not be possible*, then properly design and constructed physical barriers between sinks must be utilized in their installation. These physical barriers may be sufficient spacing between sinks, partitions, or shields to preclude splash, spray and contact of contaminates. Generally, depending on the menu review, food process flow, equipment arrangement, and design, not less than three (3) feet of space or more, if possible, should be provided between these sinks. If spacing cannot be provided, it may become necessary to provide a barrier between these sinks. The height of this shielding should be of sufficient height to prevent cross-contamination by intercepting potential splash, spray and/or contact of foods between sinks and adjacent areas. Shield materials must meet all the requirements for a food contact surface found in *DPH Rule 511-6-1-.05*. Additionally and where possible, completely separate areas used for the preparation, handling, and washing of raw meat, fish, and poultry by providing separate areas or rooms from those used for washing and preparing raw fruits and vegetables or cooling foods.

4. *Where portable chopping/cutting boards are planned*, they should be color coded or labeled for specific use. It is also required to provide separate work counters or work areas for raw product preparation from product that is in the ready-to-eat form. The purpose of all of these requirements is to reduce the potential for the occurrence of cross-contamination of ready-to-eat foods with contaminates (i.e. pathogens and/or allergens) from unwashed fruits and vegetables and/or uncooked foods of animal origin.

III. Facilities for Displaying and Dispensing of Food:

1. *All food on display*, during service or while being held must be adequately protected from contamination by the use of: packaging; serving line, storage or salad bar protector devices; display cases or by other effective means including dispensers.

2. *Food Shields* (or sneeze guards) installed on buffet lines or self-service bars need to be specific to the type of operation that is being proposed. They shall comply with the standards of an ANSI accredited certification program. Food shielding shall intercept the direct line between the customer's nose and mouth and the food on display. On average, the vertical distance from the customer's nose and mouth to the floor is 4 feet and 6 inches to 5 feet. This average must be adjusted for children in educational institutions and for other special installations. To adjust sneeze-guard vertical distance for children in educational institutions, one must consider the standard age group height from the oldest to the youngest to be served and ascertain the average height of these two age groups. *Buffet or Smorgasbord Shielding is intended to be in a straight-line configuration with other units. If stand alone, the ends of the sneeze-guard must be completely closed or shield angle design must continue along all exposed sides of food bar (see Illustration E-*

1) and distances of design so as no portion of the displayed food will be within the direct line-of-site to the nose and mouth of the customer (see Illustrations E-3).

3. *Location of seating and display for service of all food* shall be arranged such that food will be protected from contamination from consumers standing or sitting within eight (8) feet of the food. This stated requirement does not apply to tableside finishing as approved by the Health Authority and hibachi grill food preparation for immediate service.

4. *Utensils used by consumers for self-service* shall be available for each container of food displayed at buffets or salad bars. The utensil's length shall be longer than the widest portion of the container of displayed food.

5. *Food temperature measuring devices* shall be provided and readily accessible at all self-service and/or displayed food for service and used to ensure the attainment and maintenance of food temperatures as specified within *DPH Rule 511-6-1-.04* in the current Georgia Food Service Rules and Regulations Chapter 511-6-1.

6. *Where frozen desserts are being portioned and dispensed,* running water-dipping wells must be provided for the in-use storage of dispensing utensils. An alternative would be to provide a dispensing utensil for each type or flavor of frozen dessert. At no time shall self-serve dipped frozen dessert be allowed. However, a self-serve dispensing machine may be used instead.

