



KENT CITY HEALTH DEPARTMENT

414 E. MAIN ST., P.O. BOX 5192, KENT, OHIO 44240 (330) 678-8109 FAX (330) 678-2082

FOOD FACILITY APPROVAL PROCEDURES

Ohio Law requires that every food operator be licensed prior to operating. Ohio Law also requires that plans for the construction or remodeling be submitted and approved by the Kent City Health Department.

Written approval, disapproval or a request for additional information will occur within **30 days** of receipt of facility plans and facility review fee. The fees for the facility review are in addition to the license fee and are available on page 4.

Please submit your completed facility plans, application, menu, and facility review fee to:

Kent City Health Department, 414 E. Main St. PO Box 5192, Kent, OH 44240

Facility review will not commence until the facility review fee has been paid.

A complete set of plans consists of the following:

- 1. Submission of all items listed on Page 2.**
- 2. A completed application for Food Facility Review Application.**
- 3. Complete and sign specification statement from the Food Facility Review Application.**

The license or permit will not be issued until all food facility requirements are completed and a pre-opening inspection shows that you are in compliance with the Ohio Uniform Food Safety Code. **Please schedule this inspection at least 10 days in advance of opening date.** A copy of the facilities review section of the Ohio Revised Code is also available at our office.

Before requesting the pre-opening inspection (for licensing) be sure that your operation has passed all your other final applicable inspections. You must submit written documentation that all of these inspections have been completed and passed before a license will be issued. A copy of the **Certificate of Occupancy** will be requested at the time of the final inspection.

The application for the license will be available at the pre-opening inspection if the inspection is successfully passed. The license fee must be paid at this time. We accept checks or money orders. Only at the health department front counter will cash or credit be accepted.

The following information must be submitted to the Kent City Health Department

A facility layout, including equipment specifications, these specifications shall be legible, be drawn reasonably to scale, and shall include:

- The type of food operation or food establishment proposed and a list of foods to be prepared and served or sold;
- The total square footage to be used for the food service operation or retail food establishment.
- The portions of the premises in which the food service operation or retail food establishment are to be conducted including entrances and exits;
- **A site plan of your property** showing the property lines and any structures that currently exist on that land and where your proposed construction or addition is to be located. This may include but not be limited to a drawing showing an arrow indicating north, adjacent street names and any easements, the distance between buildings and between buildings and property lines, the dimensions of the existing buildings and other appropriate items for your project.
- The location, number and types of plumbing fixtures, including all water supply facilities;
- A lighting plan, both natural and artificial, with the number of foot-candles indicated for critical surfaces;
- A floor plan showing the general layout of fixtures and other equipment;
- The building materials and surface finishes to be used; and
- An equipment list with equipment manufacturer's name and model numbers.

Only commercial food equipment approved by a recognized food equipment testing agency, as acceptable for use in a food service operation or retail food establishment, will be accepted as specified under rule 3717-1-04.1 (KK) of the administrative code.

The **Kent City Health Department** may place restrictions or conditions on a license limiting the types of food that may be prepared or served by the food service operation or retail food establishment based on the equipment or facilities of the food service operation or retail food establishment. Limitations shall be posted on the back of the license.

What Is My Risk Level?

Food facilities are licensed as a Risk Level I, II, III, or IV. Risk levels reflect the potential risk that a facility poses to Public Health and are based on the highest risk level activity of the food service operation/food establishment in accordance with the following criteria:

Risk level I: poses potential risk to the public in terms of sanitation, food labeling, and sources of food, storage practices, or expiration dates. Examples of risk level I activities include, but are not limited to, an operation that offers for sale or sells:

- (1) coffee, self-service fountain drinks, prepackaged non-potentially hazardous beverages;
- (2) pre-packaged refrigerated or frozen potentially hazardous foods;
- (3) pre-packaged non-potentially hazardous foods;
- (4) baby food or formula
- (5) food delivery sales operations

Risk level II: poses a higher potential risk to the public than risk level I because of hand contact or employee health concerns but minimal possibility of pathogenic growth exists. Examples of risk level II activities include, but are not limited to:

- 1) handling, heat treating, or preparing non-potentially hazardous food;
- 2) holding for sale or serving potentially hazardous food at the same proper holding temperature at which it was received;
- 3) heating individually packaged commercially processed potentially hazardous foods for immediate service;

Risk level III: poses a higher potential risk to the public than risk level II because of the following concerns: proper cooking temperatures, proper cooling procedures, proper holding temperatures, contamination issues or improper heat treatment in association with longer holding times before consumption, or processing a raw food product requiring bacterial load reduction procedures in order to sell it as ready-to-eat. Examples of risk level III activities include but are not limited to:

- (1) handling, cutting, or grinding raw meat products;
- (2) cutting or slicing ready-to-eat meats and cheeses;
- (3) assembling or cooking potentially hazardous food that is immediately served, held hot or cold, or cooled;
- (4) operating a heat treatment dispensing freezer;
- (5) reheating in individual portions only; or
- (6) heating of a product, from an intact, hermetically sealed package and holding it hot;

Risk level IV: poses a higher potential risk to the public than risk level III because of concerns associated with: handling or preparing food using a procedure with several preparation steps that includes reheating of a product or ingredient of a product where multiple temperature controls are needed to preclude bacterial growth; offering as ready-to-eat a raw potentially hazardous meat, poultry product, fish, or shellfish or a food with these raw potentially hazardous items as ingredients; using freezing as a means to achieve parasite destruction; serving a primarily high risk clientele including immuno-compromised or elderly individuals in a facility that provides either health care or assisted living; or using time in lieu of temperature as a public health control for potentially hazardous food. Examples of risk level IV activities include, but are not limited to:

- (1) reheating bulk quantities of leftover potentially hazardous food more than once every seven days; or
- (2) caterers or other similar food service operations that transport potentially hazardous food;

Risk level IV: also includes operations that perform a food handling process that is not addressed, deviates, or otherwise requires a variance for the process according to rules adopted pursuant to section 3717.05 of the revised code. These facilities will need to have a written HACCP plan for these activities. Examples of these risk level IV variance activities include, but are not limited to:

- (1) reduced oxygen packaging;
- (2) smoking for preservation

2020 FOOD SERVICE PROGRAM FEES

Risk Classification	Total License Fee
Risk Class 1 < 25,000 sq. ft.	\$255.00
Risk Class 2 < 25,000 sq. ft.	\$285.00
Risk Class 3 < 25,000 sq. ft.	\$520.00
Risk Class 4 < 25,000 sq. ft.	\$650.00
Risk Class 1 > 25,000 sq. ft.	\$365.00
Risk Class 2 > 25,000 sq. ft.	\$380.00
Risk Class 3 > 25,000 sq. ft.	\$1,300.00
Risk Class 4 > 25,000 sq. ft.	\$1,380.00
Mobile FSO/RFE	\$310.00
Vending	\$29.69
Commercial Temporary FSO/RFE	\$120.00
Non Commercial Temporary FSO/RFE	\$60.00

Late Fee: 25% of the Local Health Fee for Each Classification

Facility Review Fee: \$520

Food Safety Basics - Person-In-Charge Training Level 1

Per Person: \$20.00

Corporate Rate (10-50 students): \$200.00

ServSafe Course - Manager Certification in Food Protection - \$150

Test or Retest only - \$65

THE VALUE OF PLANNING

Why must plans and specifications for a new or extensively altered food operation be submitted?

1. Planning and review allow taking steps to protect the customers' health by insuring compliance with sanitary requirements.
2. Well thought-out detailed plans and specifications result in orderly, less expensive construction and preventing errors, which might later result in additional cost to the operator.
3. Plans permit study of an efficient and economical operation.
4. Ohio Uniform Food Safety Code requires review and approval **BEFORE** construction begins to prevent any misunderstandings by the operator as to what is required.

In this guide, you will find valuable information on planning the operation. Please notice that this is a guide, not a how-to-do-it booklet. Read it carefully and refer to it often for it will help you protect the health of your patrons.

Those who will find this information helpful are:

Food Service/Food Establishment Operators and Owners/Investors
Food Service/Food Establishment Consultants
Architects/Engineers
Contractors/Builders
Equipment Dealers
Others engaged in layout, design, and construction of Food Service/Food Establishment operations.

PRELIMINARY PLANNING

Before doing "close-up" planning, take a look at the overall operation. All new Food Service/Food Establishment operations require many decisions before undertaking the opening of a new operation, the expansion of an existing facility, or the reopening of a closed restaurant. Each decision deserves careful study to minimize potential problems.

