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A Guide to Food Service Operation Planning with Information on Preparing and Submitting Plans and Specifications.

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Descriptors-\*Architectural Elements, Dining Facilities, Dishwashing, Equipment Standards, \*Facility Guidelines, Facility Requirements, \*Food Handling Facilities, \*Food Service, Planning, \*Specifications

Guidelines are presented for planning a food service operation which is defined as any place kept or maintained for the purpose of preparing or serving meals or lunches for a consideration. Brief discussions are presented pertaining to the value of planning and the preparation and use of plans and specifications. Recommendations and specifications are then presented pertaining to design, structural, and functional features of the food service operation, such as food storage facilities, cleaning facilities, and lighting. Graphic illustrations supplement the discussions. (FS)

**A Guide To**  
**FOOD SERVICE**  
**OPERATION PLANNING**

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE  
OFFICE OF EDUCATION

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The Food Service Advisory Board has reviewed and approved this booklet for use in the food service program.

This board was appointed by the Director of Health to advise him in matters pertaining to the food service program and is representative of the food service industry and of public health.

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**THIS PUBLICATION** is the result of the combined efforts of the Ohio Department of Health, various local health departments, the state food service advisory board, and many individuals actively engaged in the food service industry.

The booklet came about like this: The basic manuscript was developed by the Ohio Department of Health, and 500 trial copies were printed and sent to the people who would eventually use the finished booklet.

Many enthusiastic comments were received and a number of those responding offered constructive advice and suggestions. These, for the most part, were incorporated into the present booklet. The end result was to enhance the value and usefulness of "A Guide to Food Service Operation Planning."

The Ohio Department of Health herewith thanks all those who assisted, in any way, with the preparation of this booklet.

OHIO DEPARTMENT OF HEALTH

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“Aside from the fact that state law requires that plans and specifications be submitted to the local health department for review and approval, the basic objective is to safeguard the health and welfare of the eating-out public, your customers. We know this is also of vital interest to you as a food service operator. This mutual objective is the fundamental reason for food service laws and regulations. Lending your full cooperation to your health department to this end will not only be practical, but very beneficial to all concerned.”

Cleo R. Ludwig  
Officer  
Ohio State Restaurant Association

AND WHAT IS A FOOD SERVICE OPERATION? Ohio Code defines it as "any place which is kept or maintained for the purpose of preparing or serving meals or lunches for a consideration." The exceptions are:

- The ordinary family home
- Operations serving a meal to five persons or less
- Dining or sleeping cars
- Food-processing and food-manufacturing establishments
- Churches, schools, fraternal or veterans' organizations serving meals on their premises--"provided said meals or lunches are served on no more than seven consecutive days or on no more than fifty-two separate days in any one calendar year"

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# THE VALUE OF PLANNING

Why must plans and specifications for a new or extensively altered\* food service operation be submitted to your local health department?

1. Planning and review allow the taking of steps that will help protect the customers' health. This objective, after all, is the reason for the food service laws and regulations.
2. Your health department may be able to save you time and money. Well thought-out, detailed plans and specifications are an assist to orderly, less expensive construction.
3. Plans permit study of efficient, economical operation.
4. State law requires review and approval.

In this guide you will find valuable information on planning the operation. Shown prominently in the chapter "The Food Service Operation" are the specific requirements of the plans and specifications.

Those who will find this information helpful are:

- Food service operators and owners
- Architects
- Engineers
- Contractors
- Builders
- Equipment suppliers
- Others engaged in layout, design, and construction of food service operations



Close cooperation between public health sanitarian and operator-to-be result in a healthier food service operation.

Please notice that this is a guide, not a how-to-do-it booklet. The illustrations show principles to observe in preparing plans. There is no attempt to provide detailed drawings for the construction of food service operations.

Read carefully and referred to often, this guide will help you protect the health of the patrons of Ohio's food service operations.

\*When is an alteration "extensive"? The answer is shaped by such factors as consequences of changes, where modifications take place, and extent of "tearing up" necessary. Best solution: Consult your health department before making alterations.

## PLANS & SPECIFICATIONS

Each food service operator is responsible for submitting all plans and specifications. Of course, in practice, those assisting an operator often submit them on his authority.

It's best to consult the local health department be-

fore preparation of plans. Approval of both plans and specifications is necessary before construction begins. By law, the health department must take action--in writing--within 30 days after receiving plans and specifications.

TYPE OF PLANS & SPECIFICATIONS	WHERE TO SUBMIT	COPIES REQUIRED
Food Service Operation	The local health department having jurisdiction over the operation.	2
Private Water Supply & Sewage Disposal System	District office of the Ohio Department of Health (see map, page 29). For more detailed information, refer to the Ohio Department of Health publication <i>Water Supply, Sewerage, and Sewage Treatment for Public Buildings in Ohio</i> . It is available free at any local health department.	3
Plumbing	Where there is a local plumbing code, to local authorities.	See local authorities
	In the absence of such a code, to Chief Plumbing Inspector, Division of Sanitary Engineering, Ohio Department of Health, Columbus 15, Ohio	2
Building	Where there is a local building code, to local building authorities.	See local building authorities
	In the absence of local building code, to Ohio Department of Industrial Relations, Columbus 15, Ohio.	Write Ohio Department of Industrial Relations
Zoning	Local zoning authorities	See local authorities



## HOW TO PREPARE

A good rule-of-thumb is this: Enter any and all items which indicate food service laws and regulations are complied with.

In general, plans or specifications must include:

- Total area to be used for the food service operation
- Entrances and exits
- Location, number, and types of plumbing fixtures, including all water supply facilities
- Plan of lighting, both natural and artificial
- All rooms in which food service operations are to be conducted
- General layout of fixtures and other equipment
- Building materials to be used

Plans must be drawn to scale, avoiding unnecessary detail. Every set of overall building plans should show:

- Size of the lot
- All streets, roadways, alleys adjoining the property
- Overall size of the food service building
- All rooms such as the kitchen, dining room, toilet rooms, scullery
- Other parts of the building--basement and auxiliary area--when part of the operation
- Entrances and exits
- Outside openings: windows, ventilating openings, louvers, and the like

### Item #8 Griddle Tops (2)

Operator shall provide two electric griddles, each approximately 36" long, 20" wide, and 10-1/2" high.

The griddle shall have an all-stainless-steel frame. The griddle shall be polished cast iron with raised edges on the front and sides, with the back edge forming a backsplash. The griddle shall have a porcelain enameled grease pan. There shall be two sets of thermostatic controls, each of which shall regulate one-half of the griddle.

### Item #9 Sandwich Unit (1)

Operator shall provide one sandwich unit, which shall be approximately 7' long, with a body 31" deep, top 26" deep, 37" high, mounted on a 6"-high masonry base.

The top shall be stainless steel with a cold pan approximately 5' 8" long, 16" wide, and shall be fitted with three large and twelve small salad pans. The top unit shall have a hinged stainless steel cover which shall be in two sections, with space on the left side of the cold pan for a toaster. The body shall be constructed entirely of steel with a stainless-steel front and a porcelain enamel seamless steel interior, which shall be insulated. The interior shall have a circulating fan type cooling coil with a thermostat. The unit shall have two hinged doors.