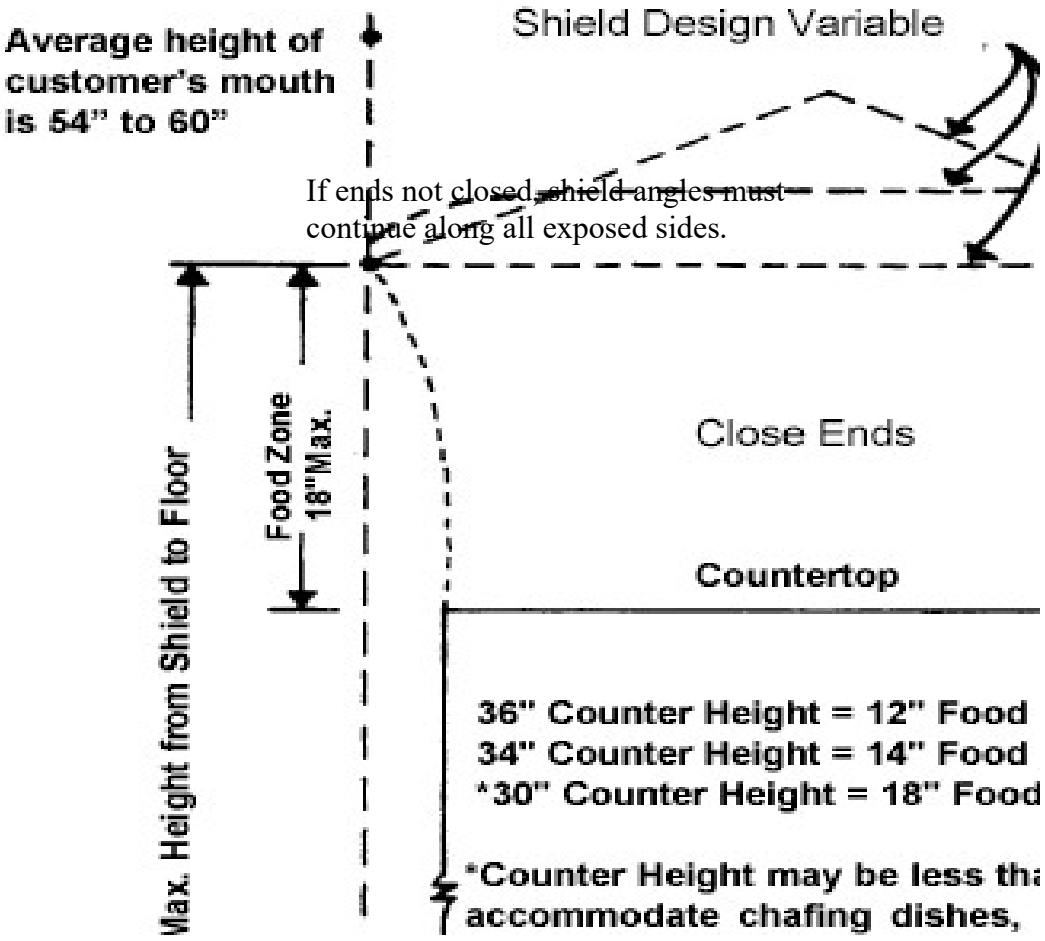
7. *Where one utensil is used to dispense several hot food items*, a hot water running dipping well may be provided for the in-use storage of this dispensing utensil. The hot water temperature supplied to this dipping well must be at least *135℉ (57.22℃).* One alternative method of hot food dispensing would be to provide a utensil for each hot food item. Another would be to place a stainless steel container filled with hot water at temperature of at least *135℉ (57.22℃)* or higher in hot holding equipment, cleaning and sanitizing the container and utensils at a rate when hot storage water and container has soil accumulation or not less than every twenty-four hours.

8. *Ice* shall be dispensed from approved dispensing equipment, such as combination Icemaker-dispenser machine, should ice be self-service. Open ice-chests or chest-type ice machines are prohibited for consumer self-service.

9. *Planners* must verify and provide documentation that custom designed and fabricated, self-service food display equipment conforms to standards as set by the American National Standards Institute (ANSI)-accredited certification programs.

