



## Equipment and Facilities General Requirements\*

The Equipment and Facilities General Requirements provide guidance on the minimum standards for all food establishment design and equipment. It does not replace the new Food Establishment regulations.

### Construction Requirements

1. Equipment: All food service equipment shall meet the appropriate design, materials and construction standard of the National Sanitation Foundation International (NSFI/ANSI) or be equivalent to those standards. The health district accepts NSF, UL-EPH, ETL SANITATION, and BISSC/ETL VERIFIED, CSA Sanitation marks, or field evaluation and acceptance from these third-party testing agencies, as well as custom fabricated equipment built by fabricators certified for custom food equipment by NSFI, UL, ETL, CSA, or other third-party testing agencies meeting ANSI standards.
  - a. Millwork, wood or wood-composite and plastic laminate materials may not be used under, in or over food preparation areas for shelving, cabinetry or as a preparation surface. Metal or other materials meeting the “food zone” material and construction requirement of NSFI/ANSI Standard 2 may be used for food preparation surfaces. Metal framing must be used for all structures under counter tops used for food preparation or on which food equipment is installed and/or plumbed.
  - b. Self-service counters in customer areas may use wood for structural support provided it is full encapsulated with impervious material (stainless steel or FRP), has a food-grade solid surface top, and is not penetrated for equipment, piping, plumbing, wiring, etc.
  - c. Hard maple, or equivalent, is acceptable for commercial cutting boards and baker’s tables; granite and corian-like materials are approvable for countertops in customer interface areas.
  - d. Consideration will be made of client needs in customer interface areas such as display, service counters, bars, etc. Sealed wood and plastic laminate constructed register and pass-over counters and bars must have all exposed wood sealed with an appropriate sealer or be otherwise protected from deterioration (these will be evaluated on a case-by-case basis).
2. Refrigerators (General): All refrigerators intended for the storage of packaged or unpackaged food must meet the applicable requirements of NSFI/ANSI Standard #7. Refrigerators for the storage of packaged foods (foods in sealed containers) must be standard #7 and meet the “pre-packaged and bottled product only” standards.
3. Walk-In Refrigerators and Freezers must be pre-fabricated, whole or assemble-in-place commercial units certified to ANSI/NSFI Standards (2, 7, and 51) or be equivalent to those standards for design, materials, construction and installation as certified by an ANSI-certified third-party testing agency. Custom units must be evaluated and performance tested by an ANSI-certified third-party testing agency.



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- a. Any outside walk-ins must have prior administrative approval and are limited to pre-packaged food items only.
  - b. Walk-in units without pre-fabricated floors must have a quarry tile, sealed concrete, stainless steel or aluminum floor installed. Metal floors must have sealed seams and a contiguous sealed base cove. Quarry tile floors must be sealed with epoxy grout, with floor-set (not top-set) base cove. Sealed concrete floors may have a metal or other approved base cove treatment. Galvanized metal cam-lock panels are not approved for use as a flooring material.
  - c. Walk-in units sold without refrigeration components must have refrigeration components installed that meet the recommended BTU rating provided by the box manufacturer for the intended ambient temperature conditions.
4. Custom Built Refrigeration Units must be designed and built by an equipment fabricator who is certified by an ANSI-certified third-party testing agency for custom fabrication under the appropriate standards. Special care should be taken if the box or cabinetry and the mechanical refrigeration equipment are not from the same manufacturer and/or installed by the same contractor. The manufacturer, contractor and/or installer shall meet all the requirements of NSF International Standards 7, 2, 51 on construction and installation of refrigeration equipment. Any refrigeration cabinetry units sold without refrigeration components (compressor and evaporation coil), must have refrigeration components installed that meet the recommended BTU rating provided by the cabinet or box manufacturer for the intended ambient temperature conditions.
  5. Other Specialty Cooled/Chilled Rooms or Cabinets: Rooms designed to operate at a reduced ambient temperature, for the purpose of processing vegetables, salads, meats, or other foods, which have doors that do not produce an air-tight seal (or otherwise allow for ventilation), whether or not the room contains refrigeration equipment, shall not be deemed a "refrigerator" for the purposes of design and construction. These rooms shall be required to have impervious materials on the walls and ceilings (such as FRP) and shall have a quarry tile/epoxy grout or sealed concrete floor with appropriate base cove treatment. In rooms where wash down will be necessary, floors should be sloped to floor drains or sinks. Floor drains and floor sinks will be allowed in such rooms, and hose-reel units are recommended. Refrigeration equipment in these rooms must be capable of maintaining a temperature of 50°F or less to take advantage of the extended cleaning time requirement provided in section 4-401.11, paragraph F, subsection 1 (16 hour cleaning interval).
  6. Rooms designed to operate at a reduced ambient temperature, for the purpose of aging / storing pre-packaged, non-potentially hazardous foods such as bottled beverages (wine rooms), which have doors that do not produce an air-tight seal (or otherwise allow for ventilation), whether or not the room contains refrigeration equipment, shall not be deemed a "refrigerator" for the purposes of design and construction. These rooms shall have smooth, non-absorbent, durable, washable wall finish treatments;



