

Wholesale Food Processing Construction Guide



Guidelines for Contruction or Remodeleing Wholesale Food Processing Plants

(800) 442-2283
ehs.sbcounty.gov



Public Health
Environmental Health Services

CONSTRUCTION GUIDE

TO BUILD IT RIGHT

These guidelines are intended to assist the contractor, designer, or owner in the development of plans when constructing or remodeling a food processing plant in the County of San Bernardino. A separate guide is available for wholesale food facilities which will handle only prepackaged food. Please contact us if you are unsure about your particular type of facility. The reference materials used in the development of this booklet include the Building, Fire, Mechanical codes or are part of the Good Manufacturing Practices State and Federal food safety laws and regulations.

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TABLE OF CONTENTS

Page Number

Plan Submission and Review Process.....1
Information Required For Plan Submittal.....2
Field Construction Inspections3

GENERAL CONSTRUCTION AND EQUIPMENT REQUIREMENTS

1. Floors4
2. Walls and Ceilings5
3. Conduit / Pipelines.....6
4. Exhaust Hoods and Ducts6
5. Refrigeration / Freezers7
6. Ice Machines8
7. Floor Sinks8
8. Utensil Sinks9
9. Dish Washing machines.....9
10. Garbage Disposals10
11. Food / Vegetable Preparation Sinks10
12. Hand washing sinks10
13. Janitorial Sink and Supplies.....11
14. Water Heater11
15. Window Screens11
16. Doors.....12
17. Warehouse/Storage Facilities.....12
18. Restrooms13
19. Employee Change Rooms.....13
20. Lightning.....13
21. Garbage and Trash Areas13
22. Equipment.....14
23. Water.....14
24. Backflow Prevention14
25. Sewage Disposal/Grease Interceptors14

Appendix

| | |
|---|-----------|
| Appendix 1: Sample Equipment | 15 |
| Appendix 2: Sample Floor Plan Schedule | 16 |
| Appendix 3: Sample Finish Schedule | 17 |
| Appendix 4: Guidelines for Sizing Hot Water Heaters..... | 18 |



PLAN SUBMISSION AND REVIEW PROCESS

Plan approval must be obtained from the County of San Bernardino, Division of Environmental Health Services (DEHS) before constructing, altering, converting or remodeling any building used as a food facility. ("Remodel" means construction, building, or repair to the food facility that requires a permit from the local building authority). The following is required to process and obtain approval to build or remodel a food facility.

PLAN SUBMISSION

1. Submit three (3) sets of detailed plans and specifications, complete an application for Food Service Plan Review and pay the required plan check fees. Proposed food facilities located in County (unincorporated) areas require five (5) sets of identical plans and specifications when submitted.

Or

An application and a set of digital plans in PDF format may be submitted via email to EHS.CustomerService@dph.sbcounty.gov. Plan check fee(s) must be paid online via the EHS Portal upon confirmation that DEHS has received the digital plans. Visit our website for improvement updates.

2. The plans must include sufficient information to demonstrate compliance with the California Health and Safety Code in order to be approved.
3. Plans may be prepared by an architect, draftsman, consultant, contractor or owner. All plans must be drawn to a minimum scale of 1/4" per foot for Public Pools and 1" per foot for Spa pools in a professional manner encompassing all applicable requirements of this construction guide.
4. Plans will be approved or rejected within twenty (20) working days after receipt and the applicant will be notified. Rejected plans (plans that are incomplete, or require significant change) will have two (2) sets returned for revision. Three (3) complete sets must again be submitted for review or one (1) electronic set before approval will be granted; no additional fee is required.
5. Upon approval, two (2) sets of plans will be returned to the applicant, and the third (3rd) set will be kept on file until construction has been completed. An approved set of plans must be maintained at the construction site until the final inspection has been made.
6. Any changes to DEHS approved plans require additional review and approval. Application and fee may apply.
7. Before beginning construction, a building permit must be obtained from the appropriate Department of Building and Safety. (By law, building permits for pool facilities are not to be issued until plan approval has been obtained from DEHS.)

NOTE: An approved plan is valid for two (2) years (five [5] years for schools and institutions). After such time, the plan is VOID.

INFORMATION REQUIRED FOR PLAN SUBMITTAL

The plans shall show and specify in detail the following on the plan and/or accompanying paperwork:

Provide the exact name and address of the food facility, the name, telephone number and email address of the owner, contractor and contact person.

Plans shall be drawn to scale, e.g., minimum 1/4" = 1 foot using non-erasable ink or print (no pencil), and shall include:

- A site plan showing the proposed location of a separate impervious area for garbage cans/bins, with approved drainage. The site plan should also show the spatial relationship between the food facility and any adjacent buildings.
- Floor plan of entire food facility, including but not limited to food preparation and storage areas, warewashing area, walk-in coolers, janitorial areas, toilets, dressing room, break rooms, storage, garbage and trash areas, etc., including all interior and exterior doors. Location of the manager's or chef's office, if present, must be shown. Spaces such as employee dressing rooms or food storage areas cannot be used for office space. Include the total square footage of the facility.
- Complete equipment layout and equipment schedule, listing type, make and model numbers of all equipment. (Supplemental II and III.) Elevations of equipment layout are recommended.
- Complete plumbing layout showing water lines, hot water heater, sewer lines, floor drains, floor sinks, vents, cleanouts, grease interceptor, grease trap, etc.
- Electrical layout including lighting. Location of electrical panel(s) must be shown.
- Complete finish schedule for the floors, cove base, walls, and ceilings that indicates the type of material, color, and the surface finish (Supplemental IV). Samples may be required.
- Complete Commercial Hood/Mechanical Exhaust Data Sheet for each exhaust hood. Indicate type of exhaust hood, calculations, etc. Provide hood and make-up air elevations with specifications including duct construction and clearances. If the hood is a listed hood (manufactured and tested by UL or ETL), submit the manufacturers specifications (See Supplemental V and VI).
- A complete description of the food(s) to be processed and a brief overview of the manufacturing process to be utilized; product flow.