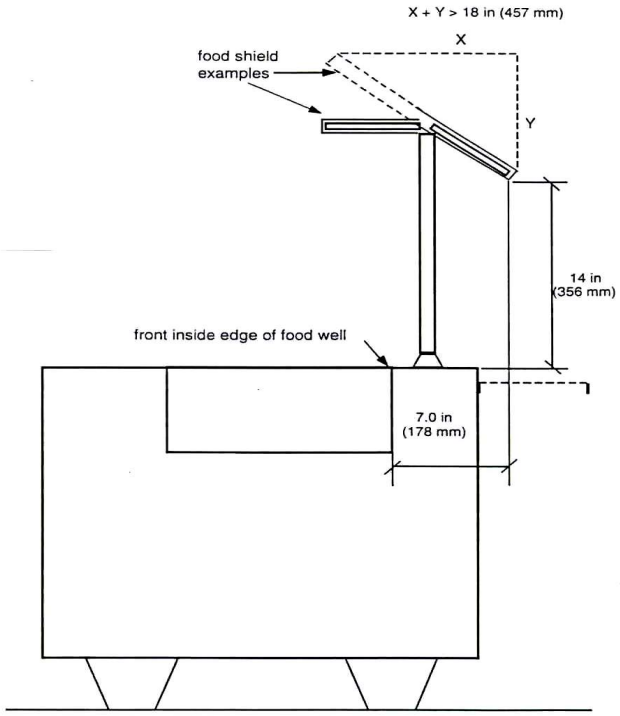
10. *For examples of food shielding and of display equipment, see Illustrations E-1, E-2 and E-3.*

ILLUSTRATION E-1



Note: Ends must be closed. Otherwise, units must be in line with other equipment to prevent access from unshielded sides.

ILLUSTRATION E-2



NSF/ANSI Standard 2

Buffet Food Shields

Measured from Counter Top

Standard 2[1], in part, requires:

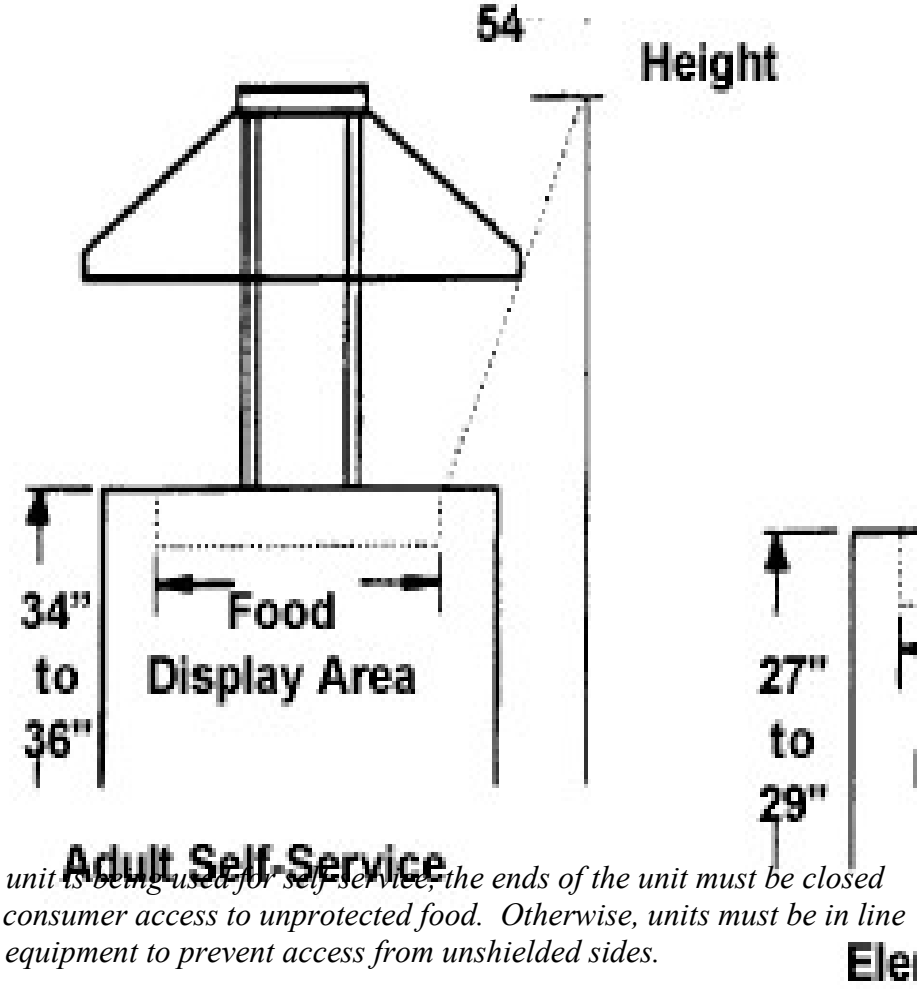
"Food shields shall provide a barrier between the mouth of the customer and unpackaged food. The maximum vertical distance between a counter top and the bottom leading edge of a food shield shall be 14 in (350 mm). The bottom leading edge of the food shield shall extend a minimum horizontal distance of 7.0 in (175 mm) beyond the front inside edge of a food well. The sum of a food shield's protected horizontal plane (X) and its protected vertical plane (Y) shall equal a minimum of 18 in (450mm). Either X or Y may equal 0. Food shields shall be transparent and designed to minimize obstruction of the customer's view of the food. To protect