Some of the more important factors are:

- * Type of Project: Individual or Franchise
- * Basis for Estimating Cost: Building and Equipment Requirements
- * Site Selection:
 - Fill or Excavation
 - Water Supply and Sewage Disposal
 - Surface Water Drainage
- * Visibility/Traffic Counts/Future Highways
- * Market Potential and Competition
- * Population and Income Level
- * Accessibility and Parking/Location on Block
- * Decor and Appointments
- * Flexibility and Provisions for Future Expansion
- * Pattern of Food Flow
- * Built-in Sanitation

Guidelines for the size of kitchen and dining room vary greatly depending on many different factors, but food design consultants commonly allot the following space requirements for table service operations.

The total operation has 15 to 30 square feet per seat.

Dining room is 2/3 of the total operation square footage.

1. Crowded - 10 to 12 square feet per seat
2. Average - 12 to 15 square feet per seat
3. Deluxe - 15 to 18 square feet per seat

Kitchen (back of the house) is 1/3 of total operation or 1/2 of dining room

Example #1:

You have a 3,000 square foot building.

The kitchen size is 3,000 times 1/3 or 1,000 square feet.

The dining room size is 3,000 times 2/3 or 2,000 square feet.

The seating capacity equals 2,000 divided by (10-18) or 110 to 200 seats.

Example #2:

You want to have average table service with 120 seats.

Dining room equals 120 X 15 (square feet per seat) = 1800 square feet

Kitchen size equals 1800 X 1/2 = 900 square feet

Total building size (dining and kitchen added together) = 2700 square feet

WHO MUST RECEIVE PLANS AND SPECIFICATIONS

Each FSO/RFE operator is responsible for submitting all plans and specifications. Of course, in practice, those assisting an operator often submit them on behalf of the operator.

Approval of both plans and specifications is necessary before equipment is ordered and prior to commencing construction. With plan approval many pitfalls will be avoided, thus preventing costly changes after completion of construction and installation of equipment. By law, the health department must take action in writing within 30 days after receiving plans and specifications.

TYPE OF PLANS	WHERE TO SUBMIT
Food Service/Retail Food Establishment	Kent Health Department 414 E. Main St. PO Box 5192 Kent, OH 44240 Phone: 330-678-8109 x208
Building/Plumbing/Electrical	930 Overholt Road, Kent, OH 44240 PO Box 5192 Kent, OH 44240 330-678-8107
Fire	Kent Fire Department 320 South Depeyster Street, Kent, OH 44240 330-676-7393
Community Development	930 Overholt Road, Kent, OH 44240 330-678-8108

Your operation is expected to comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG). If Ohio law is stricter, that is, where it affords more rights to persons with disabilities, it will be applied over the federal law. Thus, it is your responsibility to ensure that the more stringent of both standards is met where appropriate. Assistance in determining the applicable standards for your restaurant may be obtained through the local building authority.

HOW TO PREPARE PLANS

Food Service/Food Establishment law in Ohio requires that all new or extensively altered Food Service/Food Establishment operations submit plans and specifications to their local health department for approval. Whether an alteration is "extensive" is shaped by such factors as the consequences of changes, where modifications take place, and the extent of "tearing up" necessary. Always contact the Health Department before making alterations. A fee for plan review is charged for all new or extensively altered Food Service/Food Establishment operations. The plans and specifications submitted for approval shall clearly confirm that the Food Service/Food Establishment law and rules can be met.

THE PLANS AND SPECIFICATIONS SHALL BE LEGIBLE, BE DRAWN REASONABLY TO SCALE, AND INCLUDE:

1. The type of operation proposed and foods to be prepared and served (a menu is acceptable).
2. The total area to be used for the operation.
3. All portions of the premises in which the operations are to be conducted.
4. Entrances and exits.

5. Location, number and types of plumbing fixtures, including all water supply facilities.
6. Plan of lighting, both natural and artificial, with foot-candles indicated for critical surfaces.
7. A floor plan showing the general layout of fixtures and other equipment.
8. Building materials and surface finishes to be used.
9. An equipment list with equipment manufacturers and model numbers.

Remember to contact local building, zoning, plumbing agencies, and Ohio E.P.A. to learn what will be required for their plans. Final approval inspections by these agencies are to be completed before requesting the final Food Service/Food Establishment operation inspection by the Health Department.

FLOOR PLAN

The floor plan is an important element in maintaining sanitary conditions. Improper arrangement of Food Service/Food Establishment equipment creates hazards to health and creates difficulties in maintaining a sanitary operation. The success of an operation is greatly affected by the amount of thought and effort that goes into the planning and layout of the equipment and the facility.

The floor plan gives you and your health department the opportunity to see the entire operation in its proposed form and to determine whether all of your planned operations have the equipment necessary to perform their tasks. It is also possible to determine personnel movements that will occur as your staff performs its duties. A food operation is similar to a manufacturing process in which work is done sequentially in several production lines which, at a given point, come together to form the finished product. You can rearrange, on paper, work spaces or equipment to eliminate potentially hazardous areas, or wasted time due to excessive motion.

The floor plan must show the general layout of plumbing fixtures, equipment and all areas in which the operation is conducted. The plan must be drawn to scale. A good scale to use is 1/4 inch equals 1 foot. Each item on the floor plan must be numbered to correspond to an equipment list. The equipment list must include the manufacturer's name and equipment model number. The manufacturer's specification sheets are desirable and should be marked to show what equipment options you plan on getting. Entrances and exits are shown with indications as to what direction doors open. Exterior doors must open outwardly, be self-closing and fit their frame flush, without leaving gaps beneath them or on either side.

Basic breakdowns of the space requirements in the kitchen area:

1. Dry food storage	10-14%	7. Cooking/Production	8%
2. Walk-in coolers	5-7%	8. Traffic aisles	16%
3. Walk-in freezers	5-7%	9. Ware washing	5%
4. Receiving	5%	10. Refuse storage	5%
5. Preparation	14%	11. Employee facilities	15%
6. Baking	10%	12. Miscellaneous	2%

These figures are intended to assist in understanding standard space requirements. However, they are only "rules of thumb" and are not the only method for calculating space requirements.

SPECIFICATIONS

Specifications should be detailed enough to allow a competent judgment by the sanitarian who reviews the plans. The following pages will provide you with basic requirements of any Food Service/Food Establishment operation. Read them carefully, for they provide information you will need to include on your plans. The items listed under "required" in each section are what must be included on your plans.

REFRIGERATED AND FROZEN FOOD STORAGE

REQUIRED:

- Sufficient refrigerated food storage (41° F. or less).
- Sufficient frozen food storage (0° F. or less).
- A numerically scaled indicating thermometer for each unit.

The amount of refrigeration space needed depends upon number of meals served, type of service, marketing practices, and delivery schedules. The recommendations below are often used for judging the space needed in an average full menu restaurant.

TOTAL REFRIGERATION SPACE

<u>Number of Meals Served Daily</u>	<u>Recommended Capacity</u>
75 to 150	20 cubic feet
150 to 250	45 cubic feet
250 to 350	60 cubic feet
350 to 500	90 cubic feet

REACH-IN REFRIGERATION

<u>Seats</u>	<u>Number</u>	<u>FREEZER</u>	<u>REFRIGERATOR</u>	
		<u>Size</u>	<u>Number</u>	<u>Size</u>
0 - 50	1	50 cubic feet	2	100 cubic feet
50 - 100	1	75 cubic feet	3	150 cubic feet
100 - 175	2	100 cubic feet	3	225 cubic feet
175 - 250	2	100 cubic feet	3	225 cubic feet
250 - 500	2	150 cubic feet	4	300 cubic feet
500 - 750	2	150 cubic feet	5	375 cubic feet

WALK-IN REFRIGERATION

<u>SEATS</u>	<u>FREEZER</u>		<u>REFRIGERATOR</u>		
	<u>Number</u>	<u>Size</u>	<u>Number</u>	<u>Size</u>	<u>Size</u>
0 - 50	None		None		
50 - 100	1	100 square feet	1	100 square feet	
100 - 175	1	140 square feet	2	200 square feet	
175 - 250	1	180 square feet	2	240 square feet	
250 - 500	1	180 square feet	3	380 square feet	
500 - 750	2	240 square feet	3	520 square feet	

A walk-in refrigerator is usually recommended for larger Food Service/Food Establishment operations. It is in addition to the reach-in refrigerator needed by most operations. Walk-in refrigerators and freezers usually require about 5% to 7% of your kitchen floor area

Example:

You are planning an operation that has a 1,000 square foot kitchen (25 feet by 40 feet). Therefore, you need to have 1000 times 5% to 7% or a 50 to 70 square foot walk-in refrigerator (one 5 feet by 10 feet or two 5 feet by 7 feet).

