



**Benton-Franklin Health District
Environmental Health Division**

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General Food Establishment Construction Guidelines

This construction guide is designed to help you submit an accurate and complete plan for review. It does not list every requirement for new or remodeled establishments, but may help you understand the food service requirements listed in the Washington State Food Service Rules and Regulations (WAC 246-215). A copy of WAC 246-215 is available. Food establishment plan review will help ensure that your food establishment will be built or renovated according to food safety requirements and will help you establish an organized, safer, and more efficient area to prepare food.

A complete plan speeds the plan review process. In order to submit a complete plan for review, you must include:

- Proposed Menu, including anticipated number of meals served per day and number of deliveries per week
- Source of water supply and method of sewage disposal
- Manufacturer specification sheets for each piece of equipment that will be in the establishment
 - o Spec sheets in excess of 15 pages require a key to locate equipment on floor plan
- Finish schedule for all surfaces (floors, walls, ceilings, sinks, counters, etc.) in the establishment
- Floor plan drawn to scale showing the location of all equipment, plumbing, electrical, ventilation, and storage
 - o Label all food preparation sinks and food preparation counters
 - o Label all drains, the grease trap, backflow prevention devices, and location of all plumbing
 - o Label all handwashing sinks and warewashing equipment, including the hot water heater
 - o Label all cooking, hot holding, and cold holding equipment
 - o Label all chemical, equipment, garbage, employee-use, and dry-food storage areas
- Site plan showing location of business in building; location of building on site, including street names; and location of any outside equipment (grease traps, dumpsters, well, septic system, etc.)

Your set of plans must show and specify the following in detail:

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| <p>The finish materials for floors, walls, ceilings, partitions, and half walls in all food preparation areas, food storage areas, scullery, and toilet rooms must be smooth, durable, easily cleanable, water impervious, grease resistant, non-absorbent, and free from cracks and open seams. Wall surfaces in food preparation areas must be smooth for cleanability and should be light-colored to increase ability to observe and clean soiled areas. Walls and ceilings in high-use, heated, or moist areas must also be durable to withstand moisture, repeated cleaning, grease, and chemicals.</p> <p> Attach finish materials for all floors (including walk-in refrigeration units), walls, and ceilings.</p> | <p>1. FLOORS, WALLS AND CEILING [6-101; 6-201]</p> <ul style="list-style-type: none"> • Floors of all food preparation, food service, food storage, dishwashing areas, walk-in refrigeration units, restrooms, garbage areas, and vestibules must be constructed of smooth, durable material that is impervious to water, corrosion-resistant, and easily cleanable such as quarry, terrazzo, or ceramic tile, or at a minimum, commercial-grade sheet vinyl. • Carpet and other absorbent flooring is not allowed in food preparation or serving areas, refrigeration areas, food storage areas, restroom facilities, refuse storage, within 3 feet of customer self-service units, or other areas subject to moisture, flushing, or spray cleaning methods. Mats and duckboards must be removable and easily cleanable. • All junctures between walls and floors must be coved and closed to less than 1/32 of an inch or sealed. Coving should continue up the wall at least 4 inches and have a 3/8 inch or greater radius. • Acceptable finishes for walls in dry food or equipment storage areas include stainless steel, FRP (Fiberglas-reinforced plastic), ceramic tile, and gloss or semi-gloss enamel paint. • Walls in food preparation areas, restroom stalls, and other high-moisture areas must be smooth, durable, nonabsorbent, sealed, and easily cleanable. Materials such as unsealed brick, concrete block, rough plaster, grooved paneling, and wallpaper may not be used in food preparation areas because they are difficult to clean or lack durability. • Back splashes behind sinks and dishwashing equipment must be made of water-resistant material. Suitable wall coverings in these areas include sealed metal flashing, sealed FRP (Fiberglas-reinforced plastic), or ceramic tile. Painted drywall is not acceptable in high-moisture areas. The water-resistant material should extend at least 3 feet above counters and at least 6 feet above the floor. • Ceiling surfaces must also be smooth, cleanable, and nonabsorbent in food preparation and washing areas. Acceptable surfaces generally include washable vinyl tiles. Acoustical ceiling material may only be used in dining rooms and non-food preparation or handling areas. (deleted next bullet) |
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Include the water source and hot water tank size and location on the plans. Label all locations of nondrinking water (such as fire protection or air conditioning systems) on the plans.