NOTES:

If project is a remodel of an existing food facility, clearly indicate the extent and square footage of the remodel. Include a layout of the existing facility, as is prior to the remodel.

State on the plans whether the food facility is served by a Public Water System or individual water wells.

- If water wells are to be the source of potable water, contact Environmental Health Services, Water/Waste Water Program for water supply permit requirements at (800) 442-2283.

State on the plans whether the food facility is served by a sewer district or by an on-site sewage disposal system.

- If an on-site sewage disposal system is to be installed, approval must be obtained from San Bernardino County Environmental Health Services Water and Waste Management/LEA section, at (800) 442-2283.
- If an onsite sewage disposal system is existing, a completed septic certification form signed by an A, B, or C -42 contractor is required.

FIELD CONSTRUCTION INSPECTIONS

Request for inspections should be made at least 5 working days in advance. Contact DEHS to schedule an inspection. The construction of the food facility must conform to the latest set of DEHS approved plans.

✓ **PRELIMINARY (FINISHES)**

After finished surface materials have been installed (i.e. floors, cove base, walls and ceiling) with plumbing, rough ventilation, and prior to equipment installation.

✓ **CONSTRUCTION (EQUIPMENT)**

Upon installation of 80-100% of all equipment, and any corrections listed on the Preliminary Inspection Report.

✓ **FINAL**

Upon completion of all construction, including all previous corrections; permanent utilities (electric, gas, potable water, sewage disposal) must be provided at time of final inspection. Hot water of at least 100°F must be provided. All equipment must be operational (refrigeration must be at proper temperature of 41°F or below with a thermometer present).

When more than three (3) inspections are necessary to approve the facility to operate, additional fees may apply.

The owner/operator will receive an application for an annual Environmental Health Permit at the time of the equipment construction inspection. This application along with applicable permit fees, are due at the time of final inspection. Food should not be stocked nor prepared until specific authorization is given.

Final construction must be approved by DEHS prior to the issuance of a health permit and the opening of a new food facility or the use of remodeled areas.

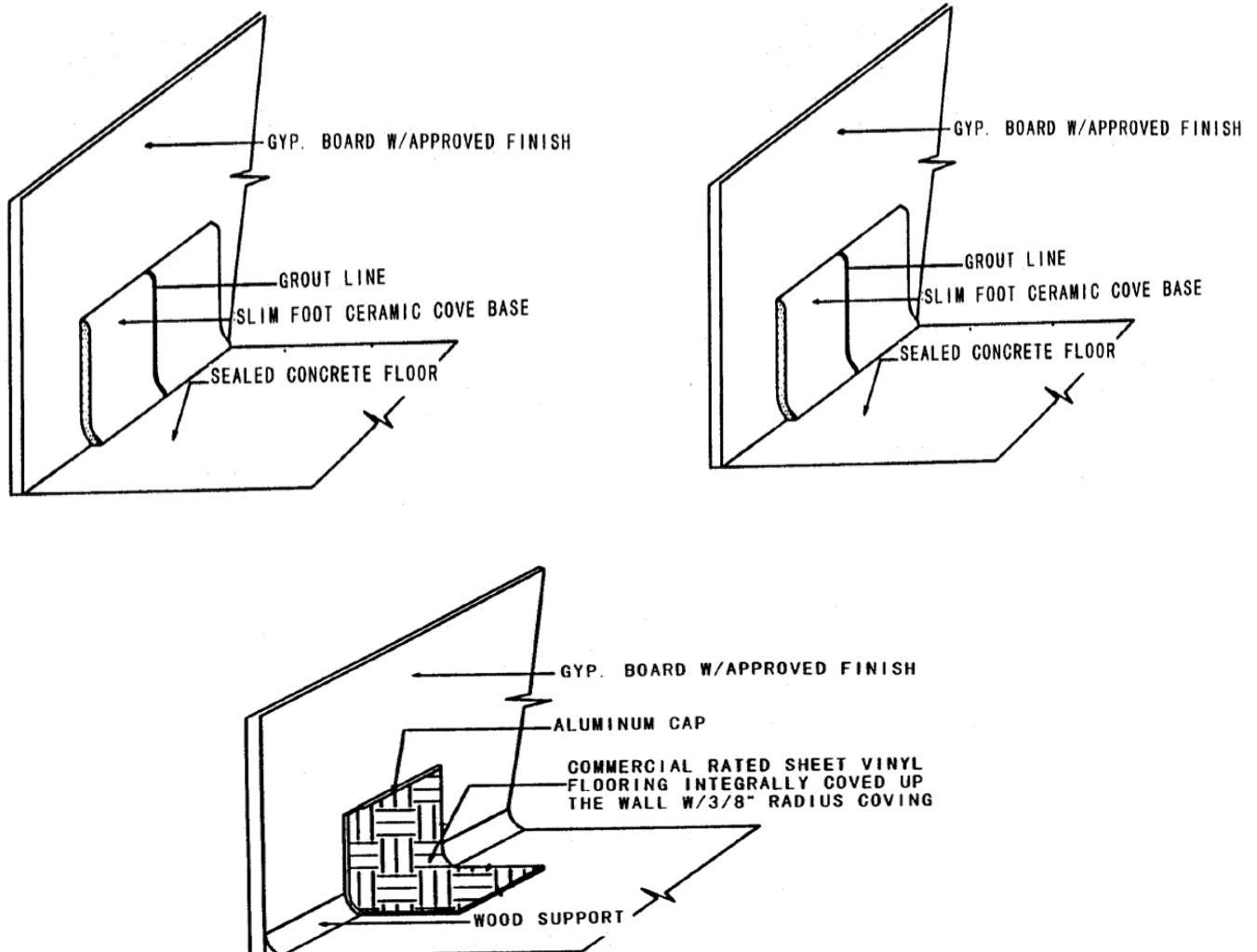
Food should not be stocked or prepared until specific authorization is given by DEHS.