Each refrigerated facility storing potentially hazardous food must be provided with a numerically scaled indicating thermometer, accurate to plus or minus three degrees Fahrenheit. These thermometers must be located to measure the air temperature in the warmest part of the unit, and to be easily readable. The food product temperature is required to be 41° F. or less, therefore the air temperature in these units must be 38° F. or less.

The space between the top of the walk-in refrigerator or freezer and ceiling should be effectively closed with vermin-tight paneling (fixed or removable) or an unobstructed open space of not less than 24 inches should be provided between the top of the refrigerator or freezer and ceiling to permit access for sanitary maintenance. If the distance to reach is more than 8 feet from any side of the unit, an unobstructed clearance of not less than 30 inches should be provided.

Note: It is essential that this enclosure be adequately ventilated to prevent condensation.

Walk-in freezers are generally designed only to maintain already frozen products and are kept in the temperature range of 0° to minus 10° F. If you are planning on doing your own freezing of food items, you need what is referred to as either a processing freezer, blast freezer, or tunnel freezer. These units operate at temperatures of minus 25° to minus 100° F.

If you are **CATERING** out of your operation, be sure to include the methods and equipment you will be using to maintain food temperatures during storage, transportation and serving.

Recommended accessories and features for walk-in refrigerators and freezers are:

- Walk-in refrigerators and freezers should be located on the same floor and as near as possible to the receiving and preparation areas.
- Floors are level with outside floor or installed with a ramp.
- Extra interior vapor-proof lights.
- Interior and exterior wall protectors to prevent damage from carts.
- Foot treadle openers for doors.
- Windows for doors.
- Thermoplastic strip curtains to reduce loss of refrigeration when door is open.
- Emergency opening device on the inside.
- Audio-visual alarm systems to alert personnel to changes in holding temperatures.
- Outside thermometer gauge so unit doors do not have to be opened to check the temperature.
- Aisles at least 42 inches wide to accommodate mobile equipment.
- Shelves in walk-in refrigerators and freezers shall be readily removable, adjustable, and sized as to facilitate handling for cleaning by one person. The lowest shelf needs to be at least 6 inches above the floor.
- Condensate drain lines should discharge to external floor drains located adjacent to the walk-in and must be properly air gapped.

DRY STORAGE

REQUIRED:

- Area to be used for dry food storage.
- Type of shelving used.

The size of your dry storage area usually will be from 10 to 14% of the floor area of your kitchen. This is usually equal to the space occupied by your walk-in coolers and walk-in freezers. Proper dry food storage is essential to the prevention of food-borne illnesses and maintenance of food quality.

The design of your dry storeroom deserves careful attention to the following factors:

Ventilation	A relative humidity of 50% to 60% should be maintained. A wall mounted HYGROMETER is recommended for determining your storeroom's relative humidity.
Lighting	10 foot-candles of light measured at a distance of thirty (30) inches from the floor is required. Lighting fixtures must be shielded or provided with shatter-resistant bulbs. Windows should be frosted or have shades since exposure to direct sunlight damages your products.
Temperature Control	Storeroom temperature should be maintained at 60° to 70° F. A too hot or too cold storage area will shorten the shelf life of your dry goods. A THERMOMETER prominently displayed in all storage locations is recommended.
Insect and Rodent Control	All cracks and crevices in the floor, walls and openings around pipes passing through walls must be filled in. A white band 12 inches wide painted along the floor next to the wall will help speed your discovery of rodent droppings, tracks, or other signs.

Shelving normally is manufactured in 12 to 18 inch widths and 36 to 48 inch lengths.

Whenever possible, the shelving units should be adjustable.

DUNNAGE RACKS should be used for stacking case goods.

Aisles should be at least 30 inches wide or 42 inches wide if you are using hand trucks for delivery.

HOT FOOD STORAGE AND SELF SERVICE

REQUIRED:

- Hot food storage area and equipment (140° F. or more).
- Numerically scaled indicating thermometer for each unit.
- Method of shielding food from customers.

Serving lines are to be provided with heating devices to keep hot foods at 140° F. or more, as well as refrigeration devices to keep highly perishable foods below 41° F. These temperatures retard the growth of harmful bacteria. A metal stem-type, numerically scaled product thermometer is required and must be used to assure the attainment and maintenance of proper storage temperatures.

Foods on display must be protected from customer contamination by the use of glass or plastic protective guards. The guards are to be mounted so that they will intercept a direct line between the mouth of an average height customer and the food being displayed. Generally speaking, the bottom edge of the protective guard will be at a height between three feet, six inches to five feet above the floor. The bottom edge of the protective guard should be extended to the outer edge of the display cabinet. There is a wide variety of protective guard shapes, sizes, and styles of mounting available for your selection. After you have determined what food items you will make available for self-service, and how you intend to arrange the display, you will be able to make the best choice of guard and mounting style to permit sanitary, convenient customer selection of food items.

EQUIPMENT AND UTENSILS

REQUIRED:

- All equipment drawn to scale on plans (1/4 inch = 1 foot is recommended).
- Manufacturer's name and model number for each piece of equipment.
- A statement that all equipment is of a type approved by the Ohio Department of Health or a recognized equipment listing agency such as the National Sanitation Foundation (NSF); Baking Industry Sanitation Standard Committee (BISSC); International Association of Milk, Food, and Environmental Sanitarians (IAMFES); Food and Drug Administration (FDA); or Intertek Testing Services(ETL), and UL Sanitation (UL).
- A statement that all equipment is installed so that it and the area under and surrounding it can be easily cleaned.
- An indication of surface material and/or finishes used on counters and shelving units.
- An indication of area and type of kitchenware and tableware storage.
- A separate indirectly drained sink for food preparation.

All equipment and utensils (kitchenware and tableware) are required to be of such material and so constructed and installed to readily conform to the Ohio Uniform Food Safety Code. Equipment and utensils need to be easily cleanable so that they will comply with cleanliness standards. Some of the general principles for the design and construction of Food Service/Food Establishment equipment are as follows:

1. The equipment should contain the fewest number of parts to do the required job efficiently. This should also permit the equipment to be easily disassembled, maintained, and cleaned. In some instances it is necessary that in-place cleaning be practiced due to the design of the equipment.
2. All parts of the equipment coming into contact with food products should be readily accessible for examination and cleaning or readily removable for cleaning and inspection.
3. A proper radius should be provided to permit ease of cleaning the product contact surfaces.
4. Jointing of metal should present a smooth, easily cleanable food contact surface.
5. All surfaces within the product zone must be smooth, free of pits, crevices, or other difficult-to-clean areas and be resistant to denting, buckling, distortion, pitting, chipping, grazing, scratching and decomposition.
6. Food contact surfaces should be non-absorbent, non-toxic, odorless, and unaffected by the food products and cleaning compounds.
7. Toxic metals such as cadmium, lead, copper, galvanized steel and other metals which may leach into and deleteriously affect the foods must not be used. The same prohibition must be observed with certain plastics which are not acceptable for food contact applications.
8. The product zones must be free of recesses, open seams and gaps, ledges, inside threads and shoulders, and bolts or rivet heads.

9. Gaskets, packing and sealing materials must be non-toxic, non-absorbent, and unaffected by food products or cleaning compounds, and installed as to be easily cleanable.
10. Splash zone areas should be designed and constructed to permit frequent cleaning (FRP, tile, stainless steel, etc.).
11. The drain of the soda gun holster must not pass through an ice storage bin. Mount the holster on the side of the ice bin.
12. Beverage chill plates may not be stored in ice bins that store ice intended for human consumption.

A basic principle of food equipment installation is that the equipment and the area under and surrounding it is such as to minimize the need for routine cleaning.

Equipment should also be installed so that the areas under, over, behind, and between pieces of equipment and walls are easy to clean. If not easily removable, equipment should be placed far enough away from walls and other equipment to ease cleaning, or equipment should be sealed to floors, walls, or other equipment.

Sealed means: free of cracks or other openings that permit the entry or passage of moisture or any deleterious substance or compound.

The following table is often used as a guide for spacing equipment:

LENGTH OR DEPTH OF EQUIPMENT	DISTANCE FROM WALL OR OTHER STATIONARY EQUIPMENT WHEN BOTH ENDS ARE OPEN	DISTANCE FROM WALL OR OTHER STATIONARY EQUIPMENT WHEN ONE END IS OPEN
0-24 inches	8 inches	8 inches
25-48 inches	10 inches	10 inches
49-72 inches	12 inches	12 inches
73-96 inches	14 inches	24 inches
97-120 inches	16 inches	24 inches
121 inches or more	18 inches	24 inches

Aisles and working spaces between units of equipment and walls must be unobstructed and of sufficient width to permit employees to perform their duties without contamination of food or food contact surfaces. The aisle space generally recommended for various work areas is listed below:

<u>Description of Space</u>	<u>Aisle Width</u>
Single aisle with limited equipment	30 to 36 inches
Double aisle with limited equipment	42 to 54 inches
Single aisle with protruding equipment	42 to 54 inches
Double aisle with protruding equipment	54 to 66 inches
Aisle with little traffic	36 to 48 inches
Aisle with major traffic	48 to 72 inches

Any device, equipment, or apparatus used in the preparation or storage of food and having a drain must have such drain properly air gapped. (Examples: Ice machines, ice bins, steam kettles, walk-in coolers and freezers and proof boxes.)