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floors shall be of a smooth, durable, non-absorbent material and finished so as to be easily cleanable. All floor/wall junctures shall be sealed and properly coved. Ceilings shall be smooth, non-absorbent and easily cleanable (fissured acoustical tile is not acceptable). Rooms so designed should not be operated below 45°F, with 50°F to 60°F being the nominal range. Rooms without mechanical refrigeration equipment installed need only conform to the requirements for standard room finishes, to include well-sealed woods for decoration purposes.

7. Specialty cabinetry designed and used for the purpose of storing such items as wine at a reduced temperature, provided there are no refrigeration components inside the cabinetry and the unit is cooled by air (not below 55°F) that is introduced by means of duct work from a remote air conditioning system, shall meet the materials, design and construction requirements for “splash zone” as provided in N.S.F.I. Standard #2, where applicable. Wood may be used in conformance with NSF/ANSI Standard #51. Final requirements may be based on an evaluation of the unit location in relationship to the rest of the food service equipment and layout.

### Equipment Installation

All equipment installation will be evaluated using the NSF/ANSI installation manual for food service equipment, as well as health district regulatory requirements.

1. All equipment, other than easily movable equipment, (on casters or light enough for easy movement), shall be installed with sufficient, unobstructed space between and behind the equipment to permit cleaning or be sealed to the wall and adjoining equipment (NOTE: Special care must be taken with refrigeration and cooking equipment to allow for proper ventilation). Flashing may be used, but must not extend further than 2 inches in the horizontal plane (flashing beyond 2 inches may be accomplished using a 45° angle down to the equipment). Equipment not on casters shall have at least 6 inches of clear space beneath, be sealed to the floor, or placed on curbs and sealed to the curb. The use of casters or 6 inch legs is preferred wherever feasible. (See item 18A and 18B.)
2. Equipment placed on tables or counters, unless readily movable shall be sealed thereto or mounted on legs or feet at least 4 inches high and so installed as to facilitate cleaning of equipment and areas adjacent thereto.
3. Water stations, ice bins, drink dispensers, sinks and similar equipment, may not be dropped into plastic laminate counter tops. (See Item #1 Equipment.) All legs and wheels/casters must meet or be equal to ANSI/NSF/ANSI Standard #2.
4. Ice Bins: Combination ice bin-glass filler units, water stations, soda dispensers, etc., are not acceptable where the ice bin opening is not adequately protected (i.e., front-to-back units, built-in micro-switch for



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slide-top lids, or unprotected units in a bad traffic flow). Drop-in cold plates, drain lines, carbonators, tubing, etc. are not acceptable in ice bins (cold plates are to be built integrally with the ice bin).

5. Shelving in food preparation, utensil washing areas and walk-in boxes are to be of approved (NSFI/ ANSI) metal construction. Shelving is to be free standing or approved by the health district for walk-in boxes and must be stainless steel, epoxy coated or otherwise impervious to rust or corrosion. Painted (or otherwise sealed) wood may be acceptable in separate DRY storage areas only, under certain circumstances with specific administrative approval.
6. Storage: Sufficient refrigerated and dry storage for foods must be provided. Poisonous and toxic materials, cleaning materials and equipment must be stored separately from foods or food contact items.
7. Hand Wash Facilities must be conveniently located within all food preparation areas, including bars. Hand sinks must be adequate in size and so located as to permit convenient and expeditious use by all employees. Each hand sink is to be a separate and distinct wall-hung unit with tempered or hot and cold running water, soap and towel dispensers and sealed to the wall, with at least 18 inches separation between the sink and any food contact surface, including the three-compartment sink (splash-guards may be used in areas with limited space). Units built into or dropped into the counters (solid surface with metal understructure only) or other equipment are acceptable only in such situation as a wall-hung sink is precluded from use, such as buffets, carving stations and island stations. In these situations, a hand-sink recessed below the counter level so as to provide side-splash protection would be required, unless an alternate design is submitted and approved. The minimum sink size is 10 x 10 x 6 with a 12 inch clearance above the sink. Automatic faucets must run at least 15 seconds.
8. Three-Compartment Sinks & Drain Boards: A three-compartment sink with integral double drain-boards is required for both food and drink establishments. A dish or glass washer cannot be a substitute for a three-compartment sink. Three compartment sinks must have tubs of equal size, with two distinct and equal sized integral drain-boards, of a size equal to each tub or larger. Sink tubs must be sized to allow for one-half immersion of the largest kitchenware to be washed. Dishwashers must have both a "dirty" and "clean" side drain-board landing of adequate size, and a pre-wash dump sink. Regulations require these drain boards to be "integral" to the dishwasher, but may be adjacent provided they are integrated as a functional unit. All dish tables and drain boards must drain to the sewer.
9. Sushi Bars & Oyster Bars: Sushi Bars, Oyster Bars and other locations that prepare and serve raw animal product for raw consumption by the consumer must have a dedicated three-compartment sink and hand sink.
10. Bar Sinks: A bar must have a three-compartment sink sized for its needs. If an establishment has both a restaurant and a bar, both of which are under the same ownership, then the three-compartment sink of