GENERAL CONSTRUCTION AND EQUIPMENT REQUIREMENTS

1. FLOORS

Floors in food facilities shall be durable, smooth and impervious to water, grease, acid, and of easily cleanable construction in areas where food is prepared/processed, packaged, dispensed, where any utensil is washed, walk-in coolers, refrigerated rooms, janitorial areas, restrooms. Base cove shall be an approved type that continues up the wall or toe-kicks on counters, at least four (4) inches, in a seamless manner, forming a 3/8 inch minimum radius cove as an integral unit. Vinyl/rubber topset base is acceptable in limited circumstances.

- a. Quarry tile, ceramic tile, commercially approved sheet vinyl (with a minimal wear layer thickness of 0.055 inch) or a commercially-applied seamless troweled epoxy floor is acceptable.
- b. Concrete floors are to be sealed with a seamless troweled epoxy floor system, or a USDA approved penetrating sealer, which is nonabsorbent, grease and acid resistant. Non-approved sealers (like Polyurethane) and epoxy paints (i.e. any form of garage floor paints available at Home Stores) are not acceptable.
- c. Floor drains are required in floors that are water-flushed for cleaning where pressure spray methods for cleaning equipment are used. Trench drains may be used in doorways or when the amount of water used for cleaning will be excessive.



NOTE: This section shall not apply to the warehouse areas used for storing prepackaged food product packaging materials or non-used equipment

2. WALLS AND CEILINGS

The walls and ceilings of all rooms including food preparation or processing rooms, walk-in refrigerators, equipment or utensil washing areas, toilet rooms, refuse areas, shall be of a durable, smooth, nonabsorbent, light colored, and washable surface. For purposes of this chapter, light-colored shall mean having a light reflectance value of 70 percent or greater surface (e.g. gloss or semi-gloss enamel paint, epoxy paint, FRP, stainless steel, ceramic tile or other approved materials and finishes).

WALLS

- a. Wall surface materials are subject to evaluation and may require submission of samples.
- b. All walls behind sinks, utensil washers, or other areas exposed to water, must be protected with at least a 4-foot high water resistant material (e.g., FRP, stainless steel, ceramic tile or other approved material).
- c. This section shall not apply to the warehouse areas used for storing prepackaged food product packaging materials or non-used equipment .

CEILINGS

- a. Ceilings in food processing, utensil or equipment washing areas, janitorial areas, shall be smooth, non-absorbant, and have a light colored washable finish.
- b. Blown acoustical-type ceiling is not acceptable.

NOTE: Ice machines storage areas, janitorial areas, areas where floors are washed down, utensil washing areas, must comply with floor, wall and ceiling requirements.

3. CONDUIT/ PIPELINES

- a. All plumbing, electrical, and gas lines shall be concealed within the building structure as much as possible. Where this is absolutely not possible, all runs shall be at least 1/2 inch away from the walls or ceiling and at least six (6) inches off the floor.
- b. Where conduit or pipelines enter a wall, ceiling or floor, the opening around the line shall be tightly sealed.
- c. Conduit, pipe or drain lines shall not be installed across any aisle, traffic area or door opening at or near the floor surface.
- c. Multiple runs or clusters of conduit or pipelines shall be furred out and encased in an approved raceway or other sealed enclosure to prevent a vermin harborage.

4. EXHAUST HOODS AND DUCTS

Proper ventilation is a requirement of the Food Sanitation Act. Approved ventilation shall be provided throughout the establishment including toilet rooms, and dressing rooms, to keep all areas reasonably free from

excessive heat, steam, condensation, smoke, and vapor, and to provide reasonable comfort for all employees.

The following are excerpts from the Mechanical Code:

- a. Mechanical exhaust ventilation shall be required at or above all cooking equipment such as ranges, griddles, ovens, deep fat fryers, barbecues, and rotisseries to effectively remove cooking odors, smoke, steam, grease and vapors.
- b. All hoods, ducts and exhaust outlets shall be installed in accordance with the current edition of the Uniform Mechanical Code as adopted by the local building department.

A **Type I Hood** is a hood for collecting and removing grease and smoke. This hood shall be equipped with approved grease filters or grease extractors designed for that specific purpose.

A **Type II Hood** is a general hood for collecting and removing steam, vapors, heat or odors.