All utensils and equipment must be so stored as to protect them from dirt, dust, splash, overhead leakage, and other contamination. Otherwise, the effect of cleaning and bactericidal treatment is erased. Equipment must not be located under exposed or unprotected sewer lines or water lines, open stairwells, or other sources of contamination.

Storage of utensils will vary, depending upon the type and size of Food Service/Food Establishment operation planned. But in general, observe these principles:

1. Provide a definite storage space for each type of utensil, so that the rule "a place for everything and everything in its place" can be followed.

2. See that the various storage areas are adequate for the utensils. The utensils should be conveniently close to the area where they are to be used. One utensil drawer for each employee or one drawer for each four (4) linear feet of work table.
3. Do not store utensils on the floor.
4. Provide hooks for large utensils such as pots and pans. Hooks should be well away from splash and spray.
5. For frozen dessert scoops, provide a dipper well with running water.
6. Provide a knife rack in each preparation area.
7. Tableware is stored so that the handle of the knife, fork or spoon is presented to the employee or consumer. Normally you need 2 to 3 settings of tableware per seat.

WAREWASHING

REQUIRED:

- Method of ware washing (manual, machine, or both).
- Type, size and location of ware washing equipment.
- Soiled dish counter or drain board.
- Clean dish counter or drain board.
- Location of hot water booster heater (180° F.). Name of chemical sanitizer.

Ware washing machines are to be approved by the National Sanitation Foundation or equivalent. All ware washing machines shall be equipped with a temperature measuring device that indicates the temperature of the water in each wash and rinse tank and as the water enters the hot water sanitizing final rinse manifold or in the chemical sanitizing solution tank. A ware washing machine that uses a chemical for sanitization must be equipped with a device that indicates audibly or visually when more chemical sanitizer needs to be added.

Three-compartment sinks for manual ware washing (including pots and pans) must be approved by NSF or equivalent. Drain boards are required on both ends of the sink and should be integral with the sink. Spout detergent dispensers must be installed with a non-removable type vacuum breaker. Provisions must be made for a soiled utensil counter of proper design, large enough to permit proper sorting, scraping, and pre-washing. Dish tables and drain boards should have a minimum pitch of 1/8 inch per foot. Drainage should be so directed as to prevent contamination of other areas of the dish table or drain board and must not go back into the washing equipment. Dish tables and drain boards should be supported in such a manner as to prevent sagging.

Clean dish counters should be large enough to allow air drying of the kitchenware or tableware. Normally, you need a clean dish table with room for at least three racks of dishes. If the establishment uses a hot water method of sanitizing, it is then necessary to boost the water temperature from 140° F. to 180° F. This usually is done by an automatic booster heater located as near the point of use as possible. Detergent dispensers and rinse aid equipment should be installed so that adequate protection is provided to prevent back siphonage into the water lines. This equipment must discharge downstream of the atmospheric vacuum breaker with their supply side taken downstream of the atmospheric vacuum breaker or installed with an atmospheric vacuum breaker 6 inches above the feeder reservoir. EPA approved chemical sanitizers are required for sanitizing in a Food Service/Food Establishment operation. Since the chemical is depleted during the sanitizing process, a **TEST KIT** is required for testing the strength of the solution.

Hot and cold water mixing hose bib protected by a vacuum breaker should be provided adjacent to the ware washing machine to facilitate cleaning. Provisions should be made at the location for proper hose storage.

WATER SUPPLY

REQUIRED:

- Indication of water source (municipal or well).
- Location of all hot and cold water outlets.
- Indication of cross-connection protection.
- Hot water system.

The operation must have a good supply of water under pressure to encourage its use in cleaning. Naturally, the water must be safe and sanitary. If you have a private well, you must obtain approval from the Ohio EPA in order to use it in your facility. Quarterly testing may be required. You will be required to furnish latest sample results before a license is issued.

There must be no cross connection between an approved water supply and an unapproved supply. Nor should there be any cross connection between a public and a private supply. Avoid submerged inlets whenever possible. But when used, the inlet line must be provided with a properly located siphon breaker. This must be indicated, including type, model number, and location, on the plumbing plans. Dishwashers, garbage disposal units, and silverware soak tanks need an atmosphere vacuum breaker installed 6 inches above the flood level. Hose bibs (connections) must be equipped with non-removable type vacuum breakers. Plumbing installation should be designed to eliminate insect harborage and provide access for cleaning. Provide a sealed chase or space one-inch from walls and 4 inches above floors.

Hot Water Supply

The hot water supply shall be sufficient to satisfy the continuous and peak hot water demands of the establishment. Hot water for hand washing shall be of a temperature of at least 110°F. Hot water for mechanical dishwashing must be 150°F-165°F for washing and 165°F-180°F for sanitizing. The temperature of the wash solution in spray-type ware washers that use chemicals to sanitize may not be less than 120°F. The water temperature for manual hot water sanitization must be at least 171°F. For purposes of sizing the hot water generating capability, assume a supply temperature requirement of 140°F to each fixture and to the mechanical dishwashing machines. In the absence of specific hot water usage figures for equipment, the following chart may be used to provide an approximation:

Equipment Type	Gallons Per Hour	
	High	Low
Vegetable sink	15	15
Single pot sink	20	15
Double pot sink	40	30
Triple pot sink	60	45
Pre-rinse for dishes-shower head type	45	45
Bar sink-three compartment	20	
Bar sink-four compartment	25	
Chemical sanitizing glass washer	60	
Lavatory	5	5
Cook sink	10	10
Hot water filling faucet	15	15
Bain Marie	10	10
Coffee urn	5	5
Kettle stand	5	5
Garbage can washer	50	50
Nine and twelve pound clothes washer	45	45
Sixteen pound clothes washer	60	60
Employee shower	20	20
High - To be used when multi-use eating utensils are utilized		
Low - To be used in carry-out food operations where single service eating utensils are utilized.		

One way to estimate the projected hot water demand (gallons per hour final rinse) of mechanical ware washing machines, pot and pan washers and silverware washers, is to refer to the manufacturer's specification sheet for the particular make and model of the machine.

In order to determine the required capacity and recuperative rate of the hot water generating equipment it will be necessary to calculate both the demand in gallons per hour (GPH) and temperature rise required (assume an incoming water temperature of 40°F to the food establishment unless specific data are available) for each piece of equipment. These figures can then be converted to BTU's (for gas fired heaters) or KW (for electrical heaters).

The required BTU or KW capacity of the heater will then be determined by adding up the individual BTU or KW requirements for each piece of equipment.

Note: To convert to BTU's or KW's, use the following formulas: (1 gallon of water = 8.33lbs.)

For gas heaters (in BTU's):	
Required BTU =	$\frac{\text{Gallons per hour of water} \times \text{Temp. rise} \times 8.33}{.70 \text{ (operating efficiency)}}$
For electrical heaters (in KW):	
Required KW =	$\frac{\text{Gallons per hour of water} \times \text{Temp. rise} \times 8.33}{3412 \text{ (BTU's per KW)}}$

The following example will illustrate use of the above method of approximating the size of the hot water heater needed for specified equipment assuming an incoming water temperature of 40°F into the food establishment. :

Equipment	Gallons Per Hour Demand from Chart	Temperature Required	Temp. Rise
3 Compartment sink	60	140°F	100°F
$\frac{60 \text{ (GPH)} \times 100 \text{ degree temp. rise} \times 8.33}{.70 \text{ (operating efficiency)}}$		= 71,400 BTU's	
$\frac{60 \text{ (GPH)} \times 100 \text{ degree temp. rise} \times 8.33}{3412 \text{ (BTU's per KW)}}$		= 14.65 KW	

Equipment	Gallons Per Hour Demand from Chart	Temperature Required	Temp. Rise
Hand sink	5	110°F	70°F
$\frac{5 \text{ (GPH)} \times 70 \text{ degree temp. rise} \times 8.33}{.70 \text{ (operating efficiency)}}$		= 4,156 BTU's	
$\frac{5 \text{ (GPH)} \times 70 \text{ degree temp. rise} \times 8.33}{3412 \text{ (BTU's per KW)}}$		= 0.85 KW	

Equipment	Gallons Per Hour Demand from Chart	Temperature Required	Temp. Rise
Chemical/Mechanical Warewashers	64	140°F	100°F
$\frac{64 \text{ (GPH)} \times 100 \text{ degree temp. rise} \times 8.33}{.70 \text{ (operating efficiency)}}$		= 76,160 BTU's	
$\frac{64 \text{ (GPH)} \times 100 \text{ degree temp. rise} \times 8.33}{3412 \text{ (BTU's per KW)}}$		= 15.62 KW	

This example assumes an incoming water temperature of 40°F into the food establishment and hot water heater delivery of 140°F hot water to the unit.