### Item #12 Glass-washing Machine with Booster (1)

Operator shall provide one glass-washing machine, which shall be a single-tank machine with counter-balanced doors and with an automatic timed wash and rinse cycle, and an auxiliary timing device for rinsing glasses. It shall have a stainless steel tank, with top and bottom revolving arms for washing and rinsing, which arms shall be removable for cleaning. The motor shall be 1 H. P., with grease-packed ball bearings and shall be drip-proof and ventilated. A pump with 175 gallon-per-minute capacity shall be mounted on the outside of the tank and directly connected to the motor. A steam injector for heating the tank, with a thermometer and thermostatic control, shall be provided. A thermometer and pressure-reducing valve to maintain 30 pounds flow pressure on the rinse line shall be furnished.

The machine shall have a 3" diameter vent opening for connection to the exhaust duct.

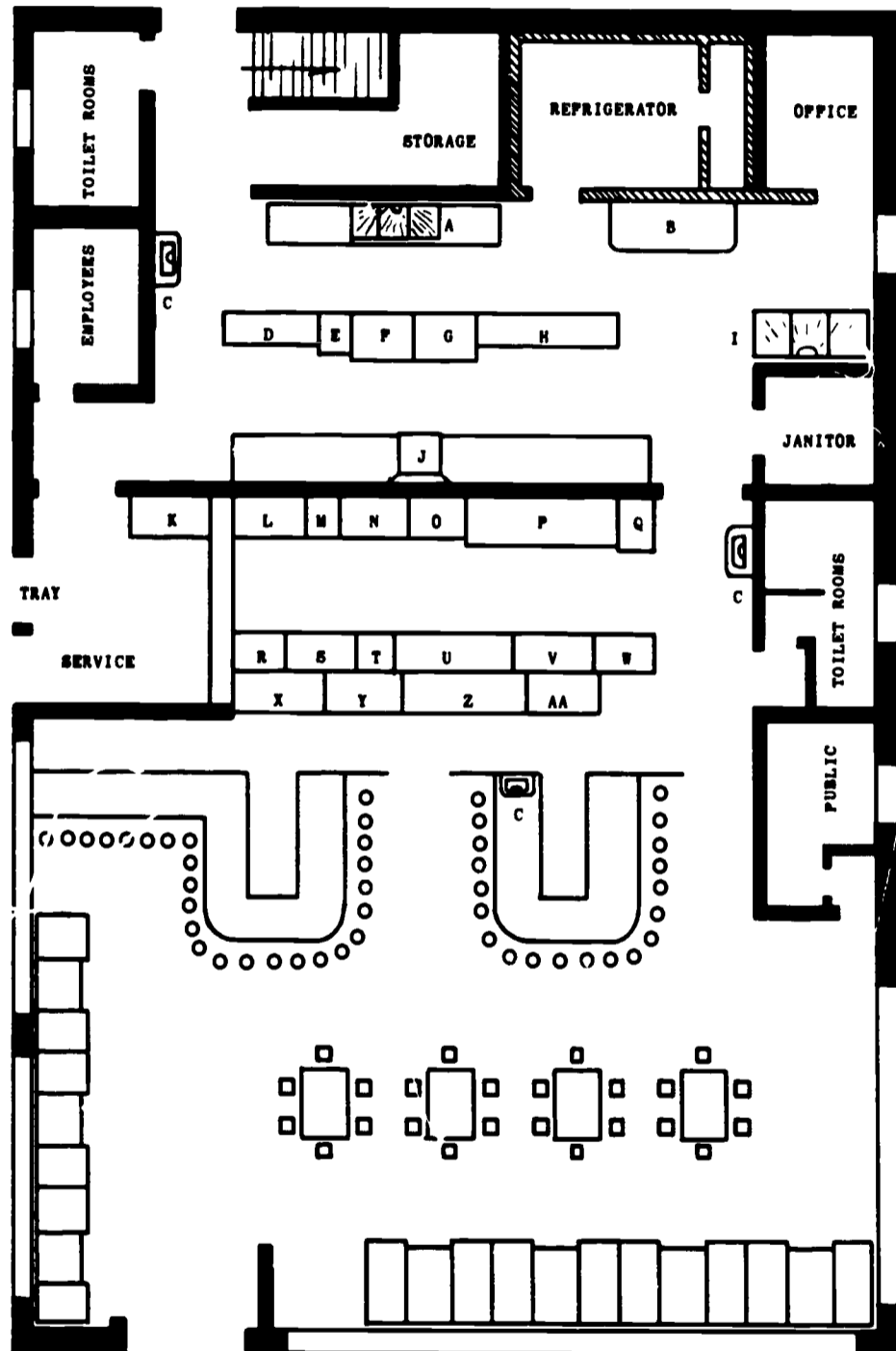
The machine shall be Hobart Manufacturing Company model AM-77, Toledo model TA-37, Champion model IAT, or approved equal.

One steam-operated hot-water booster capable of raising temperature of 99 gallons of hot water from 140° to 180° F. shall be provided. The booster shall include a steam trap and an electric thermostat.

**TYPICAL FLOOR PLAN:**

Plans should be drawn to scale, kept simple. Save detail for sectional plans that may be necessary...plans for plumbing, lighting, ventilation, for example.

- A WORK TABLE WITH THREE-COMPARTMENT SINK
- B REACH-IN REFRIGERATOR
- C HAND SINK
- D WORK TABLE
- E DEEP FAT FRYER
- F&G RANGES
- H WORK TABLE
- I SCULLERY SINK
- J DISH MACHINE
- K WAITRESS STATION
- L REACH-IN REFRIGERATOR
- M HAND SINK
- N COFFEE
- O SHELF CABINET
- P GRILL
- Q BROILER
- R SHELF CABINET
- S ICE BIN
- T SODA FOUNTAIN
- U REFRIGERATOR
- V HOT FOOD TABLE
- W REFRIGERATOR
- X&Z SERVING CASE
- Y SHELF CABINET
- AA COFFEE



**Specifications** should describe all equipment. Include manufacturer's name and model numbers when applicable. Descriptions should be detailed enough to allow a competent judgment.

All new equipment must be of a type approved by the health department. The department will want to know what the equipment is made of, its construction, and installation details.

Each set of specifications must include the following statements:

1. All equipment will be so constructed and so installed that all food service operation laws and regulations can be met adequately.
2. Not less than 20 foot-candles of light will be available on all surfaces where food is processed and prepared and where utensils will be washed and sanitized.
3. An adequate and satisfactory water supply will be available for the conduct of the food service operation.
4. An adequate supply of hot water will be available for the proper conduct of the food service operation and when hot water is to be used to sanitize utensils, the following statement should also be made:  
An adequate supply of 180° F. water will be available so that all utensils can be sanitized properly.
5. All other approvals, such as for water supply, sewage disposal, and plumbing, will be obtained prior to construction of the food service operation.
6. All details of construction will be carried out in accordance with good food service engineering practice.

# THE FOOD SERVICE OPERATION

## THE FULL VIEW

Before doing "close-up" planning, take a look at the overall operation. All new food service operations -- whatever the size, shape, or location--require decisions as to:

- "Customer traffic"
- Parking
- Equipment arrangements
- Flexibility of operation
- Decor and appointments
- Basis for estimating cost
- Basis for bidding by contractors and suppliers
- Provision for future expansion

Each of these points, and others, deserve careful study. Let's look into two of the most important.

**Establishment site** must fit the economic yardstick for the type of operation. Then such questions as these must be answered:

1. Is it, or can it be, well-drained?
2. Is the site removed from such public health hazards as insect and rodent breeding places and serious air pollution?
3. Can dust, weeds, and the like be controlled?
4. Can delivery and other service vehicles get in and out easily?