- a. Canopy-type hoods: The lower lip of canopy-type hoods shall not be more than seven (7) feet above the floor and shall not be more than four (4) feet above the cooking surface. The hood shall overhang or extend at a horizontal distance not less than six (6) inches beyond the outer edges of the cooking surfaces on all open sides. It shall have grease troughs and drip pans that are easily cleanable.
- b. Noncanopy-type hoods: Noncanopy-type hoods will be approved providing they are constructed to be easily cleanable and they comply with the minimum exhaust air velocity requirements. Shielding at the ends of the hood may be necessary to prevent interference from cross drafts. Make-up air: Make-up air shall be provided at least equal to that amount which is mechanically exhausted. Windows and doors shall not be used for the purpose of providing make-up air.
- c. Fire Suppression Systems may be required by local fire department codes. They shall be installed so as to allow ease of cleaning in the hood and duct systems.

NOTE: This section shall not apply to cooking equipment that has been evaluated by the State Health Department and found to produce no heat, smoke, grease or gases.

5. REFRIGERATION/FREEZERS

All refrigeration/freezer units shall be adequate in capacity to the needs of the proposed operation and shall comply with the following requirements:

- a. Be specifically constructed for commercial use . (*Domestic model refrigeration / freezer units will not be accepted.*)
- b. Be provided with an accurate, readily visible thermometer.
- c. Have shelving that is nonabsorbent and easily cleanable. (*Wood is not acceptable.*)
- d. Have smooth, nonabsorbent and easily cleanable surfaces. All joints must be sealed.
- e. Condensate waste from refrigeration/freezer units must be drained into a floor sink via legal air gap (*two times the diameter of the pipe*) or to a built in evaporation tray.
- f. Rapid cool down facilities may be required depending on the food operation.

WALK-IN REFRIGERATION UNITS /REFRIGERATED ROOMS SHALL ALSO:

- Have a coved base with a radius of at least $\frac{3}{8}$ inch at the floor/wall juncture; the floor material shall extend up to a height of at least four (4) inches on the walls. Four (4) inch approved metal topset coving with a minimum $\frac{3}{8}$ inch radius is acceptable against metal wall surfaces of walk-in refrigeration units.
- Have shelving that is at least six (6) inches off the floor with smooth, easily cleanable legs, or cantilevered from the wall for ease of cleaning. Small, easily movable, casted dollies may be used in place of a lower shelf inside a walk-in refrigeration unit.
- Have condensate waste drained into a floor sink. The floor sink should not be located inside the walk-in refrigeration unit/room.



NOTE: Floor drains, and trench drains are not permitted inside the walk-in unit unless they are indirectly connected to the sewer through a legal air gap.

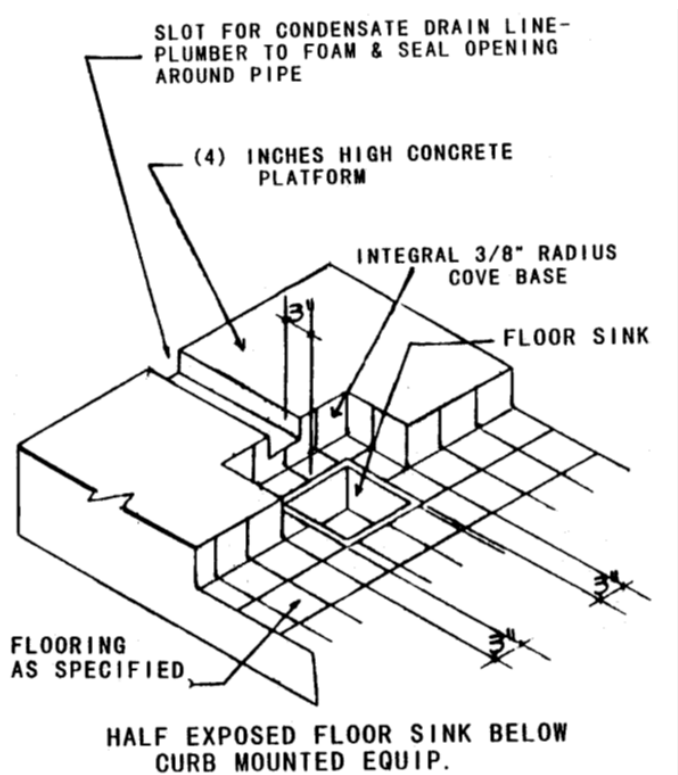
6. ICE MACHINES

All ice machines shall be located inside the food establishment in an easily cleanable, well-ventilated area, and shall be drained to a floor sink via legal air gap of at least two pipe diameters.

7. FLOOR SINKS

All condensate from equipment shall be drained by means of indirect waste pipes into a floor sink via legal air gap of at least two pipe diameters.

- Floor sinks shall be installed flush with the floor surface and have strainers and proper grates.
- Horizontal runs of drain lines shall be at least $\frac{1}{2}$ inch from the wall and six (6) inches off the floor with a $\frac{1}{4}$ " per foot slope until terminating above the overflow rim of the floor sink by at least two pipe diameters.
- Floor sinks shall be located so that they are readily accessible for inspection, cleaning and repair. The floor sink must be located within 15 feet of the drain opening of the equipment served or otherwise slope at a rate of $\frac{1}{4}$ inch per



foot.

- d. Waste lines shall not cross any aisle, traffic area or door opening at or near the floor.
- e. Waste lines, condensate lines, shall not be installed directly over food, food processing equipment, or food containers.

8. UTENSIL SINKS

Where food equipment has small, cleanable parts, or where multiservice utensils, i.e., pots, pans, etc., are utilized, provide a three (3)-compartment stainless steel sink with dual, integrally installed stainless steel drainboards to accomplish proper washing and sanitizing.