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the restaurant may be used for the bar if the three-compartment sink is within a reasonable distance of the bar; the transport pathway is inside the building and the bar is provided a glass-washer installed in lieu of the required three-compartment sink.

11. Service Sinks: At least one service sink, or one curbed cleaning sink equipped with a floor drain, directly connected to the sewer shall be provided and conveniently located for cleaning of mops or similar wet floor cleaning tools, and for the disposal of mop water and similar liquid waste. The faucets at this sink shall be protected by a backflow prevention device. This sink shall not be used for food preparation, food handling, or for hand washing. Toilets and urinals may not be used as a service sink for the disposal of mop water and similar liquid waste.
12. Other Sinks: A two-compartment or one-compartment sink may be approved by the Health Authority for purposes other than dishwashing, such as for preparation, blender stations & dump sinks. All sinks, with the exception of hand sinks and mop (janitor's) sinks must be indirectly connected to a floor sink with an approved air-gap. Hand sinks and mop (janitor's) sinks may be directly drained to an approved sewer.
13. All service sinks (preparation sinks, dump sinks, mop sinks, etc.) must be serviced with hot and cold running water under adequate pressure. Hot water at 120°F must be accessible within five minutes of actuation.
14. Drain Issues: All food service equipment drains, such as (sinks, ice bins, refrigerators, walk-ins, ice machines, etc.) shall be hard piped with an indirect drain a floor sink, with a proper air gap provided. Floor sinks must be installed flush with the finished floor and be accessible for cleaning (i.e., at least half exposed from under low-mounted or curb-mounted equipment).
15. The health district does not allow sump pumps for the purpose of draining food service equipment into the sewer, except in the case of a lift station installed outside the food establishment that has been approved by the building and sanitation authority. In such a case, an alarm system with both audio and visual signals must be installed within each food establishment serviced by the lift station. An Administrative Waiver, with permit conditions, must be obtained prior to construction for the use of a lift station. Check with your local building department for all other plumbing issues.
  - a. Vacuum evacuation systems, certified to ANSI/NSFI standards, may be installed in lieu of gravity drains to floor sinks for low volume drainage situations where floor sinks installation is impractical. Such systems must be designed to not hold liquid waste in the overhead line when not in use.
  - b. Condensate lines from refrigeration, when precluded from drainage by gravity indirect to sewer, may utilize evaporative pans, small automatic pumps, or vacuum evacuation systems.