**Pattern of food flow** governs to a large extent the total efficiency of the operation. These points must be checked:

1. Can foods and supplies be received at a convenient area? Is one enough--or must more be provided?
2. Does movement of food and supplies to area-of-use interfere with employees in other parts of the operation?
3. Can food be moved from storage to preparation to service without "crisscrossing" and "backtracking"?
4. Are "pick-up stations" so located that servers won't interfere with preparation, bussing, and other functions?
5. Can soiled dishes and table wastes be returned in a manner not interfering with clean dishes and food?

All these, and more, are problems that must be solved in each food service operation. Attention to "built-in sanitation" eases day-to-day problems of providing safe, sanitary food.

## SECTIONAL VIEWS

### FLOORS, WALLS, & CEILINGS

#### Required

on plans or specifications

- Notation of materials to be used

All dining areas seating fewer than 100 persons and all kitchens must have a minimum ceiling height of eight feet. Dining areas seating 100 or more require a minimum of nine feet.

Floors, walls and ceilings should be impervious and otherwise easy to clean. The material should be appropriate to the room and the use. At this stage of planning, it is a good idea to give consideration to rat proofing of the building.

**Food Preparation, Storage, Utensil Cleaning, and Toilet Rooms.** Floors in these rooms should be of marble, terrazzo, rubber, linoleum, asphalt tile, or other equally impervious material. Terrazzo and marble are considered especially good, since they don't absorb grease and moisture. Concrete is acceptable only when it has been treated to minimize porosity. Wood flooring is the least desirable material. All floor coverings should be laid on a firm foundation, and floor-to-wall joints should be "coved."



A good floor is easy to clean.

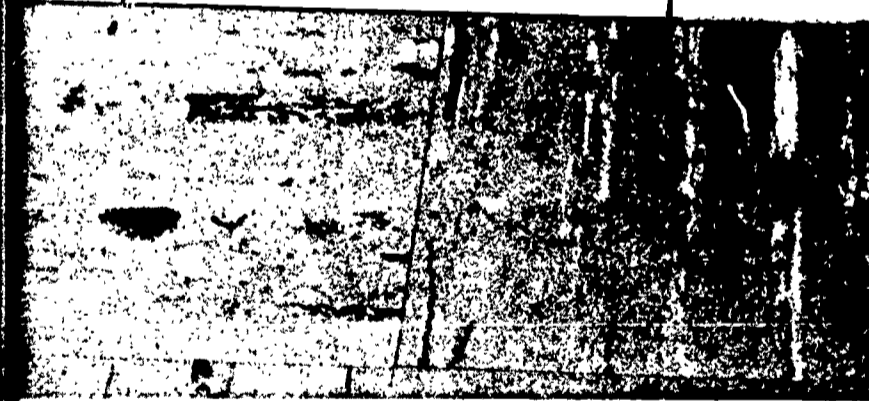
The number of floor drains required depends upon the type of floor, size of the room, and phase of the operation to be conducted in the room. Grading of the floor to the drains is important.

Many maintenance programs do not call for enough water to keep a floor drain active. In such cases, installation of a floor drain is not desirable.

Wall and ceiling surfaces may be glazed tile, stainless steel, aluminum, smooth sealed plaster, smooth tight wood, or some other easily-cleaned surface. When wood or plaster is used, the surfaces should be finished with a washable, durable paint. Soft wood, absorbent wall board, wall paper, and the like do not make satisfactory finishes.

**Dining Areas.** 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.



"Coving" at floor to wall joint makes sweeping easier, prevents accumulation of bits of food that attract insects and rodents.

## VENTILATION

### Required

on plans

- Location of ventilating equipment

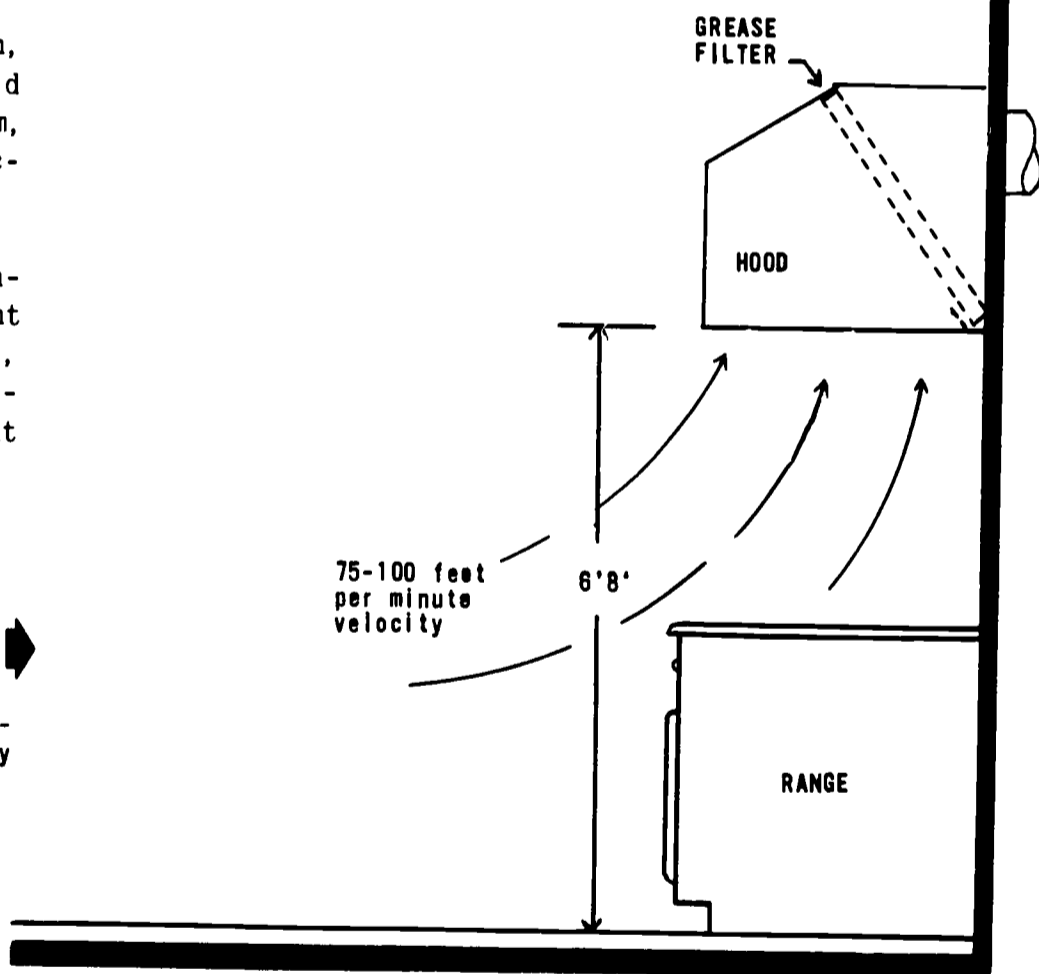
on specifications

- 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. At the minimum, the equipment must prevent undue condensation and accumulation of gases, odors, fumes, and mist.

Natural ventilation, such as through doors and windows, may be used in some cases. But mechanical equipment ordinarily must be employed in areas used for cooking, frying, grilling, and utensil washing. This necessitates an adequate supply of make-up air. The equipment must also vent compressors.

For best ventilation, equipment should be so designed that 75-100 feet per minute air velocity passes over the range.