- a. The minimum compartment size shall be at least 18" x 18" x 12" deep with minimum 18" x 18" drainboards, or 16" x 20" x 12" deep with minimum 16" x 20" drainboard. The sink must otherwise be capable of accommodating the largest utensil to be washed and the drainboards shall be as large as the largest sink compartment.
- b. When a sink is installed next to a wall, a metal "backsplash" extending up the wall at least eight (8) inches shall be formed as an integral part of the sink, and sealed to the wall.
- c. In large food facilities which may contain separate sections or departments, additional three-compartment sink(s) may be required for utensil washing and sanitizing procedures in processing areas.



9. DISHWASHING MACHINES

When utensils, dishes, or equipment are machine washed, the machines shall conform or be equivalent to applicable NSF/ANSI certification standards, and shall be installed and operated in accordance with those standards. Dishwashing machines may be connected directly to the sewer immediately downstream from a floor drain or may be drained through an approved indirect connection. Dishwashing machines must have two integral stainless steel drain-boards. The drain-boards shall be sloped and drained to an approved waste receptor.

NOTE: Installation of a dishwasher does not eliminate the requirement for a 3 compartment sink.

10. GARBAGE DISPOSALS

A garbage disposal cone or pre-rinse scrap sink may be installed in a drainboard if the required drainboard is lengthened to accommodate the cone or sink.

- a. For automatic warewashing machine drainboards, a scrap sink or large disposal cone which is approximately the size of a dish rack may be built into the required drainboard if a dish rack can be properly placed over it. In this case, the space occupied by the sink or cone may be considered as part of the required drainboard space.

- b. A garbage disposal may not be installed in any sink compartment which is required for washing, rinsing, or sanitizing equipment or utensils, or the preparation of food. In order to install a garbage disposal in a sink compartment, an additional compartment is required. For example, a three-compartment sink used for washing, rinsing, and sanitizing utensils would require a fourth compartment for the installation of the garbage disposal.

11. FOOD/VEGETABLESPREPARATION SINKS

Food facilities utilizing a sink for food preparation, such as thawing, washing vegetables, etc., shall have at least one (1) one-compartment food/vegetable preparation sink, separate from utensil washing sinks, that drains to a floor sink via air gap of at least two pipe diameters. At least one attached drainboard is recommended. No handwashing or utensil washing is allowed at food preparation sinks.

12. HANDWASHING SINKS

Hand sinks shall be provided in the food preparation areas that are sufficient in number and conveniently located so as to be accessible at all times for use by food handlers. Hot and cold water through a premixing faucet is required. Handwashing sinks shall be installed so as not to contaminate food or food contact surfaces. Hands free hand wash sinks are recommended.

Soap and sanitary towels shall be provided in single-service, permanently installed dispensers at the hand sinks. When used, hand sanitizing dispensers are to be located adjacent to handwash sinks.

A separate, approved hand sink must be conveniently located in each area of a food facility which handles unpackaged food.

NOTE: Instant water heaters are highly recommended for the hand wash sinks to ensure consistent and immediate water temperature. (100°F).



13. JANITORIAL SINK AND SUPPLIES

A janitorial room, area, or cabinet, separate from any food preparation or storage area, shall be provided for the storage of cleaning equipment and supplies, such as mops, buckets, brooms and cleaning agents.

A janitorial sink shall be located within the building, in a separate janitorial room or separated from the rest of the food establishment by a solid-wall partition. The partition must be a minimum six (6) foot high, durable, smooth and an easily cleanable surface.

A one-compartment, wall-mounted janitorial sink or a floor mounted janitorial sink, or a curbed area, (properly sloped to a drain), that has hot and cold running water through a mixing faucet, with an approved backflow-prevention device, shall be installed for general cleanup activities. All curbed-area surfaces shall be smooth, impervious and of easily cleanable construction. Where duckboards or floor mats are used in the food facility, a curbed area with a drain is required for cleaning.

14. WATER HEATER

An adequate, protected, pressurized, potable supply of hot water and cold water shall be provided. The water supply shall be from a water system approved by the health officer or the local enforcement agency.

- a. Provide the make, model and input rating of the water heater on the plans.
- b. Hot water shall be supplied at a minimum temperature of at least 120°F measured from the faucet, unless otherwise specified.
- c. Handwashing facilities shall be equipped to provide warm water (100 degrees °F) under pressure for a minimum of 15 seconds through a mixing valve or combination faucet.
- d. Warewashing facilities shall be equipped to provide warm water (100 degrees °F).
- e. In sizing the water heater, the peak hourly demands for all sinks, etc., are added together to determine the minimum required recovery rate.
- f. All sinks shall be provided with hot and cold running water from a mixing faucet.

15. WINDOW SCREENS:

All openable windows, such as restroom windows, shall be screened with not less than 14 mesh screening.

16. DOORS

All dedicated delivery doors leading to the outside shall open outward and be self-closing.

Large cargo-type doors shall *not* open directly into a food preparation area.

17. WAREHOUSE / STORAGE FACILITIES

Adequate and suitable floor space should be provided for the storage of food, beverages, and related products. In addition to working storage and refrigeration storage, additional back-up storage must be provided. Working storage is considered to be cabinets over and under food handling equipment and wall mounted shelves which are located in, and used in, conjunction with food preparation areas. Reference the following to determine the minimum recommended amount of backup storage space:

- Within food facilities that have food preparation areas which total 400 square feet or less, a minimum 100 square feet of floor space shall be dedicated for back-up dry food storage. At least 32 linear feet of approved shelving units shall be installed in the 100 square feet of dedicated floor space.
- Within food facilities that have food preparation areas which total more than 400 square feet, the floor space required for back-up dry food storage shall be determined by dedicating one square foot of floor space or by dedicating a space equal to 25% of the food preparation area, whichever is greater. The quantity of shelving units to be installed in this dedicated space shall be based upon the following formula:

$$\text{Required linear footage of shelving units} = \frac{32 \times (\text{sq. ft. of preparation areas})}{400}$$

- Shelving in food processing areas shall be impervious and have smooth easily cleanable surfaces.