[1] Source: Food & Dairy Division, Michigan Department of Agriculture P. O. 30017, Lansing, MI 48909, Food Establishment Plan Review Manual Revised August, 2004,

against chipping, exposed edges of glass shall be protected by tight fitting channels, stripping materials, or other means such as rounding the edges of tempered glass."

ILLUSTRATION E-3

Shield design must intercept a direct line between the consumer's nose and mouth to displayed, unwrapped food.

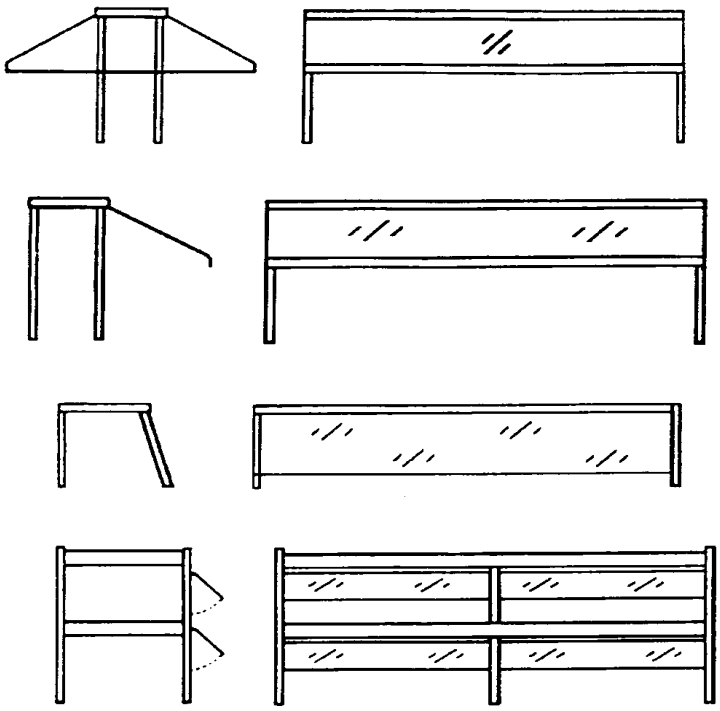


Note:

1. *If a single unit is being used for self service, the ends of the unit must be closed to prevent consumer access to unprotected food. Otherwise, units must be in line with other equipment to prevent access from unshielded sides.*

2. *Measurements are taken from the floor.*

ILLUSTRATION E-4



Note: If a single unit is being used for self-service, the ends of the unit must be closed to prevent consumer access to unprotected food. Otherwise, units must be in line with other equipment to prevent access from unshielded sides.