## LIGHTING

### Required

on plans & specifications

- Indication that not less than 20 foot-candles of light are on working surfaces in food preparation and utensil washing areas. This includes area for cooking, sandwich preparation, salad preparation, vegetable preparation, utensil washing, bar glass washing.

Good lighting is conducive to cleanliness, makes for more efficient employees, and adds to the attractiveness of the establishment.

To provide the required 20 foot-candles, it is often necessary to employ "spotlighting." 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.

Toilet rooms are to be well-lighted. Storage rooms should have a minimum of four foot-candles of light.



"Spotlighting" a work area to provide the required 20 foot-candles. Fluorescent lighting is considered especially good.



## TOILET FACILITIES

### Required

on plans

- Toilet facilities in these ratios:  
1 water closet for each 25 male employees or fraction thereof; 1 water closet for each 25 female employees or fraction thereof
- Public toilet rooms and facilities when provided

Proper toilet facilities minimize the chance of disease spread. Diseases such as typhoid fever, paratyphoid fever, and dysentery.

Although not mandatory, it is strongly recommended that, in all new food service operations, separate toilet facilities for employees and the public be provided. The public should not have to go through the food preparation area to reach the toilet facilities.

Plumbing and ventilating requirements as provided in the state and local codes are to be met.

The toilet room should be complete, with walls extending from the floor to the ceiling. The door should be tight-fitting and self-closing. Modesty shields may be desirable. When a number of workers are employed, it is highly desirable that shower baths be installed for both sexes.

## HANDWASHING FACILITIES

### Required

on plans

- Location of all handwashing facilities

on specifications

- Drying facilities

In new food service operations, handwashing facilities should of course be provided in or near toilet rooms. The facilities should include hot and cold running water, soap, and approved drying facilities.

Additional handwashing facilities are needed in each food preparation area. Utensil cleaning sinks and food preparation sinks must not be used for washing hands.

Every kitchen needs one or more handwashing stations. In large kitchens it is advisable to have facilities in each preparation area.

Single service paper towels, mechanical hot air blowers, and approved cloth towels are acceptable for drying.

## WATER SUPPLY

### Required

#### on plans

- Location of all hot and cold water outlets
- Indication of water source
- Hot water system

#### on specifications

- Description of hot water system
- Description of drinking fountains

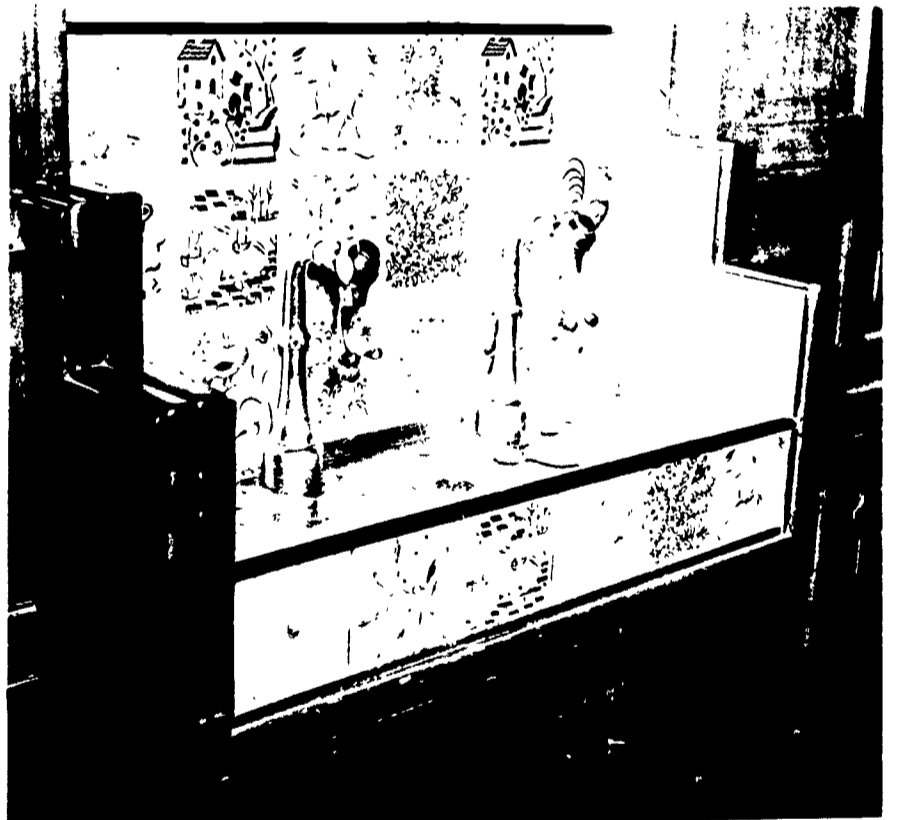
The operation must have a good supply of water under pressure--to encourage its use in cleaning. Naturally, the water should be safe and sanitary.

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.

A well-designed water station. ➡

Every food service operation must be provided with a general supply of hot water (about 140° F.) sufficient to conduct the operation. Heat may be obtained from gas, oil, electricity, or steam injection. Size of the hot water tank will be dependent upon the kind of heater employed, recovery rate, and type of food service.

There are several ways to estimate the amount of 140° F. water a food service operation will use. The following formula is frequently used.



Number of customers x gallons per customer ÷ hours  
= hot water requirements.

**Gallons per customer**

Average-priced menu	1.8 gallons per customer
Counter service	1.1 gallons per customer
Elaborate menu	2.25 gallons per customer

Here's how the formula works. Say the operation has an average-priced menu, gets an average of 150 customers. Hot water requirements for one hour would be estimated thus:

$$\frac{150 \times 1.8}{1} = 270 \text{ gallons of hot water (140}^{\circ} \text{ to 160}^{\circ}\text{)} \\ \text{for a one-hour period}$$

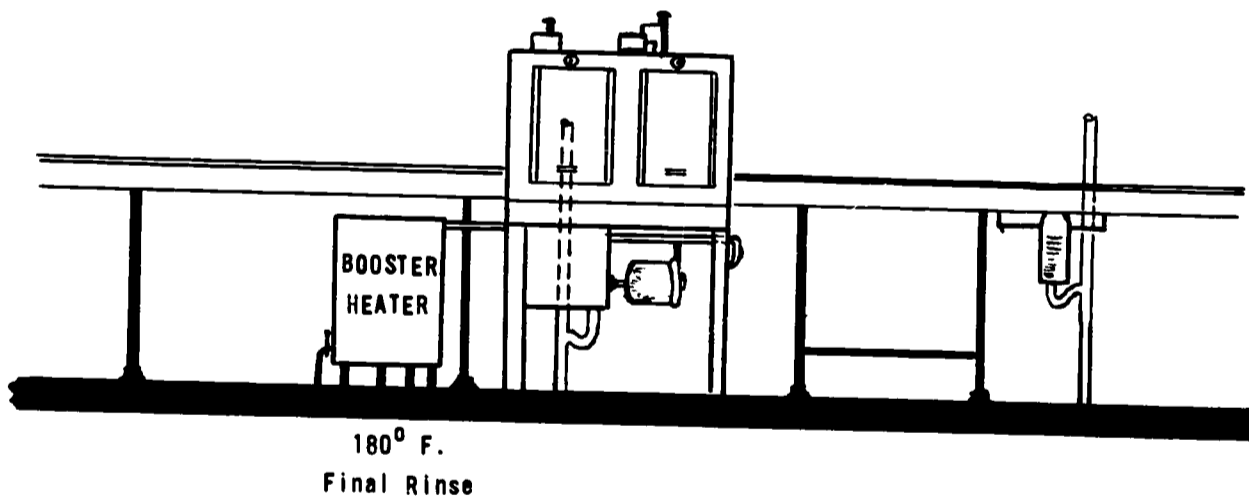
Over a two-hour period:

$$\frac{150 \times 1.8}{2} = 135 \text{ gallons of water per hour for two} \\ \text{hours}$$