- Wood shelving in walk-in refrigerators or processing areas is NOT approved. Shelves installed on a wall shall have at least one (1) inch of open space between the back edge of the shelf and the wall surface, otherwise, the back edge of the shelf shall be sealed to the wall with approved silicone sealant or equivalent. The lowest shelf shall be at least six (6) inches above the floor, with a clear, unobstructed area below, or be the upper surface of a completely sealed, continuously coved base, with minimum height of four (4) inches. All shelves located below a counter or work surface shall be set back at least two (2) inches from the drip line of the surface above.

NOTE: Unobstructed, clearly delineated, space that is 12 to 18 inches between walls and stored items is recommended.

18. RESTROOMS

Toilet facilities shall be provided within each food facility convenient for the employees. (Check with local Building and Safety departments for special circumstances, such as the American Disability Act.)

The floors, walls and ceiling shall have surfaces that are smooth, nonabsorbent and easily cleanable.

Handwashing sinks shall be provided within each toilet room. The sink shall be provided with soap and sanitary towels.

19. CLOTHING CHANGE ROOMS / DESIGNATED AREAS

Provide a room, lockers or similar enclosure, separated from toilet, food storage, and food preparation areas, where employees may change and store their outer garments and personal belongings.

NOTE: Check with local Building and Safety departments for American Disability Act requirements.

20. LIGHTING

Every room and area in which food is prepared, processed or packaged, or in which utensils are cleaned, sufficient natural or artificial lighting shall be provided.

Light fixtures in areas where food is prepared, processed, stored in open containers, or packaged, or in which utensils are cleaned, shall be protected against breakage through the use of plastic shields, plastic sleeves with end caps, shatterproof bulbs, and/or other approved device.

21. GARBAGE AND TRASH AREAS

An area shall be provided for the storage and cleaning of garbage and trash containers.

- a. The walls, floor and ceiling of this room or outside area shall be constructed so as to be smooth, impervious and easily cleanable.
- b. Inside trash storage areas shall properly drain (slope 1:50) to a floor drain.
- c. Outside trash storage areas shall properly drain so as not to create a nuisance.

- d. Outside trash storage areas should be situated as far away from delivery doors as possible .

22. EQUIPMENT

All new and replacement food processing utensils and equipment shall meet or be equivalent to approved applicable sanitation standards (ANSI). In the absence of approved applicable sanitation standards, all new and replacement food processing utensils and equipment shall be approved by the Division.

- a. All counters, shelves, tables, refrigeration equipment, sinks and other equipment used in connection with the preparation and storage of food shall be made of nontoxic materials and so constructed and installed as to be easily cleaned.
- b. All equipment shall be placed on minimum six-(6) inch high metal legs, be completely sealed in position, or be on approved casters or cantilevered from the wall in an approved manner.

23. WATER

An adequate, protected, pressurized, potable water supply shall be provided to serve the facility. The water supply shall be from an approved source. Private water sources shall comply with the Division of Environmental Health Services / Water Program.

24. BACKFLOW PROTECTION

An approved backflow prevention device or approved air gap shall be properly installed upstream of any potential hazard between the potable water system and a source of contamination, i.e., all faucets, hose bibs, wash down stations, chemical pre-mixing devices, or other equipment or devices directly connected to the water supply.

25. SEWAGE DISPOSAL/GREASE INTERCEPTORS

All liquid waste, (except hazardous waste, grease, etc.), including sewage, generated by a food facility shall be disposed of in an approved manner into either a public sewer system or to an approved on-site sewage disposal system.