Buffet Food Shields

13. Molluscan Shellfish Tank Life-Support Systems:

A. Under the provisions found within *DPH Rule 511-6-1-.04(6) (j) 4* of the Chapter, food service establishment operators must submit a variance request and a HACCP plan to the Department of Public Health (DPH). Staff of DPH's Environmental Health Branch and those of the local County Health Department, having jurisdiction will review the submitted HACCP plan for conformance to *DPH Rule 511-6-1-.02(5).* This subsection is intended to provide a set of guidelines for County Environmental Health Specialist (EHS) to review and verify HAACP plans for live holding tanks used to store molluscan shellfish for human consumption and to provide a basis for the commencement of their operation. These guidelines have been incorporated from various sources. These sources are the 2008 Draft FDA Food Service Plan Review Manual, the January 30, 2007 FDA Draft Handbook to Review and Verify HACCP Plans for Live Holding Tanks to Store Molluscan Shellfish Used for Human Consumption, and the 2009 version of the Georgia Department of Agriculture Guidelines for submittal of Plans and Specifications for Molluscan Shellfish Life Support Systems. *(See Appendices C, D, and F in PART-II of this Manual for more information and examples of these systems.)*

B. The scope of this subsection is to provide the necessary background information for the components of a HACCP plan, system design, sanitation monitoring, and good retail practices to handle molluscan shellfish safely for human consumption.

C. The use of live holding tanks can provide some possible advantages for Industry to display Molluscan shellfish. The advantages lead to enhanced sales which include increased shelf life, improved appearance, improved taste and eye appeal to the consumer. At the same time shellfish are filter feeders allowing concentration of pathogenic microorganisms that may be present in the water. Due to the number of shellfish and the limited volume of water used, live holding tanks may allow concentration of pathogenic viruses and bacteria.

D. Since many people eat shellfish either raw or lightly cooked, the potential for increased levels of pathogenic microorganisms in shellfish held in tanks is of concern. If shellfish stored in molluscan shellfish tanks are offered for consumption, certain safeguards must be in place as specified in a detailed HACCP plan as reviewed by both the State Environmental Health Office and the local Health Authority. Opportunities for contamination must be controlled or eliminated. Procedures must emphasize strict monitoring of water quality in the tank including the filtering and disinfection system.

E. If tanks are to be used to store and/or display Molluscan shellfish for human consumption, the operator must first submit a variance request to the Department and gain its approval. Second, the operator must operate and maintain the tank in accordance with a HACCP Plan that has been jointly reviewed by DPH Environmental Health Branch and County Health Department staff. Once reviewed, State Environmental Health Branch staff must deem such plans as meeting the requirements of Chapter 511-6-1.

F. Oysters, clams, mussels, and scallops are live and perishable products that must be adequately protected to remain safe, wholesome and attractive to the consumer. Federal, state and local shellfish and food codes usually are specific sanitary control and recordkeeping requirements that are to be applied to the shellfish by all harvesters, wholesalers and retailers. In brief, these requirements usually specify that shellfish are to be stored and handled so as not to become contaminated; storage equipment is to be properly designed, constructed, and cleaned; different lots are to be separate; and each lot of shellfish can be traced to the original shipper and harvest area of origin through shellfish tags and recordkeeping.

G. Molluscan Shellfish Tanks Life-Support Systems are to be evaluated by the Health Authority on a case-by-case basis. Written proposals for such a life-support system shall include the following data and be submitted by the person wishing to use molluscan shellfish tanks life-support systems for the display shellfish for human consumption:

a. General Requirements:

i. Plans and Specifications:

I. Plans and Specifications for molluscan shellfish display life-support tank systems must have affixed to them the professional seal of an engineer or architect licensed to practice in Georgia.

II. A schematic of the life-support system (s) showing the number and placement of the display tanks, plumbing, and placement of water treatment equipment into the system - (Water chiller, UV filter, and biological filters) used in the system.