Equipment	Gallons Per Hour Demand from Chart	Temperature Required	Temp. Rise
Hot water sanitizing mechanical warewashers booster heater	64	180°F	40°F
$\frac{64 \text{ (GPH)} \times 40 \text{ degree temp. rise} \times 8.33}{.70}$		= 30,464 BTU's	
$\frac{64 \text{ (GPH)} \times 40 \text{ degree temp. rise} \times 8.33}{3412}$		= 6.2 KW	

For mechanical ware washing, assume a hot water demand based on a primary rise in temperature to 140°F. A booster heater must then be provided to boost the required GPH demand an additional 40°F to attain the required 180°F final temperature.

For the above example, the total demand in BTU's or KW for the primary hot water heater would be:

3 Compartment sink	71,400 BTU or 14.65 KW
1 Hand sink	4,165 BTU or 0.85 KW
1 Mechanical ware washers	<u>76,160 BTU or 15.62 KW</u>
TOTAL DEMAND	151,725 BTU or 31.12 KW

A booster heater for the ware washers must be provided and sized to supply an additional 30,464 BTU or 6.2 KW.

All hot water generating equipment should conform to nationally recognized standards and be certified or classified by an ANSI certification program. The manufacturers' specification sheets (cut sheets) should be consulted for hot water supply requirements. The above provides one method of approximation. Other suitably developed calculations may be submitted for consideration.

SEWAGE DISPOSAL

REQUIRED:

- Indication of sewage disposal (municipal or private).
- Service sink (janitor sink) for disposal of mop water.
- Grease interceptor size and location.

In some areas, constraints are placed on the type and capacities of on site (private) systems as well as the discharge of effluents. A complete review of the proposed disposal system should be conducted with the Ohio Environmental Protection Agency (OEPA). The location and installation of grease traps or interceptors should be reviewed by the plumbing authority to insure operation, access and maintenance. Normally, this is a 750 to 1,000 gallon tank located outside of the building. Wastes from toilets and garbage disposal units are prohibited from going into the grease interceptor.

TOILET FACILITIES

REQUIRED:

Toilets must be provided per the Ohio Basic Building Code. It is strongly recommended that separate toilet facilities for employees and the public be provided. The public must not go through the food preparation area to reach the toilet facilities. Plumbing and ventilating requirements as provided in state and local codes are to be met.

All toilet rooms must have at least one properly equipped hand sink. The facilities should include hot and cold, or warm running water, soap dispensers, a trashcan with a covered lid and approved drying facilities such as single service paper towels and/or mechanical hot air blowers. A sign notifying employees to wash their hands is required in those restroom facilities utilized by employees.

The toilet room should be complete, with walls extending from the floor to the ceiling. The door should be tight fitting and self-closing. Doors should be louvered or undercut for make-up air. Modesty shields are desirable. Standard toilet stall widths are 30", 33", or 36" and stall lengths vary from 48 inches to 72 inches.

HANDWASHING FACILITIES

REQUIRED:

- Location of all hand washing facilities.
- Type of soap dispensers and drying facilities.

Hand washing facilities should be provided in or near toilet rooms and in the kitchen area. In large kitchens it is required to have hand washing facilities in each area where food is handled or ware washing occurs. In general, there should be no more than 20 feet to the closest accessible hand sink, without going around any corners or through any doors. The facilities should include hot and cold, or warm running water, soap, and approved drying facilities such as single service paper towels, mechanical hot air blowers, or approved retractable cloth dispensers. A sign notifying employees to wash their hands is required at those hand washing facilities utilized by employees.

High temperature water service shall not be run directly to hand washing facilities, but shall be tempered to 120° F. or less by means of a thermal mixing device. Ware washing sinks and food preparation sinks must not be used for washing hands.

GARBAGE AND REFUSE DISPOSAL

REQUIRED:

- Indication of garbage and refuse storage.

Garbage and refuse from a Food Service/Food Establishment operation, unless properly disposed of, can quickly become a public health hazard. Most new operations are provided with garbage grinders. Garbage must be kept in water-tight metal or approved plastic containers. These containers must have tight-fitting lids and must be insect and rodent-proof. In large operations with garbage storage rooms, the rooms should be adequately lighted (10 foot-candles), ventilated, and supplied with hot and cold running water. The floor should be graded to a properly trapped drain.

Dumpsters are an excellent means for outside garbage and refuse storage. They should be on a concrete pad that is well drained. Be sure to provide area for can or container cleaning. Wash down rooms are normally only about 6 by 10 feet and are equipped with steam cleaners and foot operated can washers.

FLOORS, WALLS AND CEILINGS

REQUIRED:

- Notation of materials and surface finishes.
- Plumbing, electrical wiring, refrigeration lines, and drink lines are enclosed within the floors, walls, ceiling and counter supports for ease of cleaning.

Floors, walls and ceilings should be constructed of smooth, durable, non-absorbent and easy to clean material. The material should be appropriate to the room and the use. Seldom is one surface material the panacea to all problems which arise.

FLOORS in food preparation, food storage, warewashing areas, garbage rooms, walk-in refrigerating units, and toilet rooms should be quarry tile, poured seamless (terrazzo), commercial grade vinyl tile, sealed concrete or other equally durable, impervious material. Quarry tile has been found to provide the best all-around flooring surface for kitchens that are designed for heavy duty usage. Quarry tile with embedded carborundum chips (abrasive chips) has greater slip resistance and is recommended for use in wet or high grease conditions.

Duckboards, rubber or other mats can be used to substantially increase the comfort underfoot at the work centers. **Carpeting cannot be used in kitchen area, toilet rooms, or bar area.** All floor covering must be laid on a firm foundation with coved floor-to-wall joints. Coving at floor-to-wall joints makes sweeping easier and prevents accumulation of food bits that attract insects and rodents.

The number of floor drains required depends upon the type of floor, size of the room, and phase of the operation to be conducted in the room. Grading of the floor to the drains is important. Floor drains should be covered by a perforated metal cap with a removable hinge to prevent rats from gaining entrance into the building.

In kitchen and bar areas, **WALL SURFACES** should be glazed tile, glazed cement block, stainless steel panels, aluminum panels, and plastic wall panels. Cement block that is filled and epoxy painted and drywall that is taped and epoxy painted is allowable in dry storage areas. Be sure materials comply with fire ratings. Outside vertical corners should be protected with metal plates or rubber bumpers to prevent damage from cart or other rolling equipment. Soft wood, absorbent wall board, wall paper, painted drywall and other similar materials do not make satisfactory finishes for the kitchen area. **CEILINGS** should be fiberboard plastic coated, glazed tile, or plastic laminated panels. Be sure materials comply with fire ratings.

In general, the principles applying to floors in other parts of the operation apply in the dining room. However, when carpeting is used, provisions must be made for electrical outlets for cleaning equipment. The outlets should be shown on the plans. A wide choice of materials is available for dining room walls and ceilings.

LIGHTING

REQUIRED:

- Indication that not less than 50 foot-candles of light are on working surfaces in food preparation areas.
- Indication that not less than 20 foot-candles are provided at a distance of 30 inches from the floor in consumer self-service areas, inside equipment including under counter refrigerating and freezing units, areas used for handwashing, warewashing or equipment and utensil storage and in toilet rooms.
- Indication that not less than 10 foot-candles can be provided in walk-in coolers and freezers, dry storage areas, all other areas when cleaning.
- Indication that lighting fixtures located over, adjacent to, or within food and utensil storage, preparation, service, display and cleaning areas are shielded or equipped with shatter-resistant bulbs.

A **FOOT-CANDLE** is the standard measure of light. This is the amount of light from a standard candle that strikes a one-foot square surface from a distance of one foot.

Good lighting is conducive to cleanliness, makes for more efficient employees, and adds to the attractiveness of the establishment. Fluorescent lighting is especially good. Fixtures may be flush with the ceiling or hung directly over the work area. They should be positioned so that the worker does not cast a shadow on the working surface. Fixtures used should be designed for cleanability and maintenance. Ventilation hoods require additional light fixtures since the hoods block the ceiling lights.