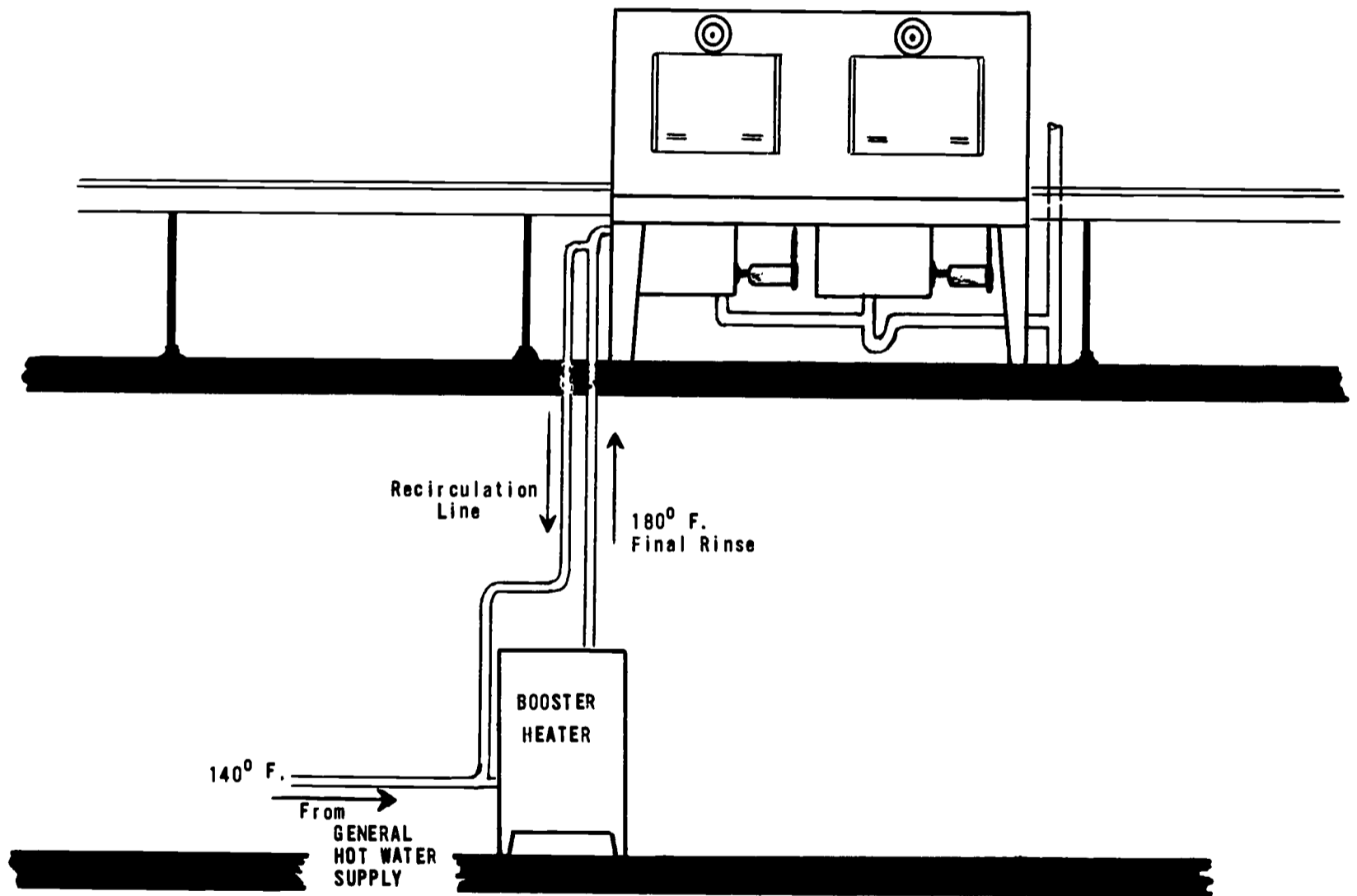
Perhaps the establishment plans to use a hot water method of utensil sanitizing. It is then necessary to boost the water temperature from 140° F. to 180° F. This usually is done by an automatic booster heater located as near the point of use as possible. Hot water lines are insulated to prevent heat loss.

If the booster heater is more than five feet from the dish machine, the water must be recirculated. How? The general rules are these: Recirculation should be by pump when the dishwasher is on the same floor level as the 180° F. heater. Gravity recirculation may be used when the dish machine is on the floor above the hot water source.

However, when the dish machine is more than 60 feet from the 180° F. heater, recirculation should be by pump, regardless of the difference in elevation.



Water for utensil sanitizing must be 180° F., making a booster heater necessary. Booster may be located near dishwasher (as in drawing across page) or on lower level (as shown in drawing below). If booster is more than five feet from machine, provision should be made for recirculation of water.



## UTENSILS & EQUIPMENT

### Required

on plans

- All equipment

on specifications

- A statement that all utensils and equipment are of an easily-cleanable type
- A statement, when applicable, that equipment meets standards of the National Sanitation Foundation

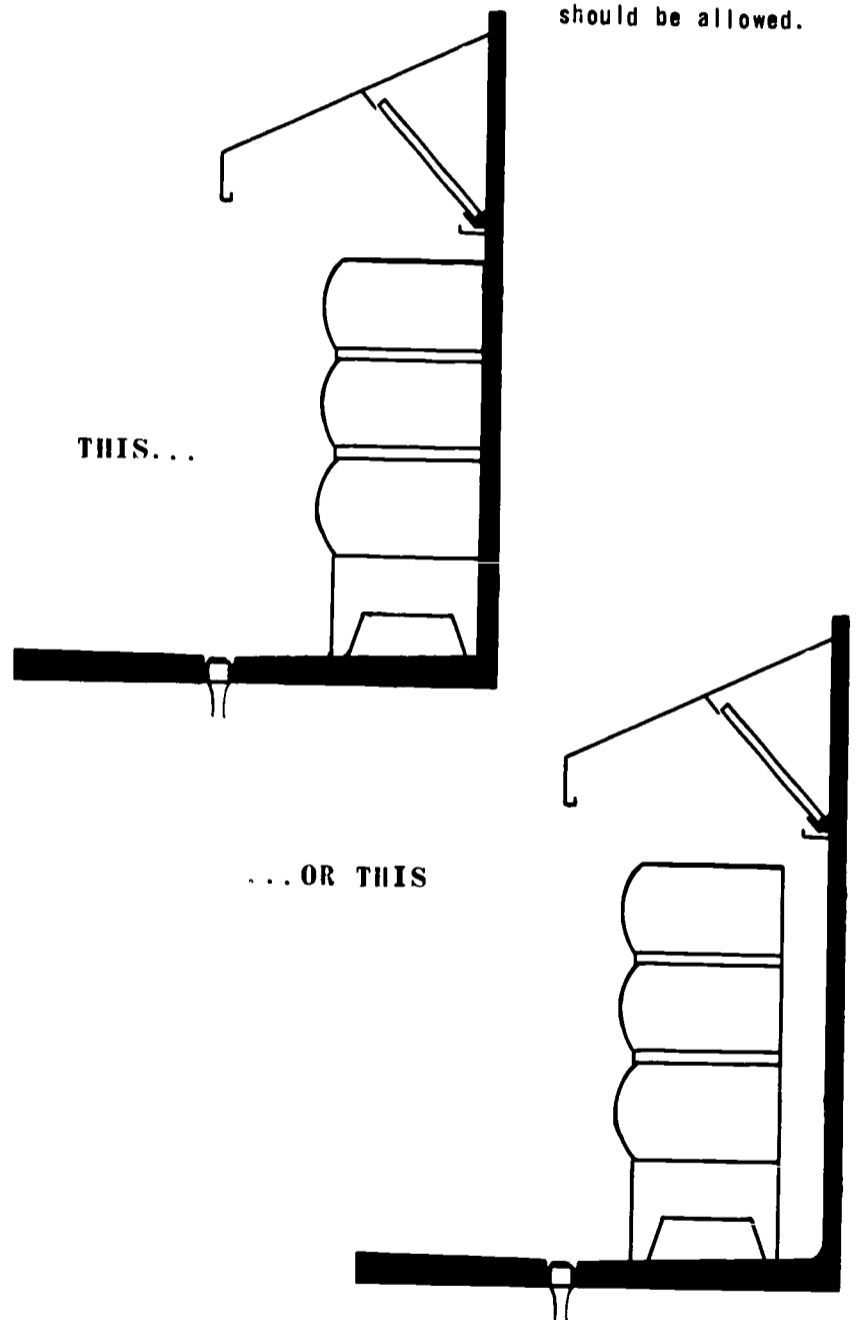
If utensils and equipment are easily cleaned, they are more likely to be kept that way. So new food service operations should be provided with approved type utensils and equipment.