(i) Any equipment construction, material specifications, and manufacturer's specifications.
(ii) Systems must be designed and constructed to allow sufficient room to operate and clean the display systems.

b. Capacities of System:

i. Estimated size of display tanks, water capacity to charge each system, filtration and water flow capacities of each system.

ii. Manufacturer's product loading capacity and arrangement for each system to ensure product is not commingled and is properly identified.

iii. The plumbing for each system to be installed must be clearly identified and color-coded.

iv. The recommended manufacturer's temperature ranges for water used in the display tanks.

c. Source Water and Quality:

i. Source of water to be used in display tanks and how it will be de-chlorinated.

ii. Method of preparing the synthetic seawater for use in the display tanks.

d. HACCP Plan Requirements:

i. *General Requirements*:

I. HACCP plan must be submitted by the permit holder to the Health Authority for review with the plans for molluscan shellfish tanks life-support systems used for the display shellfish that are offered for human consumption. The owner must prepare such HACCP plan of which includes all relevant CCP's and in addition, he must ensure the Department and the County Health Department that he will operate and maintain the molluscan shellfish tanks and their associated life-support systems according with his submitted HACCP plan, once it has been deemed to be in compliance with Chapter 511-6-1 by both the Department and the County Health Department of jurisdiction.

II. The HACCP plan must also include examples of the records the applicant or permit holder plans to use on a daily basis to monitor for water quality – (Salinity, Temperature, Turbidity, and UV disinfection) in each display tank installed.

III. The HACCP plan must ensure that water used with fish other than molluscan shellfish does not flow into the molluscan tank. Further, it must ensure that the safety and quality of the shellfish as they were received are not compromised by the use of the tank and the identity of the source of the shellstock is retained for ninety days after consumption.

IV. *See Appendix C for an example of a HACCP plan for a Molluscan Shellfish Life-Support System.*

ii. *Specific Requirements*: As per *DPH Rule 511-6-1-.02*, a HACCP Plan for a Molluscan Shellfish Life Support System must be compliant with DPH Rule *511-6-1-.02 (5) (a) through (e)* by containing the following information:

I. List of each species of molluscan shellfish to be held in the life support system.

II. A flow diagram:

(i) For each species and

(ii) Identifying the critical control points, critical limits and procedural methods used to address food safety issues of concern.

III. Training Plan for food employee and supervisory employees that addresses the food safety issues of concern.

IV. A statement of standard operating procedures for the plan under considerations including clearly identifying:

(i) Each Critical Control Point:

(1.) Receiving shellfish from approved source Interstate Commercial Shellfish (ii)Shippers List (or ICSSL)
(2.) Receiving shellfish temperature
(3.) Cooler Storage
(4.) Tank Storage – Water Temperature
(5.) Tank Storage – Water Quality

(ii) The critical limits for each critical control point:

(1.) Receiving – Shellfish identification (original tags or labels with a dealer from Interstate Commercial Shellfish Shippers List (or ICSSL), and preserving identification.
(2.) Receiving – Receiving temperature of shellfish 50°F (10.0°C) or below.
(3.) Cooler Storage – Cooler ambient air temperature 41°F (5°C) or below with no cross-contamination.
(4.) Tank Storage – Tank water temperature 41ºF (5ºC) or below.
(5.) Tank Water Quality – Approved Source (Public Water for artificial seawater) and
(6.) Total Coliform MPN. (Maximum loading = 0 MPN)

(iii) The method and frequency for monitoring and controlling each critical control point by the food employee designated by the Person in Charge.

(iv) The method and frequency for the Person in Charge to routinely verify that the food employee is following standard operating procedures and monitoring the critical control points.

(v) Actions to be taken by the Person in Charge if the critical limits for each critical control point are not met.

(vi) Records to be maintained by the Person in Charge to demonstrate that the HACCP Plan is properly operated and managed. *(Note: Sample temperature and thermometer calibration logs are available in Appendix-E located within PART-II of this Manual.)* Shellfish certification tags must be kept in chronological order for at least 90 days after the container is empty.

V. Additional scientific data or other information, as required by the Health Authority, supporting the determination that food safety is not compromised by the proposal.

VI. Example of the completed HACCP Plan and Flow Diagram of the Processing of the shellfish tank.
(Note: An example of a HACCP Plan can be found in Appendix C located in PART-II of this Manual).