VENTILATION

REQUIRED:

- Location of ventilating equipment.
- Type and size of ventilating equipment.

Proper ventilation cuts down odors, condensation, smudging of walls and ceilings, excessive heat, mold growth, and concentration of toxic gases. Natural ventilation (such as through doors and windows) may be used in some cases. Mechanical equipment must be employed in areas used for cooking, frying, grilling, broiling, and high temperature warewashing. This necessitates an adequate supply of make-up air introduced into the establishment that approximately equals the amount of air exhausted. Commercial cooking appliances such as ranges, griddles, deep fat fryers, broilers, roasting ovens, rotisseries and other similar appliances must be provided with ventilation hoods equipped with grease filters. For best ventilation, equipment should be so designed that 100 to 150 feet per minute air velocity passes over the cooking equipment.

Exhaust air volume for hoods needs to be of sufficient level to provide for capture and removal of grease-laden cooking vapors. Acceptable performance is also normally able to be met when the volume of air in the kitchen is exhausted 20 to 30 times per hour (every 2 to 3 minutes), or the hood exhaust fan has a capacity of 4 cubic feet per minute (CFM) per each square foot of floor space.

There are two basic hood types:

1. Ventilator or back shelf hood.
2. Canopy type hood.

Equipment for which hoods are necessary should be located in a room or space reasonably free from interfering drafts such as from fans, near-by open windows or inlets from ventilation systems.

MISCELLANEOUS

REQUIRED:

- Area and method for storage of toxic materials.
- Area for cleaning tool and supplies storage.
- Area for storage of employees' personal belongings.
- Exterior walking and driving surfaces.
- Method for securing pressurized tanks.

Toxic or poisonous materials consist of the following categories:

- (a) Pesticides
- (b) Detergents, sanitizers, corrosives, and other chemicals
- (c) Flammables

Each of the three categories shall be stored and physically located separate from each other. All poisonous or toxic materials shall be stored in cabinets or in a similar physically separate place used for no other purpose. To preclude contamination, poisonous or toxic materials shall not be stored above or immediately adjacent to food, food equipment, utensils, or single-service articles. This requirement does not prohibit the convenient availability of detergents or sanitizers at utensil dishwashing stations.

If employees routinely change clothes within the operation, dressing rooms or locker areas need to be provided. Enough lockers shall be provided for the orderly storage of employee clothing and other belongings. Lockers or other suitable facilities may only be located in dressing rooms, food storage rooms, or areas containing only completely packaged food or packaged single service articles.

The walking and driving surfaces of all exterior areas are to be surfaced with concrete, asphalt, gravel, or similar material to facilitate maintenance and minimize dust. These surfaces are to be graded to prevent pooling. Only articles necessary for the operation and maintenance should be stored on the premises.

LAUNDRY FACILITIES are restricted to the washing and drying of items necessary to the operation. An electric or gas dryer must be provided if items are dried within the operation. Separate rooms are required for laundry facilities. Storage rooms containing only packaged foods or packaged single service articles may also be used. No portion of a Food Service/Food Establishment operation shall be used for living or sleeping quarters.

FLYING INSECTS can be effectively controlled by installing an air curtain, also called air doors or fly fans, over doorways into food processing areas. Air curtains installed on exterior doorways is a mistake in most situations because the changing environment of the outdoor winds and air pressure can actually result in the insects being sucked into the building rather than being excluded from it. Insect control devices that are used to electrocute or stun flying insects shall be designed to retain the insect within the device and must be installed so they are not located over a food preparation area. Be sure your building's construction prevents the entrance of pests. All windows and air intake ducts are screened (16 mesh) or have other adequate controls. Outer doors must open outwardly and be self-closing.

All equipment in food establishments should be certified or classified for sanitation by an ANSI accredited certification program. Equipment including ice makers and ice storage equipment shall not be located under exposed or unprotected sewer lines, open stairwells or other sources of contamination. The following equipment installation requirements will help to ensure proper spacing and sealing which will allow for adequate and easy cleaning:

FLOOR MOUNTED EQUIPMENT

Whenever possible, equipment should be mounted on approved castors or wheels to facilitate easy moving, cleaning, and flexibility of operation. Wheeled equipment requiring utility services should be provided with easily accessible quick-disconnects or the utility service lines should be flexible and of sufficient length to permit moving the equipment for cleaning. Check with local fire safety and building codes to ensure that such installations are acceptable. See [figure #6-1 thru 6-3](#).

Floor-mounted equipment not mounted on wheels or castors with the above utility connections should be:

1. Sealed to the floor around the entire perimeter of the equipment (the sealing compound should be pliable but not gummy or sticky, non-shrinking, retain elasticity and provide a water and vermin-tight seal); or
2. Installed on a solid smooth non-absorbent masonry base. Masonry bases and curbs should have a minimum height of 2" and be coved at the junction of the platform and the floor with at least a 1/4" radius. The equipment should overhang the base by at least 1" but not more than 4". Spaces between the masonry base and the equipment must be sealed; or
3. Elevated on legs to provide at least a 6" clearance between the floor and equipment. The legs shall contain no hollow open ends. See [figure #6-4](#).
4. Display shelving units, display refrigeration units and display freezers may be exempt from the above.

For equipment not readily moveable by one person, spacing between and behind equipment must be sufficient to permit cleaning. Provide at least 6" of clear unobstructed space under each piece of equipment. See [figure #6-5](#). If all the equipment butts against a wall it must be joined to it and/or sealed in a manner to prevent liquid waste, dust and debris from collecting between the wall and the equipment.

When equipment is butted together or spreader plates are used the resultant joint must prevent the accumulation of spillage and debris therein and to facilitate cleaning. Provide aisle and working spaces between units of equipment that are unobstructed and are functional. A minimum 36" width is recommended. See [figure #6-6](#).

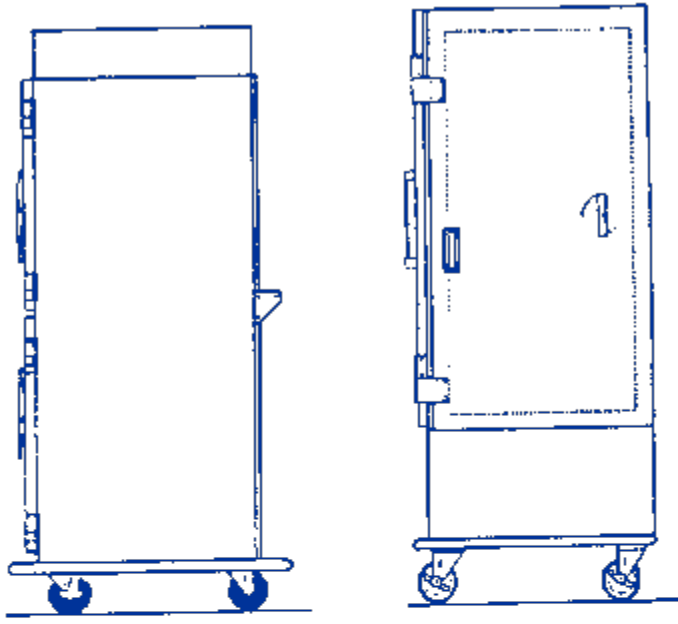
All utility and service lines and openings through the floor must be sealed adequately. Exposed vertical and horizontal pipes and lines must be kept to a minimum. The installation of exposed horizontal utility lines and pipes on the floor is prohibited. Any insulation materials used on utility pipes or lines in the food preparation or dishwashing areas must be smooth, non-absorbent and easy to clean. It is desirable that switch boxes, electrical control panels, wall mounted cabinets, etc. be installed out of the cooking and dishwashing areas. Electrical units which are installed in areas subject to splash from necessary cleaning operations or food preparation should be water-tight and washable.

Equipment open underneath, such as drain boards, dish tables, and other tables should be installed 4" away from the wall or sealed to the wall. Metal legs of all tables and sinks in food preparation areas and the under shelves of food preparation tables should be made of stainless steel.

TABLE MOUNTED EQUIPMENT

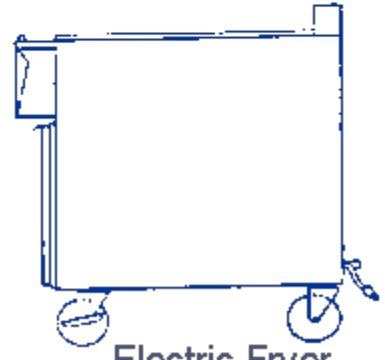
All table mounted equipment shall be:

1. Sealed to the table or counter; or
2. Elevated on approved legs to provide at least a 4" clearance between the table or counter and equipment and installed to facilitate cleaning; or
3. Portable: 30 pounds or less no dimensions exceeding 36", no fixed utility connections.