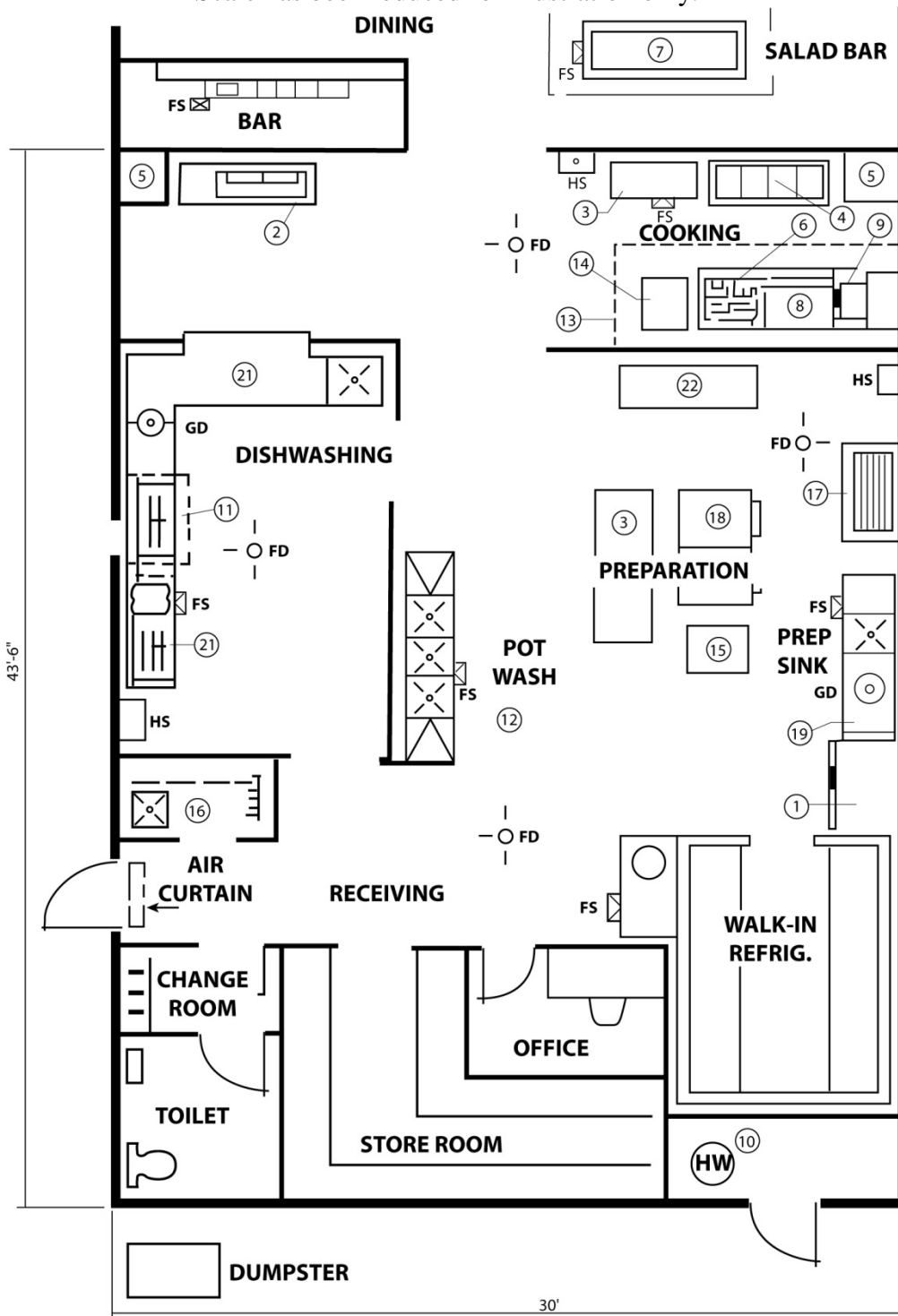
When a grease interceptor or grease trap is required by the local Building and Safety department, the unit should be installed outside the food facility in the ground. If the unit is installed inside the food facility, it shall not be installed in the food preparation area and must be flush with the floor.

Grease waste shall be stored in an approved leak proof container with a tight fitting lid. All grease waste must be removed from the premises and disposed in an approved manner.

NOTE: Check with local agencies (i.e., Building and Safety Department and Local Sewage District) for special sewerage and grease interceptor requirements.

APPENDIX 1

Scale has been reduced for illustration only.



SCALE: 1/4"=1'-0"

NOTE: FLOOR TO SLOPE TO FDs

Notes: This is not intended as a model layout but ONLY to illustrate procedure for submitting plans and data. Each piece of equipment is numbered to correspond to the listing in the Equipment Schedule in Appendix 2. Floor Drain: FD; Floor Sinks: FS; Handsinks: HS; hash lines indicate exhaust hoods are over equipment.

APPENDIX 2

| SAMPLE EQUIPMENT SCHEDULE | | | | | | | |
|---------------------------|--|---|--|--|---|--|---|
| EQUIPMENT No. | *EQUIPMENT MAKE AND MODEL | G A S C O N N E C T I O N | E L E C T R I C A L | H O T W A T E R | C O L D W A T E R | W A S T E W A T E R | COMMENTS |
| 1 | Reach-in Refrigerator BEST: Side Model EHS | | 110V 20A | | | FS | |
| 2 | Food Preparation Table ACME: Model DLM | | 110V 20A | | | | Self-contained |
| 3 | Work Table, Stainless Steel Top – ACME, Custom | | | | | | Made to dimensions supplies by General Contractor |
| 4 | Steam Table Super, MD0315 | ¾" | | | ½" | FS | Anti-siphon Valve |
| 5 | Proofing Cabinet Meier, P-C | | 110V 20A | | | | |
| 6 | Heavy Duty Range ACME, Model I.A.N. | ¾" | | | | | |
| 7 | Salad Bar Custom by General Contractor | | | | ½" | FS | Anti-siphon Valve |
| 8 | Deep Fat Fryer BEST, Type L | ½" | | | | | |
| 9 | Steam Cooker BEST, SC5 | | | | ½" | FS | Anti-siphon Valve |
| 10 | Hot Water Heater Mills G-BT155 | ¾" | | 1" | 1" | | 155,000 BTU |
| 11 | Dish machine and Hood Warford., QF-1 | | 220V | 1" | 1" | FS | High-temperature warewasher hood |
| 12 | Utensil Sink ACME, 18" x 18" x 18" F | | | ½" | ½" | 2" | |
| 13 | Hood Custom by General Contractor | | | | | | See mechanical drawing, detail |
| 14 | Bake Oven Meier, O/B | ¾" | | | | | |
| 15 | Bakers Table Custom by CONRAD | | | | | | |
| 16 | Janitor Sink ACME, STD | | | ½" | ½" | 2" | Floor Mop Sink |
| 17 | Ice Machine Frozen CDW56 | | | | ½" | 1" | |
| 18 | Freezer Forte: Side Model F | | 110V | | | | Self-contained |

*ABOVE EQUIPMENT LISTINGS ARE FICTITIOUS

APPENDIX 3

THIS IS A SAMPLE ONLY: Specific Brand Names and colors for materials should be specified to insure acceptability.