VII. *A checklist to validate the contents of Molluscan Shellfish Life Support System HACCP Plan can be found in Appendix D located in PART-II of this Manual.*

e. Prerequisite Programs and Standard Operating Procedures:

i. *Live holding tanks have complex operation and maintenance requirements* which must be followed if a safe product is to be maintained. The manufacturer is required to provide an operating manual, maintenance instructions, and a maintenance log to the unit's owner/operator. These instructions must be present at the food service facility, available for use by staff responsible for maintenance of the unit and followed.

ii. *To ensure proper design, maintenance, and Chapter 511-6-1 requirements are met* or exceeded, the following operational instructions are provided:

I. Handling Molluscan Shellfish:

(i) Remove dead, cracked, weak molluscan shellfish ***DAILY***.

(ii) Rinse shellfish before adding to a tank. *(With approved artificial salt water to remove sand, debris, slime, etc.)*

(iii) ***NEVER*** hold molluscan shellfish (clams, oysters, mussels, scallops) in the same live holding tank with crustacean shellfish (lobsters, crabs, and shrimp).

(iv) ***NEVER*** commingle different lots of molluscan shellfish of the same species with different shipper's tags, harvest dates, or harvest areas.

(v) Different lots of molluscan shellfish can be displayed in the same live holding tank provided they are in separate containers to prevent commingling such as mesh bags and are identifiable so they can be traced back *to the harvest area through their shellfish tags.*

(vi) Do not commingle molluscan shellfish of different species in the same tanks.

(vii) Do not feed the shellfish.

(viii) If the tank was used previously for crustaceans or other species wash, rinse and sanitize the tank before using for molluscan shellfish.

(ix) Rotate the shellfish (old on the top).

(x) Maintain shipping tags and records *(90 days after the container is empty; chronological order, identifying the dates sold or served).*

(xi) Consumer self-service from shellfish tanks is prohibited - *(Consumers may inadvertently contaminate the tank and cause mixing or commingling of shellfish lots).*

II. System Design:

(i) Construction from food grade materials. Equipment and utensils must be durable non-absorbent, non-toxic and easily cleanable.

(ii) Easily accessible for cleaning and repair.

(iii) Adequate capacity.

(iv) No plumbing "dead legs" especially in drainage tubing which would not allow adequate disinfection.

(v) Influent line (if connected to water supply for initial filling) cannot be below overflow level of tank. (In case of backflow).

(vi) Containers, mesh bags, tank dividers must be kept safe and easily cleanable and nonabsorbent.

(vii) The tank must have an accurate in-system thermometer.

(viii) The tank must have an aeration unit.

(ix) *Filtration System must have*:

(I) Polyester filter pad or similar filter needed to prefilter large particles, solid waste out of the water.

(II) Activated carbon removes dissolved organics, color, odor, toxic gases from water.

(III) Biological filter (aerobic non-pathogenic bacteria adhering to granular media) break down animal waste, ammonia and help maintain pH balance. You must "seed" the filter with these beneficial bacteria when setting up the system and allow them to establish on the filter. *(Follow manufacturer's instructions)*

(x) Refrigeration Unit (Water Temperature at or below 41ºF (5ºC)

(xi) Refrigeration Unit (Water Temperature at or below 41ºF (5ºC) or less). Check the temperature twice daily.

(xii) No exchange of water from molluscan shellfish tank and tank used for any other species.

(xiii) System should contain an appropriate U.V. disinfection unit to kill bacteria and viruses as water circulates through U.V. light source.

III. System Operation:

(i) Manufacturer to provide retail operator with the following:

(I) An Operation Manual;

(II) Maintenance Instructions; and

(III) Maintenance Logs.

(ii) Establish tank load limits so filters and disinfection unit are not overloaded (check equipment manual).

(iii) A break-in adjustment period is necessary for the tank.

(iv) Commingling is prohibited: (CRITICAL)

(I) Between molluscan shellfish and crustacean shellfish;

(II) Between lots from different dealers;

(III) Between lots with different harvest dates;

(IV) Between lots with different harvest areas; and

(V) Between lots of different species.