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16. Scupper Drains: Provide a scupper drain in the bar top over each jockey pour station, plumbed with rigid piping to a floor sink with a proper air gap provided. The scupper pan must be certified to ANSI/NSF standard 2.
17. Drink Gun Installation: To be installed so that gun hoses do not come into contact with the drink ice and the gun cup holder cannot be located over the ice bin.
18. Overhead Waste Lines: Soil and waste lines cannot be installed over food preparation, storage, or equipment and utensil cleaning areas, or over food receiving areas, transport corridors or routes, unless separated by the floor immediately above or acceptable means approved by the Health Authority (i.e., metal troughs which drain to a floor sink). Vacuum evacuation system lines are not considered overhead waste lines.
19. Ceilings: Ceilings may be less than 8 feet high in food establishments, provided lighting and ventilation are adequate, and food handlers are able to walk in a fully upright position. Ceilings in kitchen/food preparation area, utensil washing areas, etc., must be smooth, non-absorbent and easily cleanable. (fissured acoustical tile is not acceptable)
20. Floors and Walls in food preparation and storage areas, toilet and dressing rooms shall be of smooth, durable, non-absorbent material and finished so as to be easily cleanable. All floor/wall junctures shall be sealed and properly coved. Floors may be tiled, poured epoxy, or sealed concrete, or other reviewed and approved finish. Wet zone floors finished in tile must use epoxy grout. All wall surfaces must be smooth, non-absorbent, durable, washable and light in color and sealed with at least an oil base enamel paint or epoxy. All wet zones area such as three-compartment sinks dishwashers, hand sinks, horizontal and vertical surfaces of inside the bar dies must be covered with an impervious material like Fiber Reinforced Paneling (F.R.P.) or stainless steel to the highest level of splash or spray. Other wall surface materials are subject to evaluation and approval prior to installation. Consideration will be given in regard wall, floor, and ceiling finish materials, colors, and patterns in customer interface areas, provided the given material is non-toxic, smooth, non-absorbent, durable, and washable.
21. Doors and other openings to the outside shall be tight-fitting and self-closing. Automatic air current devices (fly fans) are required when openings open directly into food zones such as preparation, storage and dishwashing areas. Screen doors, when used, must open outward and material shall not be less than 16 meshes per inch.
  - a. Alternate means of vermin and dust control may be considered as part of a comprehensive operational plan. Approval of such a plan requires administrative review and may be subject to permit conditions. **An Administrative Waiver, with permit conditions, must be obtained prior to construction.**
22. Employees' Toilet Facilities which are adequate and conveniently located shall be provided.



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### 23. Toilet Rooms:

- a. Toilet rooms shall be completely enclosed with a tight-fitting, self-closing door.
- b. Restroom may not enter directly into the food preparation or warewashing areas. A vestibule with two doors may be used.
- c. Restrooms must be provided with mechanical ventilation (exhaust fan).
- d. All fixtures in restrooms must be sealed to the floor or wall.
- e. Hand sinks shall have tempered or hot and cold running water and soap and towel dispensers. Hot or tempered water must be available within 20 seconds. Faucets with automatic shut-off must run for a minimum of 20 seconds.
- f. Customer restrooms, one for each gender, are required in all food establishments that offer 10 or more seats to the public for consumption of food or drink that is prepared on the premises. Outdoor seating within 25 feet of the establishment will be counted, unless it can be established that the seating is not for use by the establishment.
- g. Food establishments that are located in indoors malls or food courts that have common restroom access clauses in their lease agreements. Wait seating in take-out only establishments will not be counted seating for consumption.
- h. Establishments with nine or fewer seats must provide at least one customer restroom.
- i. Food establishments, located within theme parks and entertainment complexes, may utilize centrally located restrooms that are reasonably accessible.
- j. Customers restrooms can double as employee restrooms, but customers cannot enter the kitchen or other back-of-the-house areas to access the restrooms.

24. Employee Facilities: Adequate facilities must be provided for orderly storage of employees' clothing and personal belongings.

25. Janitor Facilities: A mop sink/can wash area must be provided and serviced with hot and cold running water, for the emptying, filling, and cleaning mop buckets and mops. Location and installation of mop sink/can wash must be made to preclude the possibility of contamination of food and preparation areas.

26. Lighting: At least 50-foot candles of light are required at a surface where food handlers are working with FOOD, ware washing, utensils, or equipment including but not limited to knives, slicers, grinders, or saws where employee safety is a factor. At least 20 foot-candles of light are required in all other areas, including dining areas during cleaning operations, equipment storage areas, dry food storage areas, sales areas, toilet rooms, all types of refrigerators, and all other non-food preparation areas. Light



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fixtures in the food preparation areas must be shielded. Special attention should be given to the lighting of areas that may have light from overhead fixtures blocked from working surfaces (e.g., under a canopy hood).

### 27. Ventilation:

- a. Adequate and sufficient exhaust and fresh air intake ventilation shall be provided in food preparation areas, food serving areas, utensil washing rooms, dressing rooms, and garbage and rubbish rooms.
- b. Ventilation hoods with adequate mechanical exhaust shall be required above all cooking equipment such as ranges, griddles, broilers, hot top ranges, deep fat fryers, barbecues, rotisseries, soup kettles, hot-water sanitizing dishwashers, etc. to effectively remove cooking odors, smoke, grease and steam. All exhaust hoods and hoods over other food zones shall be made of stainless steel and shall be certified to meet ANSI/NSFI standards. Hoods must comply with current building department and fire codes.