2. WATER SUPPLY [5-101; 5-102; 5-103]

- Potable water for the needs of the food establishment must be provided from a public water system, or from a source constructed, maintained, and operated according to law.
- Adequate supply of water under pressure must be provided to all plumbing fixtures.
- All water, including hot water, must be sufficient to meet the peak water demands throughout the food establishment. The number of sinks, type and frequency of dishwashing, menu, and other factors determine hot water needs.
- A drinking water system must be flushed and disinfected before placed into service after construction, repair, contamination, or modification.
- Nondrinking water may only be used as approved by the health department and may only be used for non-food purposes, such as air conditioning, equipment cooling, fire protection, and irrigation. All piping used for nondrinking water must be clearly and durably identified.



Indicate wastewater disposal method (sewer or on-site septic system) on plan.

3. SEWAGE DISPOSAL [5-403.11]

All sewage and wastewater must be disposed into a public sewage system or an individual on-site sewage disposal system that complies with state laws and regulations. On-site sewage systems will need approval from the Benton-Franklin Health District Land Use program before use for a food establishment.

All water entering the food establishment for food or drinking purposes must be from an approved potable source and through approved conveyance materials.



Include the plumbing schedule and location of all drains and water lines on plans. Also include the size and location of the grease trap.

4. PLUMBING

- Plumbing must be sized, installed, and maintained in a safe manner and according to local, state, and federal codes.
- All utility or sewer lines must be installed so they cannot contaminate foods or food-contact surfaces.
- Floor drains must be easily accessible for maintenance and cleaning and be equipped with proper strainers.
- Floor sinks must be properly placed so that all equipment with liquid waste is properly drained. All floor sinks must be readily accessible for inspection, cleaning, and maintenance. They are to be flush with the floor surface.
- In order to prevent blockage of the sewer system due to accumulated grease and oils from a food establishment, many wastewater treatment agencies or city building departments require the installation of grease traps. If installed, grease traps must be easily accessible for cleaning and maintenance (recessed flush to the floor rather than above the floor level).

Backflow prevention devices or methods are necessary to protect the public water system from backsiphonage of wastewater from the establishment. Backflow prevention also helps protect the establishment from the backflow of sewage into warewashing sinks (such as 2- and 3-compartment) food prep sinks, ice machines, beverage dispensers, espresso machines, and similar types of equipment. Backflow prevention devices must meet ASSE standards.



List all types and label locations of backflow prevention devices or methods.

5. BACKFLOW PREVENTION [5-202.13-14; 5-203.14-15; 5-402.11]

- The supply lines or fittings for every plumbing fixture must be installed so as to prevent backflow. This also includes all hose bibs, ice cream dipper wells, and water supply lines to carbonators.
- Air-gapped inlets: All water inlets (such as faucets) must have an air gap between the water supply and the flood-level rim of the plumbing fixture. The air gap must be at least twice the diameter of the water supply inlet and may not be less than one inch.
- Submerged inlets: Any inlet that does not have an approved air gap is a submerged inlet and must have a vacuum breaker or other approved backflow prevention device. Common submerged inlets include faucets used with hose attachments, toilets, urinals, warewashing machines, and garbage disposals.
- Outlets: Equipment and fixtures used for the storage, preparation, and handling of food, including ice, must discharge through an indirect waste pipe by means of an air gap. Food equipment such as ice machines, espresso machines, food preparation sinks, dipper wells, refrigeration units, steam tables, ice bins, and salad bars must be indirectly drained to the waste system.



Label all food preparation areas on the plan. Include the surface finishes (such as stainless steel, solid-surface) for each area.