(v) Cull out dead and dying shellfish before adding any to the tank. Cull on a daily basis as well. Dead shellfish will not close when the shell is tapped.

(vi) Rinse shellfish with approved artificial salt water before putting in the tank to remove sand, debris, slime, etc. to prevent clogging the filters. .

(vii) Rotate shellfish (of same lot) so newer are on the bottom and older are on the top.

(viii) Follow operating temperature requirements in the manual: 41ºF (5ºC) or less.

(ix) Defoamers must be food grade and specifically approved for use with food.

(x) Proper Salinity (food grade salimeter reading between 1,020 and 1,025ppt and Check Daily).

(xi) Turbidity or cloudiness (indicates need to change water). Conduct daily checks.

(xii) Weekly tank water change.

IV. Maintenance and Records:

(i) Designated Employee(s) who have received training in the use of the display tank, record keeping, and safety precautions.

(ii) Maintenance manual/checklist:

(I) Verify that the shellfish certification number is on the current (ICSSL) Dealer Certification number, for example: WA #### SP (Washington Shucker Packer), MA #### RS (Massachusetts Reshipper), LA #### SS (Louisiana Shellstock Shipper)

(II) Harvest Date

(III) Harvest Location

(IV) Type of Shellfish

(V) Quantity

(iii) Tags need to be kept for a minimum of 90 days after the container is empty. HACCP records should be kept for a minimum of one year.

(iv) Weekly cleaning/sanitizing of the tank (including spray nozzles, filtration unit, tank and water lines) according to tank manufacturer procedures using only food grade cleaning products. Chemicals may harm shellfish. Remove algae by wiping or scraping.

(v) Daily check to ensure UV light is functioning.

(vi) Daily check for salinity (salimeter should read between 1.020 and 1.025ppt).

(vii) Daily check for turbidity or cloudiness (indicates need to change water).

(viii) Every 6-8 weeks cleaning of the UV disinfection system.

(ix) Every 6-10 months change UV bulbs (Spare UV bulb to readily available). No more than 7500 hours of use. Follow manufacturer's recommendations.

(x) Activated carbon/filter pad replacement is recommended every 2 weeks in heavily used tanks.

f. Prior to Health Authority Final Approval to Operate the System:

i. Reports for Submittal to the Health Authority - Before a Molluscan Shellfish Life-Support System can be approved to be put into operation, the permit holder must submit the following validation study to the County Health Department:

I. A validation study conducted by certified testing laboratory that ensures each re-circulating system (s) installed will consistently produce water that tests negative for the coliform group under normal operating conditions. The water validation study should include the following at a minimum:

(i) One sample collected at 4-hour intervals after the installed system has reached equilibrium under normal recommended product loading for each re-circulating system. The samples should be collected for five consecutive days at the inlet to each display tank for each system that is installed with a biological filter or UV disinfection unit – (15 samples total).

(ii) One sample collected at the same corresponding 4-hour intervals for five consecutive days from the source water prior to biological filter or UV disinfection unit for each system installed with a biological filter or UV disinfection unit – (15 samples total).

(iii) The study must use NSSP recognized methods of analysis to determine coliform levels and report results in Fecal coliform MPN per 100 ml.

(iv) All samples of water collected from each display tank inlet for each system must be negative for the coliform group; and

(v) Be repeated if any sample of disinfected water during the study is positive for the coliform group.

g. Shellstock Identification:

i. Shellstock may not be removed from the original container other than immediately before sale or preparation for service (*unless the source on display is properly identified & recorded*). Tags remain attached until the container is emptied, then retain tags for 90 days in chronological order from the date of harvest. The harvester and/or each dealer affix identification tags/labels. Containers may carry harvester & dealer tags. If both tags are present, the dealers tag is not required to carry harvest information.

ii. A consumer advisory must be provided to consumers at the point of ordering shellfish that will be served raw or undercooked.

iii. The Interstate Certified Shellfish Shippers List (ICSSL) can be found at www.cfsan.fda.gov/~ear/shellfis.html .