### 28. Utility Runs:

- a. Exposed vertical or horizontal pipes and lines should be kept to a minimum and at least six inches above the floor and a half inch from the wall and adjacent pipes to facilitate cleaning. Openings for utility lines through floors and walls and ceilings must be appropriately sealed. Syrup and beverage lines must run through cleanable, rigid conduit, and must be sealed and capped at each end to prevent the accumulation of debris therein and preclude the harborage of vermin
- b. Gas line connections for manual shut-off valves are to be installed at equipment so as to be accessible, but not in a manner that makes cleaning the area difficult or impossible. Flexible gas lines must be smooth and cleanable. These shut-off valves are not emergency shut -offs.
- c. Conduit installations in range hoods and walk-in refrigeration units should have adequate enclosed space provided for this purpose. Conduit and plumbing runs left exposed on walls must use stand-off anchors to allow for cleaning around the conduit or pipe.

### 29. Backflow Protection:

- a. Vacuum breakers are required wherever submerged inlets occur or back siphonage into the fresh water line may be possible (i.e., dishwashers, potato peelers, scrap troughs, hose bibs, janitor sinks, etc.).
- b. Reduced pressure zone (RPZ) backflow prevention assemblies are required to be installed on the potable water line(s) between the water line and the carbonator being connected to a drink machine. There shall be no copper lines or brass fittings installed between the water line(s) and



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the carbonator. The RPZ valve is to drain through a rigid pipe/drain line to a proper floor sink, or an appropriate indirect waste connection to the sewer approved by the Health Authority. The RPZ valves must be tested upon installation, and annually thereafter, by a certified back flow assembly tester.

### 30. Grease Interceptors:

- a. When required by the building department or water reclamation authority, must be installed outside the building whenever possible, but in no case can they be located where food is prepared or stored, or where utensils or tableware is washed or stored.
- b. Alternate methods of grease disposal (grease machines) may be located within food establishments, but must be so noted on the plans as submitted and be specifically approved prior to installation.

31. Garbage Can Areas: Garbage storage areas shall be enclosed and, where approved by the agency of jurisdiction, be equipped with adequate drainage to the sewer. Interior or covered garbage can washing areas shall have a drain to sewer & hot and cold water available.

32. Garbage Disposers Are Not Allowed: Refer to the District Board of Health Moratorium of June 22, 1976.

33. Garbage Collectors/Separators such as Salvajor, Somat, and Hobart, may be directly connected to the sewage system if an air gap is incorporated into the equipment.

34. Copper Lins: All copper lines shall be coated, wrapped, or otherwise protected from oxidation when located in food preparation, storage utensil washing, or other areas where incidental contact with food or food contact surfaces may occur. When copper lines are used they must be properly encapsulated with an approved material to prevent corrosion.

35. Food Shields shall be mounted to intercept a direct line between the customer's mouth and the food display area at the customer "use" position. Food shields, as installed, must comply with the construction, materials, finishes, and formula requirements established by ANSI/NSFI Standard 2.

- a. A vertical food shield shall be deemed "adequate" when it measures 5 feet from the top of the shield to the floor. A lesser vertical height may be considered when an adequate horizontal piece is added to the top of the shield.
- b. Food shields must have end caps if the end of the unit is subject to access by customers.
- c. Special Note: Metals such as brass and copper, even on properly finished and approved equipment, may be subject to corrosion and the production of toxic oxides when used for food service equipment such as food shields in the presence of excessive heat and moisture. Special care may be required to prevent oxidation from occurring and causing corrosion to build up on metal surfaces. The presence of these toxic compounds on a food shield will result in a critical



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violation during operational inspections, and may result in replacement or refurbishment of the food shield.

36. Molluscan / Crustacean / Fin Fish Tanks: 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.
  - 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. 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.
  - e. 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.
  - f. A flow meter shall be installed between the filter and the UV system.
  - g. Pumps shall meet UL Standard 1081.
  - h. 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.
  - i. The tank shall have an indicating thermometer accurate to ±2°F.
  - j. 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



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sinks shall be provided with appropriately sized mesh insert to prevent scales from clogging the drains.

- k. 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 inches off the bottom of the tank to prevent submersion of shellstock.
- l. 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.
- m. Operational plans or HACCP plans shall be provided detailing the cleaning, sanitizing and water testing schedules.
- n. 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.
- o. A validation study of the systems' operation shall be performed prior to approval by the Health Authority.
- p. An Administrative Waiver must be obtained prior to construction for the use of mulluscan or crustacean life support tanks or systems.

Please refer to the typical Food Shield Drawings for details.

\*Excerpt from the Southern Nevada Health District Regulations Governing the Sanitation of Food Establishments.