6. FOOD PREPARATION AREAS [3-302.11; 4-101.11; 4-301.16; 5-402.11]

- Adequate surface area must be provided for handling and preparing raw meat, fish, and poultry if animal products are served.
- Work surfaces used for food preparation must be made of stainless steel or other smooth, easily-cleanable, durable, corrosion-resistant material.
- If the menu has products that require washing produce, a food preparation sink separate from utensil washing sinks must be installed. This sink must be finished with an indirect (air-gapped) waste drain.

Conveniently-located, properly supplied handwash sinks are required in food preparation and cooking areas so the food workers may wash their hands as needed.



Label the locations of all handwashing sinks on the plan.

7. HANDWASHING FACILITY [5-202; 5-204; 5-205; 6-301]

- Handsinks are required in all food preparation areas, bar areas, toilet rooms, and warewashing areas. The number of required handsinks is based on the layout and size of the facility, number of food employees, and menu.
- All handwashing sinks:
 - Must be conveniently located and only used for handwashing;
 - Must provide water under pressure and at a temperature of at least 100°F through a mixing valve or combination faucet;
 - Must be sized to fit both hands simultaneously.
- Metered faucets must provide water for at least 15 seconds without the need to reactivate the faucet.
- Soap, single-use disposable towels, a handwash reminder sign, and a trash container must be provided at all handwashing sinks.
- All handsinks must be located to avoid contamination. If unpackaged food or clean equipment and utensils are within 18 inches of the handsink, the food or equipment must be protected from splash by use of a splash guard attached to the handsink that extends at least as high as the faucet outlet and is made of durable, cleanable, nonabsorbent material such as stainless steel or plastic.



Label the location of the designated cleaning area and mop sink on the plans.

8. UTILITY OR MOP SINK [5-203.13; 6-501.113]

- At least one mop sink or curbed cleaning facility with a floor drain must be provided for cleaning mops or the disposal of similar liquid wastes.
- A designated area is required for the proper storage and air-drying of mops, brooms, and other cleaning equipment.

Properly designed, adequately-stocked, accessible, and maintained restrooms must be available at all times for employees.



Indicate the location and surface finishes of all restrooms in the facility.

9. RESTROOMS [5-203.12; 6-202.14]

- At least one restroom is required for employee use. Additional toilet facilities may be required by national, state, or municipal building codes.
- If customer seating is available, restrooms must be provided for customers. Public access to the restrooms may not be through food preparation areas or areas where unpackaged foods are stored.
- Restrooms must be provided with tight fitting, self-closing doors, adequate forced-air ventilation, trash receptacles, and approved handwashing sinks.

Adequate levels of shielded light are essential in food preparation areas to protect the wholesomeness of food, ensure the adequacy of cleanup operations, and to reduce accidental injury to the food worker.

Note: the lighting guidelines for walk-ins are minimums, this department highly recommends brighter lighting.

10. LIGHTING [6-202.11; 6-303.11]

- All lights must be shielded, coated, or otherwise shatter-resistant in areas where there is exposed food, clean equipment, utensils, linens, or unwrapped single-use articles.
- Adequate artificial lighting must be provided in accordance with the following minimum requirements, measured at a distance of 30 inches above the floor, or on the actual work surface:
 - 50 foot-candles (540 lux)**
 - In all food preparation and areas with knife or machinery use
 - 20 foot candles (220 lux)**
 - In consumer self-service areas and inside lighted equipment including reach-in and under-counter refrigerators;
 - In areas used for handwashing, warewashing, equipment and utensil storage and in toilet rooms.
 - 10 foot candles (110 lux)**
 - In walk-in refrigeration units and dry food storage areas;
 - In other areas and rooms during periods of cleaning.

All display cases, counters, shelves, tables, refrigeration, sinks, utensils, grills, griddles, fryers, ice machines, steam tables, slicers, grinders, food processors and other equipment used in connection with the preparation, service, and display of food must be made of non-toxic materials and be constructed and installed to be easy to clean and maintain.



Include the specifications of all pieces of equipment and note location of equipment on the plans.