Equipment should be installed so that the area under, over, behind, and between pieces of equipment and walls is easy to clean. If not of the easily movable type, pieces should be sealed to walls or other equipment; or, they should be spaced far enough away from walls and other equipment to make cleaning easy.

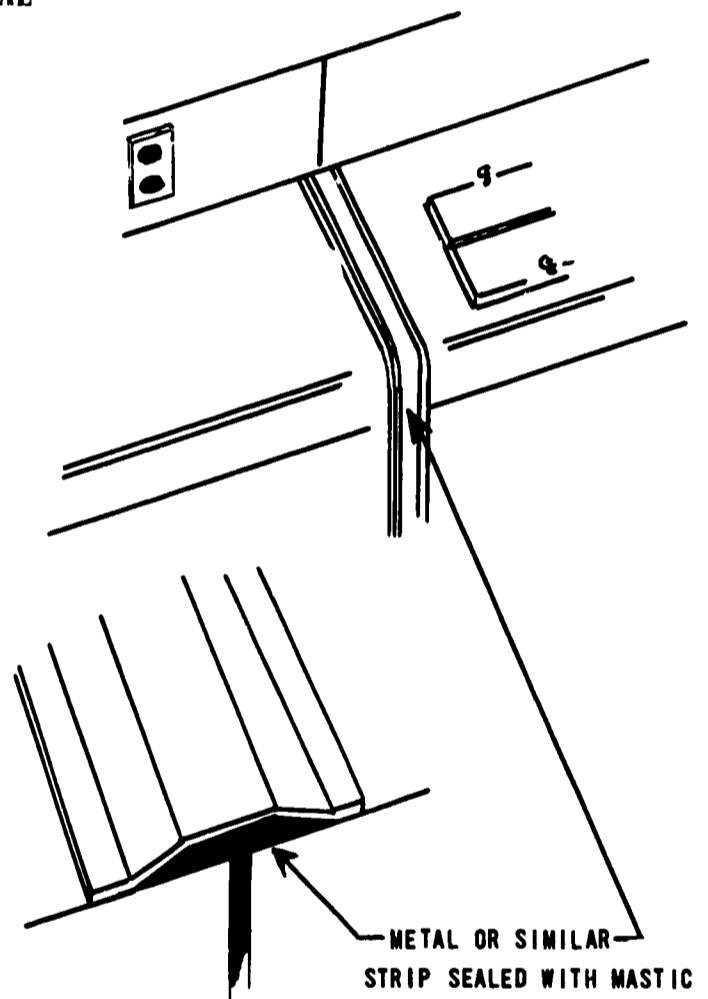
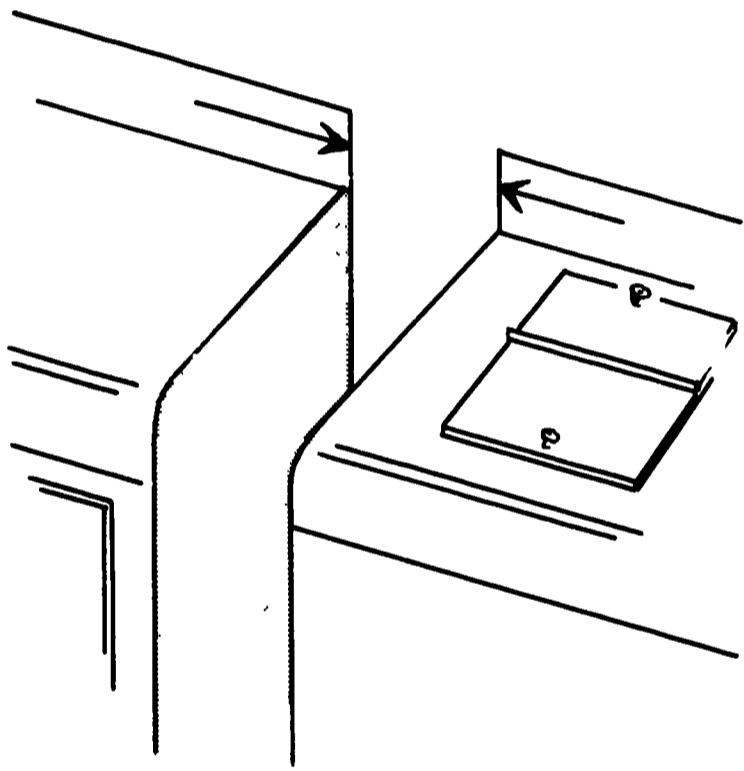
The following table is often used as a guide for spacing equipment:

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	8
25 - 48 inches	10	10
49 - 72 inches	12	18
73 - 96 inches	14	24
97 - 120 inches	16	24
121 inches or more	18	24

If pieces of equipment are not sealed to the wall, adequate space for cleaning should be allowed.



SEPARATE OR SEAL



Adequate space must separate pieces of equipment. An acceptable alternative is to butt equipment together, bind with metal strip, seal end opening with mastic.