Holding Cabinet

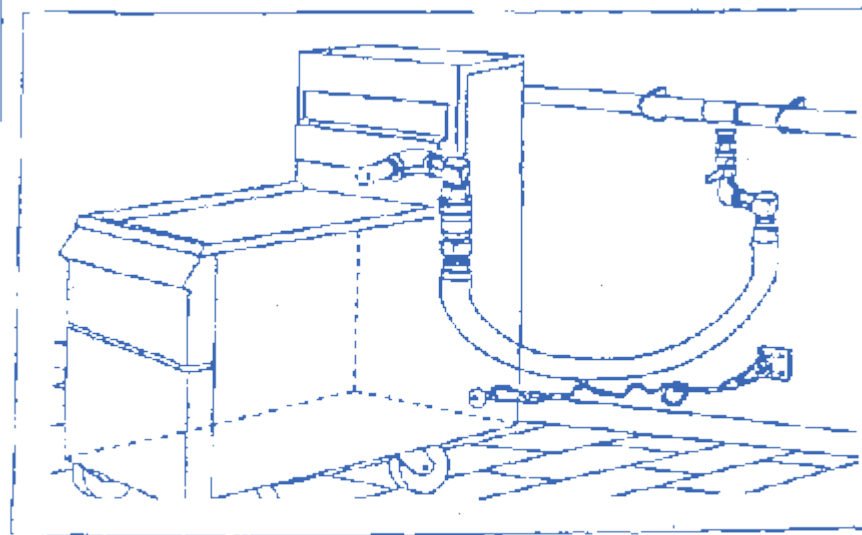
Reach-in Refrigerator



Electric Fryer

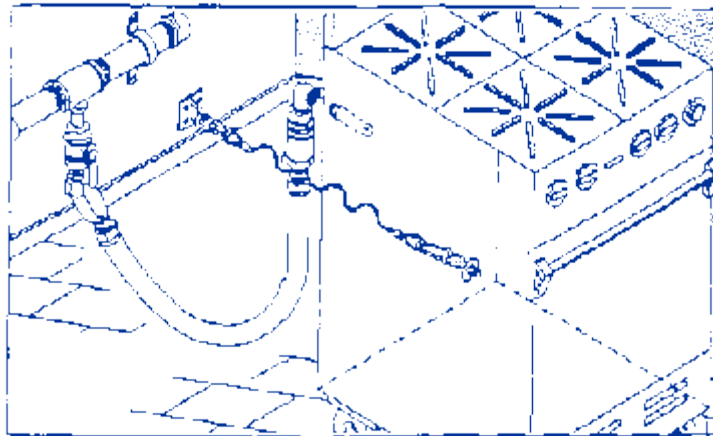
Kitchen Equipment Mounted On Castors

Figure #6-1



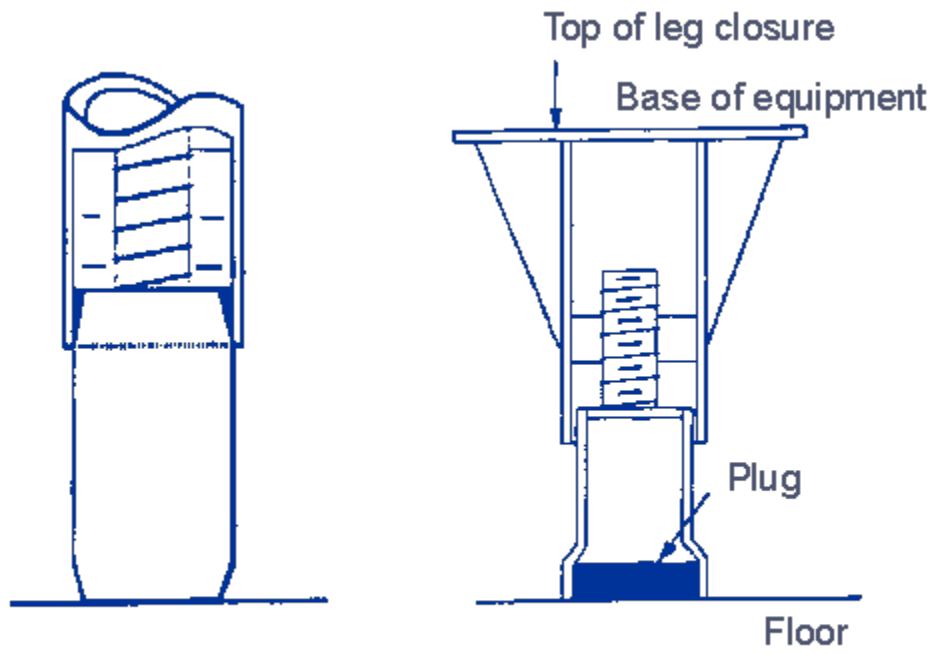
**Flexible Gas Connector
With Keeper Chain**

Figure #6-2



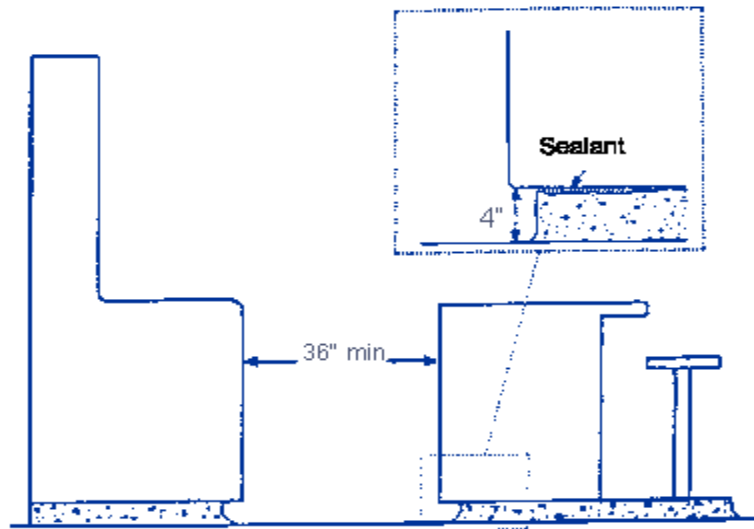
**Flexible Gas Connector
With Keeper Chain**