11. EQUIPMENT [4-401; 4-402; 4-204]

- Equipment and utensils must be designed and constructed of non-toxic, durable materials that are safe, corrosion-resistant, nonabsorbent, easily cleanable, and able to withstand repeated washing and sanitizing. Equipment must be ANSI-certified (such as NSF) when appropriate.
- Table-mounted equipment that is not easily movable must be sealed to the counter or elevated at least 4 inches. Floor-mounted food equipment that is not easily movable or on casters must be sealed to the floor or elevated on wheels or legs with a minimum height of 6 inches. This also includes dry storage shelving and shelving located in walk-in refrigerators and freezers.
- Wood and natural wicker may not be used as a food-contact surface, except close-grained hard wood may be used for items such as cutting blocks, boards, baker's tables, rolling pins, or salad bowls.
- Equipment may not be located in toilet rooms, garbage storage areas, under unshielded sewer or water lines, or in other areas with potential sources of contamination.
- Soft drink machines for self-service and refilling must be designed to prevent contact with the lip-contact surface of glasses or cups.
- Beverage tubing and cold-plate beverage cooling devices must not be installed in contact with stored ice that is intended for consumption.
- A mechanical washer and dryer must be provided if linens (other than wiping cloths) are washed on site.

12. VENTILATION, HOODS AND DUCTS [4-202.18; 4-204.11; 4-301.14; 6-304.11]

Hood exhaust systems are required to remove moisture and cooking by-products (smoke, steam, grease, vapors, and heat). Insufficient removal of by-products and moisture may lead to flammability, cleanability, or contamination issues.



Note the location of ventilation units on the plans. Include the mechanical specifications.

- Ventilation for cooking equipment and toilet rooms must be designed and installed in accordance with mechanical and fire codes.
- Ventilation hood systems and devices must be installed in sufficient number and capacity above heat, grease, or moisture generating equipment such as ranges, ovens, deep fat fryers, barbecues, rotisseries, and high temperature warewashing machines to prevent grease, condensation, smoke, or noxious odors from collecting in the food establishment.
 - A type 1 hood is for collecting and removing grease and smoke. These systems have approved grease filters or grease extractors.
 - A type 2 hood is a general kitchen hood for collecting and removing steam, vapors, heat, and odors.
- All rooms must have sufficient make-up air and exhaust ventilation to keep them free of excessive heat, steam, condensation, vapors, odors, smoke, and fumes.
- Filters or other grease extracting equipment must be designed to be readily removable for cleaning and replacement, if not designed to be cleaned in place.
- Fire suppression requirements are regulated by the fire marshal.

13. COOKING AND HOT FOOD STORAGE OR DISPLAY



Include the location and specifications of all cooking and hot holding equipment on the plan.

- All cooking equipment must be constructed to be safe, durable, and easily cleanable.
- Reheating equipment must be able to rapidly reheat potentially hazardous foods to 165 F.
- All hot storage or display facilities must:
 - Be capable of maintaining hot food at an internal temperature of 140°F or above; and
 - Be provided with a thermometer accurate to plus or minus 3°F.
- If thin meats such as filets, chicken patties, hot dogs, hamburgers are prepared, a thin probe thermometer accurate to plus or minus 2°F must be available for measuring the internal temperature of the product.

14. REFRIGERATION [4-203.12; 4-204.112; 4-205.110]

Adequate refrigeration is an essential element in food safety. In order to quickly and safely cool potentially hazardous foods, and to store foods for extended periods of time, refrigeration equipment must be available in sufficient quality with enough storage space. **Domestic-type refrigeration units are not acceptable** in food establishments because they do not have sufficient capacity, are not easily cleanable, and do not withstand the usage associated with a commercial food establishment.



Note the location of all refrigerated equipment on the plans. Include the mechanical specifications for each piece of cold-holding equipment.