## CLEANING & BACTERICIDAL TREATMENT OF UTENSILS & FIXTURES

### Required

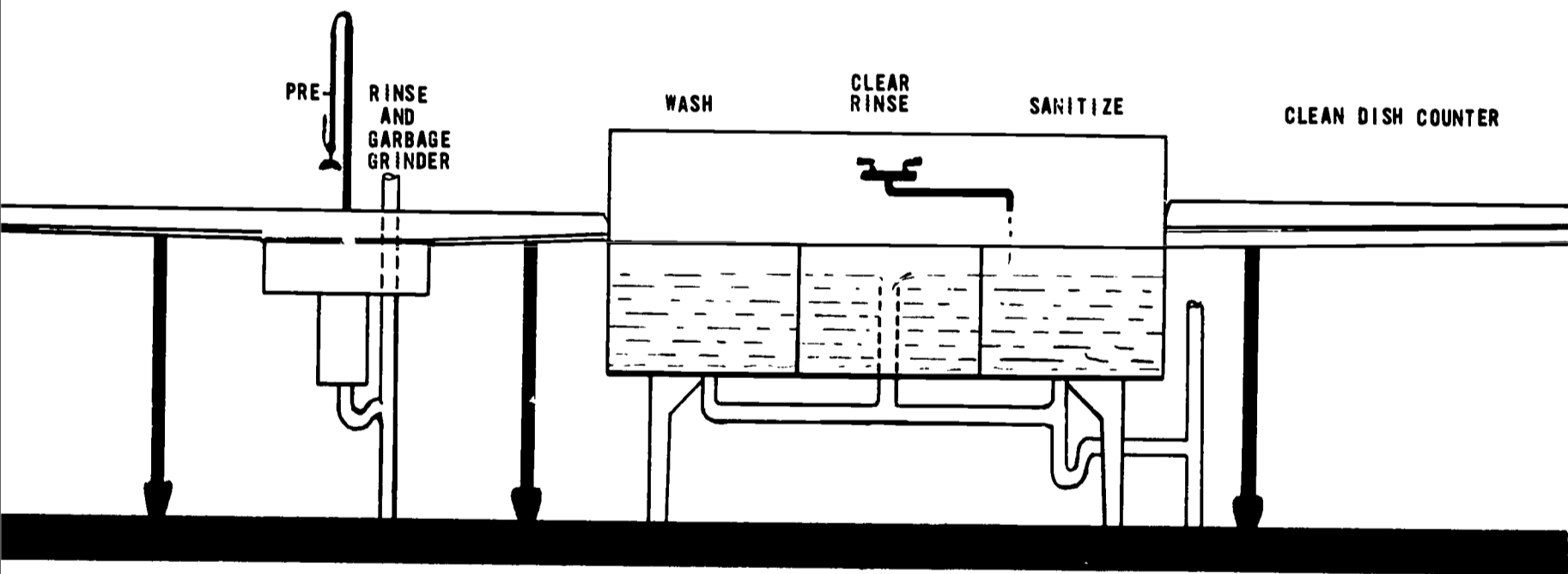
#### on plans

- Method of utensil washing (hand, machine, or both)
- Size and location of equipment
- Soiled utensil counter
- Clean dish counter

#### on specifications

- Description of method of utensil washing
- Type, size, and location of equipment

Cleaning and bactericidal treatment of food service operation utensils must be foolproof. Poorly washed and treated utensils may be responsible for passing of influenza, TB, diphtheria, pneumonia, scarlet fever, whooping cough, trench mouth, typhoid fever, diarrhea, dysentery, and the common cold.



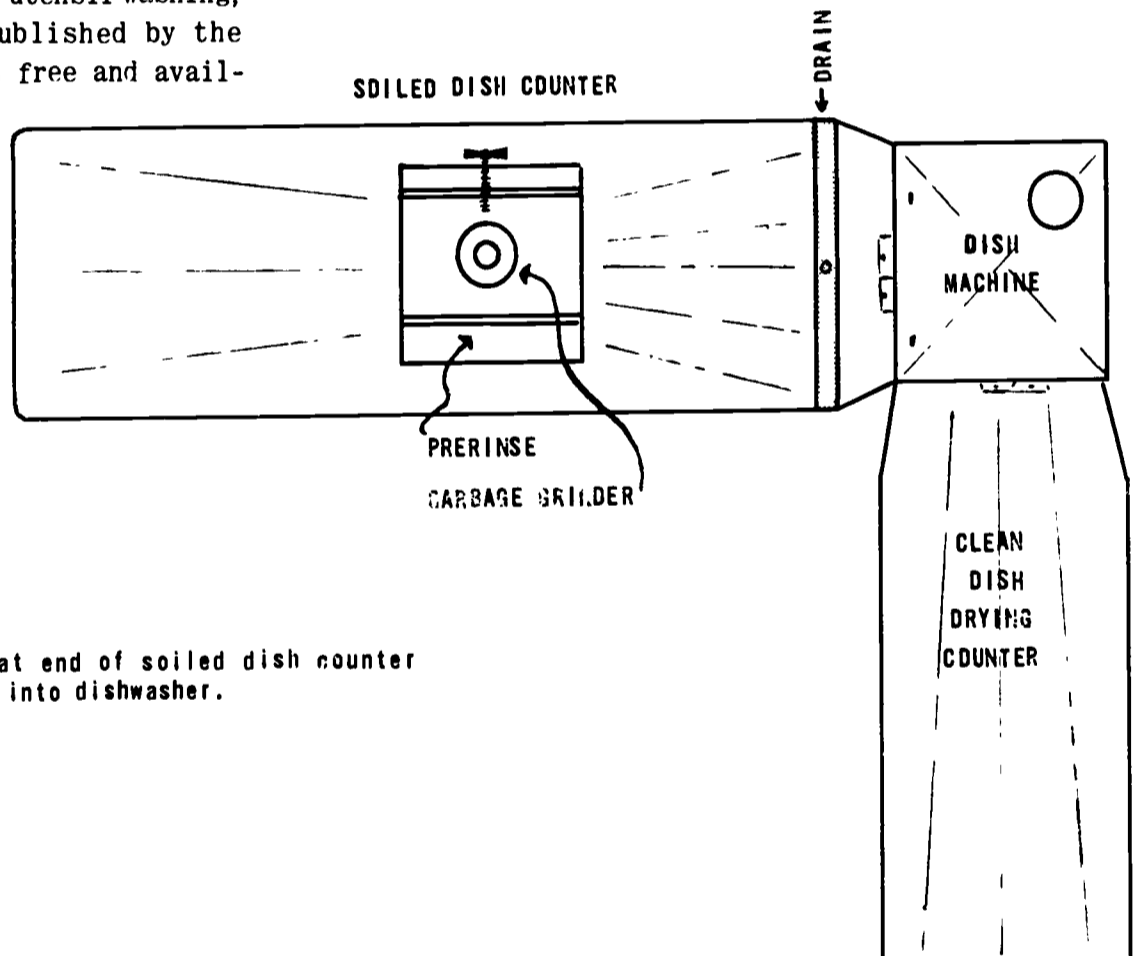
Dishwashing arrangement using three-compartment sink. Counters for soiled dishes and for cleaned utensils must be roomy.

Utensil washing machines are to meet the National Sanitation Foundation Standard No. 3. Sinks for manual washing of utensils (including pots and pans) must meet NSF Standard No. 2, or the equivalent.

Provisions must be made for a soiled utensil counter of proper design, large enough to permit proper sorting, scraping, and pre-washing. Drainage from the counter must not go back into the washing equipment.

Clean utensil counters should be large enough to allow air drying of utensils.

For information on manual and machine utensil washing, see the booklet entitled *Dishwashing* published by the Ohio Department of Health. The booklet is free and available at any local health department.



Dishwashing by machine. Drain at end of soiled dish counter prevents water from flowing back into dishwasher.