SAMPLE FINISH SCHEDULE

| | FLOOR | FLOOR BASE OR COVE | WALLS | CEILING |
|--------------------------------------|--|--|--|---|
| FOOD PREPARATION | QUARRY TILE | QUARRY TILE, UP WALL 4 INCHES 3/8" RADIUS COVE | F.R.P. | WASHABLE NON-ABSORBENT LAY-IN CEILING PANELS |
| DISHWASHING | QUARRY TILE | QUARRY TILE, AS ABOVE | F.R.P. | WASHABLE NON-ABSORBENT LAY-IN CEILING PANELS |
| STOREROOM | COMMERCIAL GRADE SHEET VINYL | CONTINUOUS WITH FLOOR UP WALL 4 INCHES WITH 3/8" RADIUS COVE | DRYWALL WITH WHITE GLOSS ENAMEL | WASHABLE NON-ABSORBENT LAY-IN CEILING PANELS |
| WAITRESS SERVICE STATION | QUARRY TILE | QUARRY TILE, AS ABOVE | GREENBOARD, 4 FT. CERAMIC WAINSCOT, LIGHT COLORED | WASHABLE NON-ABSORBENT LAY-IN CEILING PANELS |
| BAR | QUARRY TILE | QUARRY TILE, AS ABOVE | F.R.P. | WASHABLE NON-ABSORBENT LAY-IN CEILING PANELS |
| SALAD BAR | QUARRY TILE: EXTENDS 36" BEYOND TABLE ON ALL SIDES | QUARRY TILE, AS ABOVE | N.A. | LAY-IN PANELS |
| RESTROOMS | CERAMIC TILE | CONTINUOUS WITH FLOOR UP WALL 4 INCHES WITH 3/8" RADIUS COVE | GREENBOARD, 4 FT. CERAMIC WAINSCOT | WATER-RESISTANT DRYWALL, WHITE ENAMEL |
| CLEANING EQUIPMENT/ MOP EQUIPMENT | QUARRY TILE | CONTINUOUS WITH FLOOR UP WALL 4 INCHES WITH 3/8" RADIUS COVE | F.R.P. | WASHABLE NON-ABSORBENT CEILING PANELS |
| DRESSING ROOM(S) | CERAMIC TILE | CONTINUOUS WITH FLOOR UP WALL 4 INCHES WITH 3/8" RADIUS COVE | DRYWALL WITH WHITE ENAMEL | LIGHT-COLORED ENAMEL PAINTED DRYWALL |
| WALK-IN REFRIGERATOR | **SEALED SMOOTH CONCRETE | PREFABRICATED STAINLESS STEEL WALL UP WALL 4 INCHES, 3/8" RADIUS SANITARY COVE | PREFABRICATED STAINLESS STEEL | PREFABRICATED STAINLESS STEEL |

*SALAD BAR IS COVERED ON TOP AND SIDES BY AN APPROVED SNEEZE GUARD: SEE DETAIL SHEET A-4.

**SMOOTH CONCRETE IS SEALED TO BE GREASE RESISTANT WITH AN APPROVED SEALER.

APPENDIX 4

COMPUTING HOT WATER DEMANDS FOR FOOD FACILITIES

Visit www.ccdeh.com for water heater sizing guidelines.

A. Hot and cold water under pressure shall be provided through a mixing valve to each sink compartment.

| <u>1. Fixture</u> | <u># of Compartments</u> | <u>Gallons per Hour</u> |
|--------------------------------|--------------------------|-------------------------|
| Pot Sinks 18"x18" | 1 | 14 |
| Pot Sinks 18"x18" | 2 | 28 |
| Pot Sinks 18"x18" | 3 | 42 |
| 2. Vegetable sinks (food prep) | | 5 |
| 3. Mop sinks | | 15 |
| 4. Lavatories (hand sinks) | | 5 |

If any other plumbing fixtures will be installed such as bar sinks, dishwashing machines, pre-wash (dishwashing), etc., please consult the Plan Check Specialist for assistance.

Example:

| Plumbing | GPH (peak demand) |
|---------------------|-------------------|
| 3 Compartment Sink | 42 |
| Mop Sink | 15 |
| Food Prep Sink | 5 |
| <u>3 Hand Sinks</u> | <u>+ 15</u> |
| | 77 |

Factors of Formula

Weight (Wt.) of water per gal = 8.33

Temperature rise (average) i.e. 120°F - 70°F = 50°F

Thermal efficiency of natural gas = 0.75

Thermal efficiency of electricity = 0.98 (round off to 1.0 for ease of calculation)

1 Kw = 3,412 BTU's (round off to 3,400 BTU)

1. GAS HOT WATER SYSTEMS

Formula for minimum requirement

$$\frac{\text{GPH} \times \text{wt. per gal} \times \text{temp. rise}}{\text{Thermal efficiency of equipment}} = \text{BTUs}$$

$$\frac{77 \text{ GPH} \times 8.33 \times 50^\circ\text{F}}{0.75} = 42,761 \text{ BTUs}$$

2. ELECTRIC HOT WATER HEATER SYSTEMS

Formula for minimum requirement

$$\frac{\text{GPH} \times \text{wt. per gal} \times \text{temp rise}}{\text{Thermal efficiency}} \times \text{Kw conversion} = \text{Kw}$$

$$\frac{77 \times 8.33 \times 50^\circ\text{F}}{1} \times \frac{1 \text{ BTU}}{3400 \text{ Kw}} = 9.4 \text{ Kw}$$