- **The number and type of refrigeration units required is determined by the menu, flow of operation, food handling steps (such as cooling and thawing practices), and the quantity and frequency of deliveries.**
- All refrigeration units must:
 - Meet standards for durability, cleanability, and safety;
 - Be capable of maintaining cold food to an internal temperature of 41 F or below when used for potentially hazardous foods;
 - Be provided with a thermometer, accurate to plus or minus 3°F;
- Shelving must be smooth, nonabsorbent, easily cleanable, and allow air flow. Wood or foil-covered shelving is not acceptable.
- The interiors of refrigerated units must be smooth, nonabsorbent, and easily cleanable; all joints must be sealed.
- Condensate water from refrigeration units must be drained with an air gap to an evaporator pan or floor drain. Floor drains may not be located inside of a walk-in refrigeration unit.
- Ice machines must be constructed and placed so they are easy to clean. Ice melt must drain through an air gap into an immediately adjacent floor sink.
- Walk in refrigerators may be required when there is a need for long term storage of potentially hazardous foods or when the menu includes foods that are cooled, such as pasta salads, soups, roasts, etc.
- Reach-in refrigerators are designed for short-term storage of potentially hazardous foods and should not be used to cool hot potentially hazardous foods.
- Refrigerated worktables are to provide easy access of foods during assembly. They are not to be used for long-term storage or for cooling of hot potentially hazardous food.

15. STORAGE

Food storage areas must be constructed so that food and equipment are stored off the floor and protected from potential sources of contamination.



Include the dimensions and locations of storage rooms on the plans. Include the type (painted wood, metal) and square footage of shelving.

- Food, clean utensils and equipment, linens, and single-service articles must be stored at least six inches above the floor and may not be stored in restrooms, areas used for garbage storage, or in other areas with potential contamination.
- All chemicals and cleaning equipment must be stored away from food and food-contact equipment storage.
- All exposed surfaces of cabinetry and shelving must be finished with a smooth, nonabsorbent, corrosion-resistant, easily cleanable surface.
- Shelving over sinks or near water sources must be made from water-impervious materials, such as metal.
- The size of storage area required is determined by the amount of equipment, the menu, and the frequency of deliveries.

16. CUSTOMER SELF SERVICE [3-306.11; 3-306.13]



Label the location of all customer self-service areas such as buffets, salad bars, and bulk food dispensers on the plans.

- Self-service displays of unpackaged foods or utensils must be protected from contamination from the customer.
- Adequate sneeze shields must be installed at all displays of unpackaged foods accessible for service by the customer.
- Ready-to-eat unpackaged bulk foods, such as unwrapped candies, shelled nuts, and raisins, must have consumer access points no lower than 30 inches above the floor surface.

A properly sized and supplied 3-compartment sink is required to safely wash multi-use kitchen utensils, food preparation equipment, servingware, and related utensils.



Label the location of the dishwashing sinks and machines on the plans. Include the mechanical specifications for all warewashing equipment.

17. DISHWASHING FACILITIES [4-204; 4-301; 4-501.112]

- **All facilities must have a three compartment sink installed that is able to fit the largest utensil used in the establishment.** The sink:
 - Must be smooth, easily cleanable, nonabsorbent, and durable;
 - Must have rounded (coved) corners, be smooth, and have no welded seams;
 - Must have self-draining drain boards at each side of the 3-compartment sink to accommodate soiled and clean items. Each drainboard should be equal to or bigger than the largest sink compartment;
 - Must be indirectly drained.
- Dishwashing machines:
 - If supplied, a dishwasher:
 - Must be NSF certified or equivalent with an appropriate data information plate;
 - Must be air-gapped (or other approved cross-connection protection method) to the waste drain.
 - Chemical Sanitization: Dishwashing machines that use a *chemical* sanitizer must be equipped with a device that audibly or visually indicates when more sanitizer needs to be added. Sanitizing testing materials (test strips) to adequately measure the chemical sanitizer must be available and used.
 - High Temp Sanitization: Dishwashing machines that use a *hot water* sanitizing step must have a booster heater, or be connected to an approved hot water recirculating system that is capable of maintaining the rinse water at 165°F for stationary rack systems, and 180°F for all other machines. Hot water sanitizing machines must have an accurate pressure gauge and thermometer to indicate proper water flow pressures and temperatures. Unless required by another agency, high temperature dish machines should not flow into the grease interceptor.
- If installed, garbage disposals should be installed in drainboards to ensure that the dish sink is continuously available for dishwashing. The drainboard must be lengthened to accommodate the disposal unit. Some municipalities prohibit the installation of garbage disposals; check with the building department.