Figure #6-3



Floor Mounted

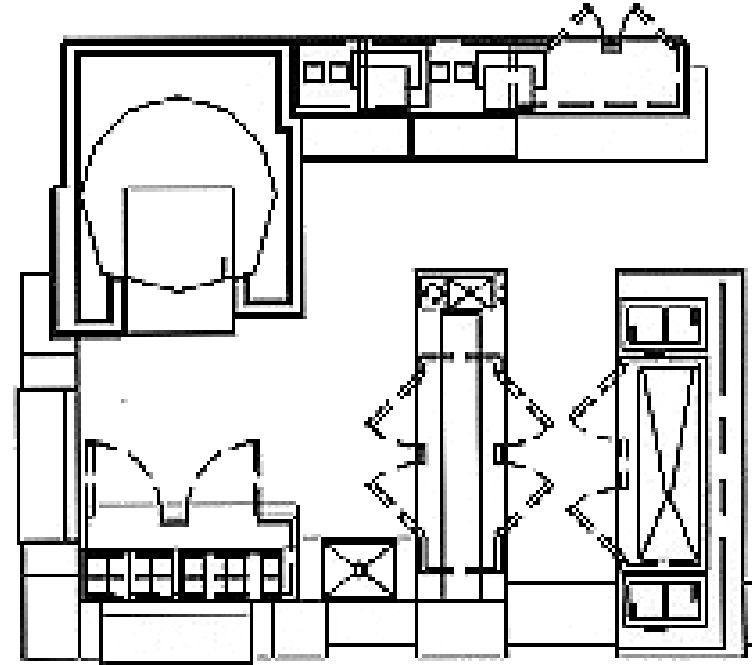
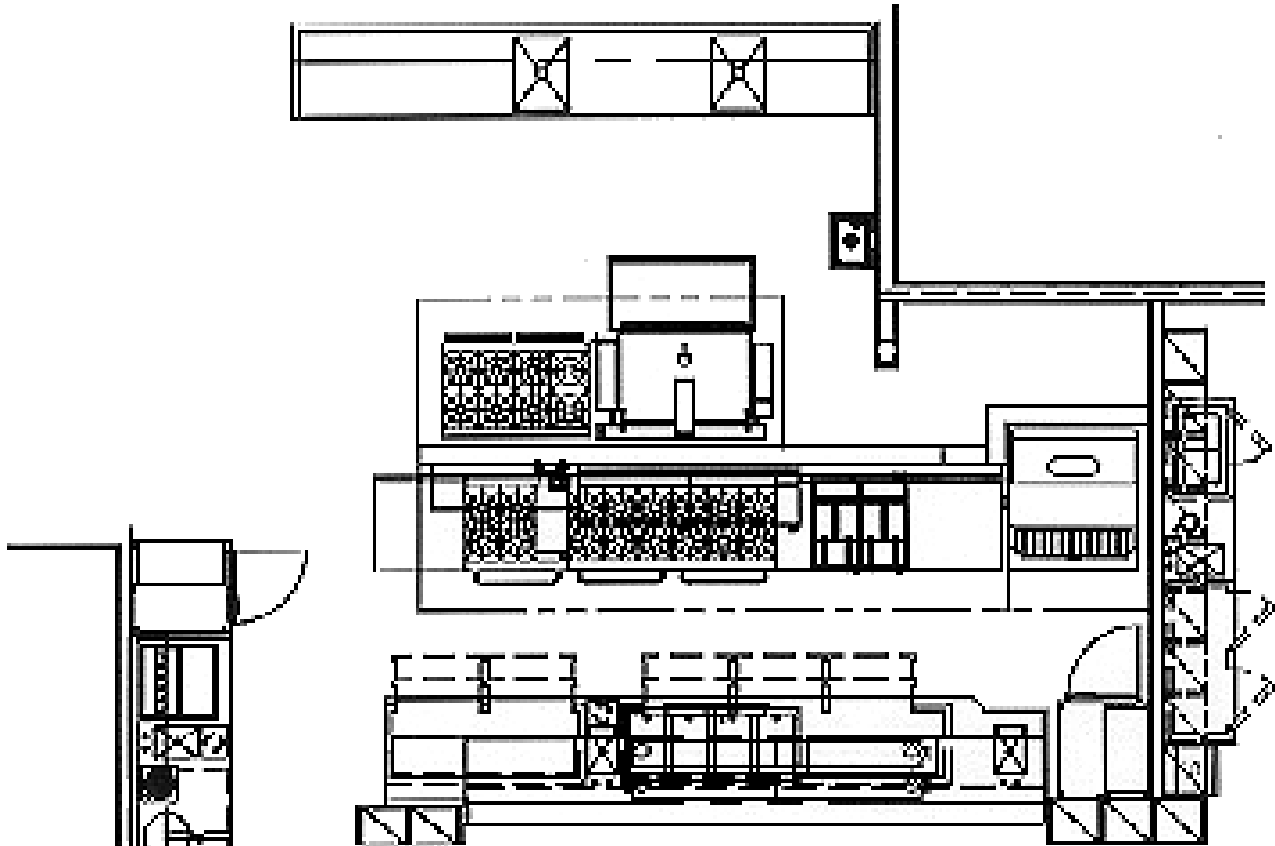
Figure #6-4



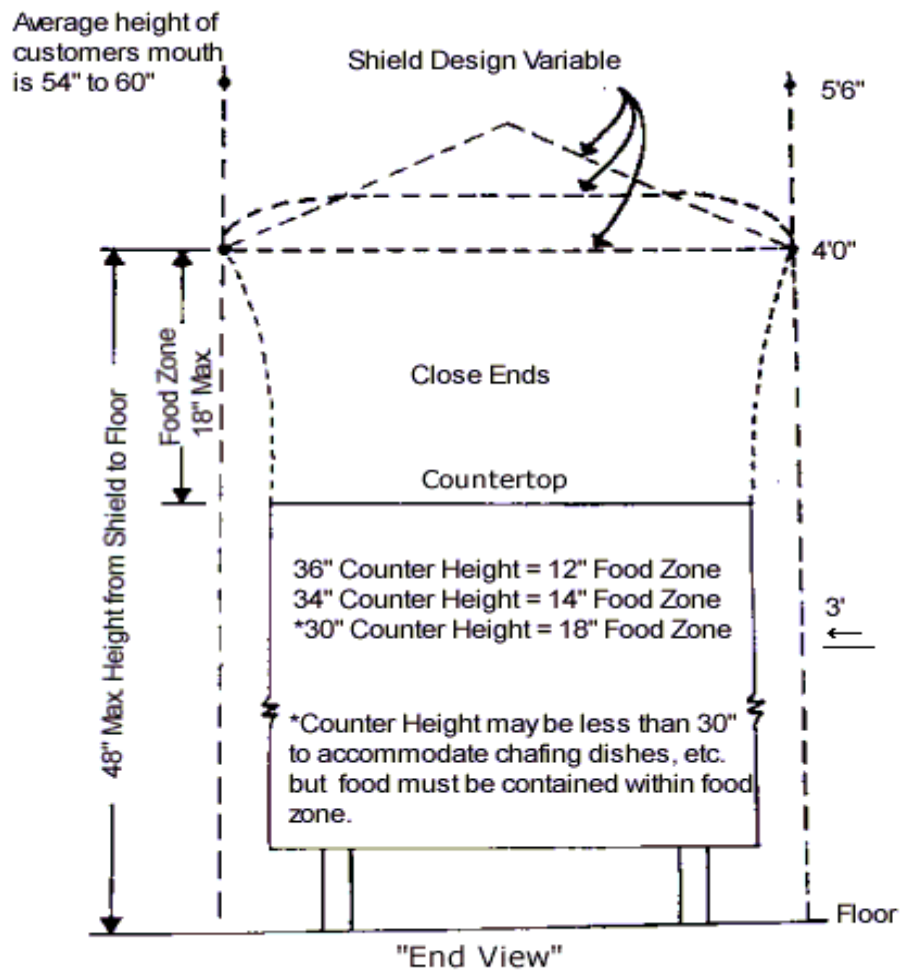
Floor Mounted Equipment

Figure #6-5

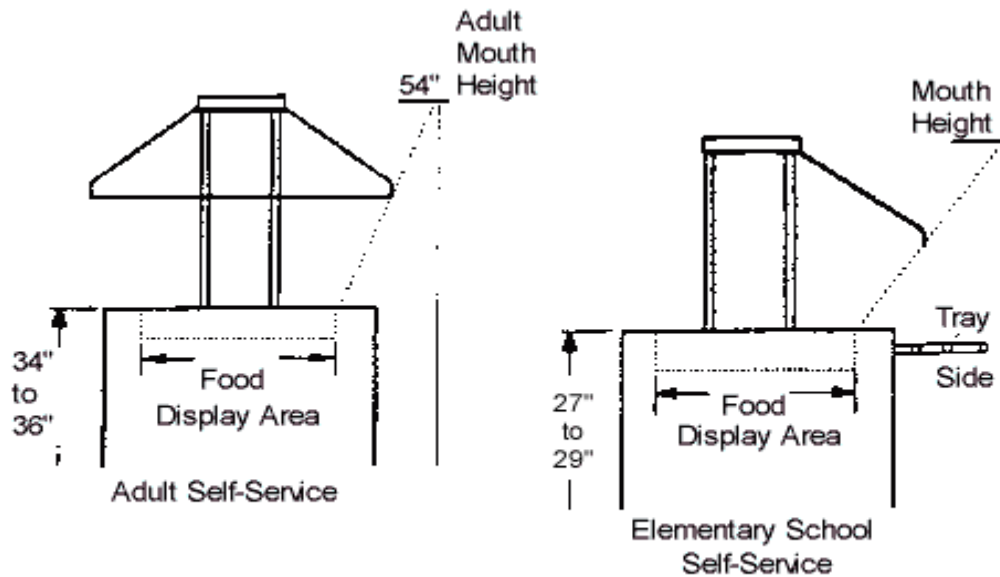
EXAMPLE: KITCHEN FLOOR PLAN



EXAMPLE: BUFFET OR SMORGASBOARD SHIELDING



Buffet or Smorgasbord Shielding



Buffet or Smorgasbord Shielding

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U.S. Department of Justice Civil Rights Division Disability Rights Section - NYAV

950 Pennsylvania Avenue, NW Washington, D.C. 20530

<http://www.usdoj.gov/crt/ada/adahom1.htm>, <http://www.access-board.gov/adaag/html/adaag.htm>

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1400 W. Devon Avenue, Suite 422 Chicago, IL 60660

<http://www.bissc.org/>

BOCA INTERNATIONAL, INC.

4051 West Flossmoor Road Country Club Hills, IL 60478

<http://www.bocai.org/>

DESIGN AND LAYOUT OF FOODSERVICE FACILITIES

John C. Birchfields 2003

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<http://vm.cfsan.fda.gov/~dms/prev-toc.html>

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L. Kotschevar and M. Terrel 1986

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