Label the location of all doors and windows that open to the outside.

18. OUTER OPENINGS [6-202.15]

- Windows or doors must be kept closed or must be protected against the entry of insects and rodents by sixteen mesh to one inch screens, properly designed air curtains, or other effective means.
- Outer opening doors must be equipped with adequate self closing devices and vermin-resistant thresholds.
- Openings to the establishment to the outdoors must be protected against the entry of vermin by filling or closing holes and other gaps along floors, walls, and ceilings.



Include the location of the outdoor refuse area on the site plan.

19. GARBAGE AND REFUSE [5-501]

- Receptacles for refuse, recyclables, returnables and materials containing food residue must be durable, cleanable, insect and rodent resistant, leak proof, and nonabsorbent.
- Receptacles used outside the food service establishment must be designed and constructed to have tight-fitting lids, doors or covers. The outdoor storage surface for refuse must be constructed of nonabsorbent material such as concrete or asphalt and must be smooth, durable, and sloped to drain.
- Garbage and refuse must be located away from food, equipment, utensils, linens, single-use articles, and must be maintained so that a public health hazard or nuisance is not created.
- Ideally, outdoor garbage receptacles should be located near a hose bib with hot water to facilitate periodic cleaning and should drain to the grease interceptor. Contact the building department to see if this is an option in your area.



If you plan to serve or deliver food off-site, include quantities and material specifications for all transportation and temperature control equipment. Also include plans and equipment used for handwashing availability.

20. DELIVERY OR CATERING

- Containers and temperature-control equipment of adequate quantity and construction, such as commercial, insulated carriers, must be available to safely transport potentially hazardous foods off site.
- Electric hot-holding equipment must be used to maintain proper temperatures of hot potentially hazardous foods off site. Chafing dishes with canned heat may only be used for indoor events lasting less than 4 hours.
- Mechanical cold-holding units, or ice, must be available to maintain the proper temperature of cold potentially hazardous foods.
- Transportation vehicles must be adequate in size and repair to transport foods without contamination and with minimal time in transit.
- Handwashing units must be available for offsite food preparation or service.
- A proper Consumer Advisory is required for all animal products that are served raw or undercooked.



Note the location of employee areas on the plan review.

21. EMPLOYEE AREAS [6-305.11]

- Lockers or other suitable facilities away from food preparation areas must be provided for the storage of employee possessions.
- Dressing areas must be provided in the establishment if the employees regularly change their clothes in the establishment.
- A separate area away from food preparation and warewashing areas should be designated if employees are not allowed to eat in the dining room.

22. OTHER

- Facilities that serve raw or undercooked animal products are required to provide a proper Consumer Advisory at the point of order (menu, table-tent, sandwich board, or other device).
- Certain food handling procedures (such as packaging, preserving, smoking) or menu items (such as fresh molluscan shellfish) require additional procedures and equipment.
- Other requirements may be applicable for your specific facility. Please check with all relevant licensing and regulatory agencies if you have any questions.

Sample Layout

The Onion and Chive

Soups, salads, and sandwiches served fresh

EQUIPMENT SCHEDULE

1. Mop Sink
2. Hot Water Heater*
3. Dry Storage (10x12x8')*
4. Walk-in Refrigerator (10x12x8')*
5. Three-Compartment Sink*
6. High-Temperature Dishwasher*
7. Handwashing Sinks
8. Stainless Steel Food Preparation Counter
9. Vegetable Prep Sink (24x24x24")*
10. Ice Machine*
11. Two-Door Refrigerator*
12. Sandwich Prep Table*
13. Six Burner Stove with Type 1 Hood*
14. Dump Sink and Fountain Drinks
15. Salad Bar*
16. Refuse Area

*Mechanical and/or Size Specifications Attached

FINISH SCHEDULE

Floors:

- Kitchen: Quarry Tile
- Walk-In: Quarry Tile
- Dry Storage: Quarry Tile
- Dining: Ceramic Tile
- Refuse: Sealed Concrete
- Mop Closet: Ceramic Tile
- Customer Self-service: Ceramic Tile

Walls:

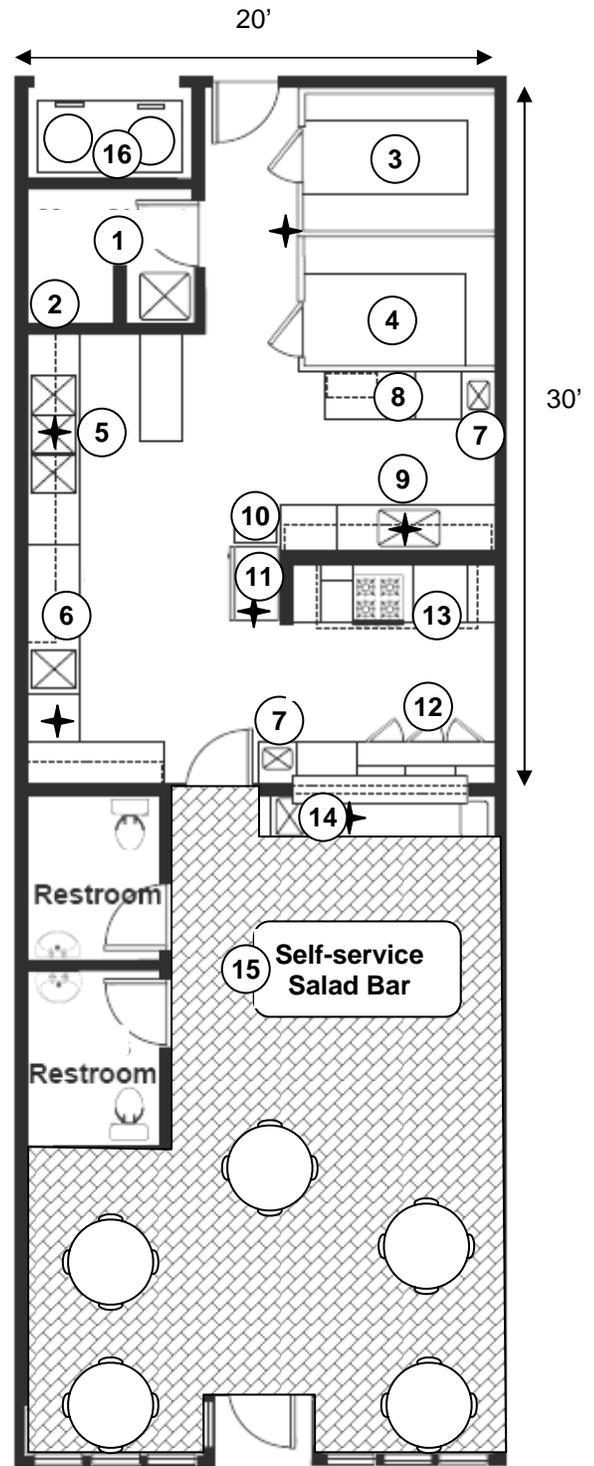
- Kitchen: Painted Wallboard with Sealed FRP 6' from floor
- Cookline: Stainless Steel
- Warewashing: Sealed FRP
- Handwashing Areas: Sealed FRP
- Dry Storage: Painted Wallboard
- Walk-in: Stainless Steel
- Mop Closet: Sealed FRP

Ceiling:

- Kitchen: Wallboard with Enamel Paint
- Dining: Suspended Acoustical Tile
- Restroom: Suspended Acoustical Tile
- Walk-in: Stainless Steel

Counters:

- Food Prep Area: Stainless Steel
- Warewashing Area: Stainless Steel
- Fountain Drinks Customer Service: Ceramic Tile



★ Floor Sinks/Indirect Drains

This is a sample layout. Actual plans must be drawn to scale and include all equipment in your establishment.