## UTENSIL STORAGE

### Required

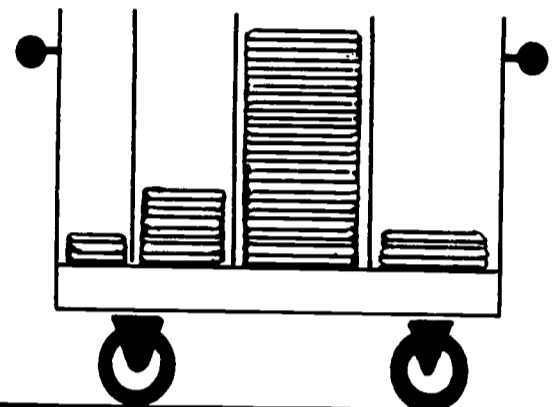
on plans & specifications

- Indication that all utensils can be stored in a manner protecting them from dirt, dust, splash, overhead leakage, and the like

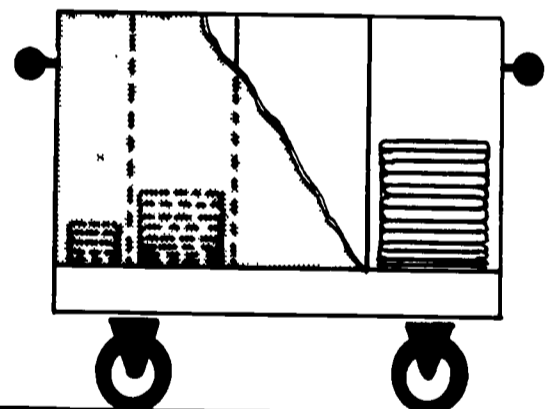
Utensils and equipment should be reasonably well protected from contamination. Otherwise, the effect of cleaning and bactericidal treatment is erased.

Storage of utensils will vary, depending upon the type and size of food service 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 convenient to the area where they're to be used.
3. Don't 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 dipper well with running water.



MOBILE CLEAN DISH CART  
FOR UNDER COUNTER STORAGE



COVERED MOBILE CLEAN DISH CART



## WASTE DISPOSAL

### Required

on plans & specifications

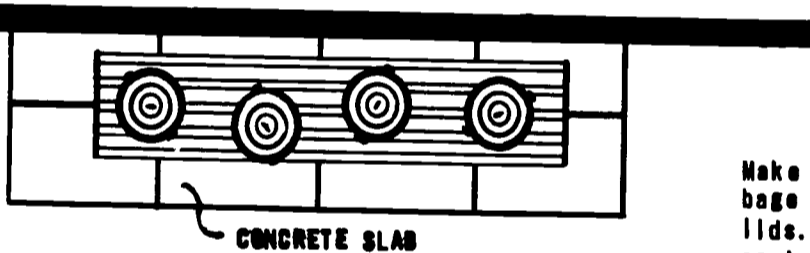
- Indication that sewage from the establishment can be satisfactorily disposed of
- Indication that garbage and refuse can be properly stored while awaiting removal

Garbage, refuse, and liquid wastes from a food service operation, unless properly disposed of, can quickly become a public health hazard.

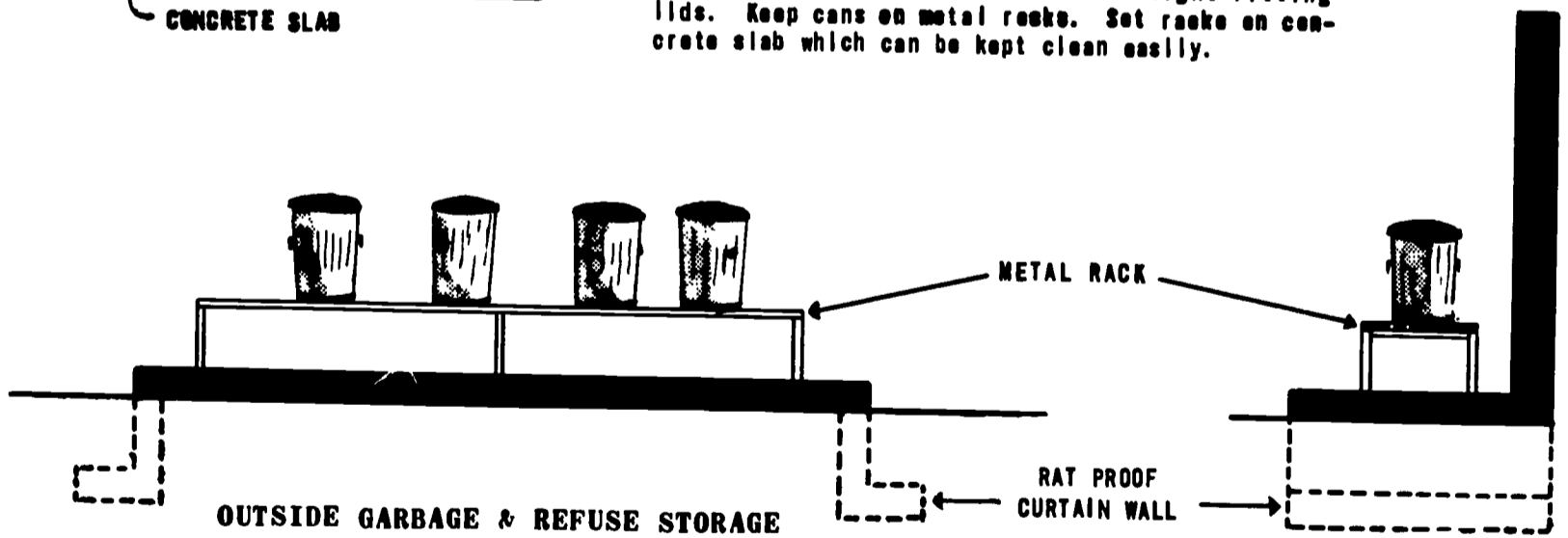
Nowadays, when permitted by local authorities, most new operations are provided with garbage grinders.

If stored, garbage may be kept in water-tight metal containers. These must have tight-fitting lids and be kept on metal stands above ground. Or, garbage and refuse storage sheds or enclosures may be used. They must be insect- and rodent-proof. (For further information, see the Ohio Department of Health publication entitled *Rat Control*.)

In large operations, refrigerated garbage storage rooms are highly desirable. The rooms should be adequately lighted, ventilated, and supplied with hot and cold running water. The floor should be graded to a properly "trapped" drain.



Make it tough on rodents and insects. Store garbage and refuse in metal cans with tight-fitting lids. Keep cans on metal racks. Set racks on concrete slab which can be kept clean easily.



## FOOD STORAGE

### Required

#### on plans & specifications

- Indication that there is provision for hot food storage (140° F. or more), regular refrigeration storage (50° F. or less), frozen food storage (0° F. or less), dry food storage, and food on display



Food storage area should be clean, well lighted.

Proper dry food storage can be a "seven league step" toward prevention of disease through food. For details, see the booklet entitled *Food Storage* published by the Ohio Department of Health. Free, it's obtainable from any local health department.

**Refrigeration Space.** The amount of refrigeration space needed depends upon number of meals served, type of service, marketing practices, and delivery schedules. The scale below is often used for judging space needed in an average full menu restaurant; it does not provide for beverage cooling or frozen foods.

Refrigeration Space	
Number of Meals Served Daily	Recommended Capacity
75 to 150	20 cubic feet
150 to 250	45 cubic feet
250 to 350	60 cubic feet
350 to 500*	90 cubic feet

\* A walk-in refrigerator is usually recommended for this size and larger food service operations. It is in addition to the reach-in refrigerator needed in all operations.

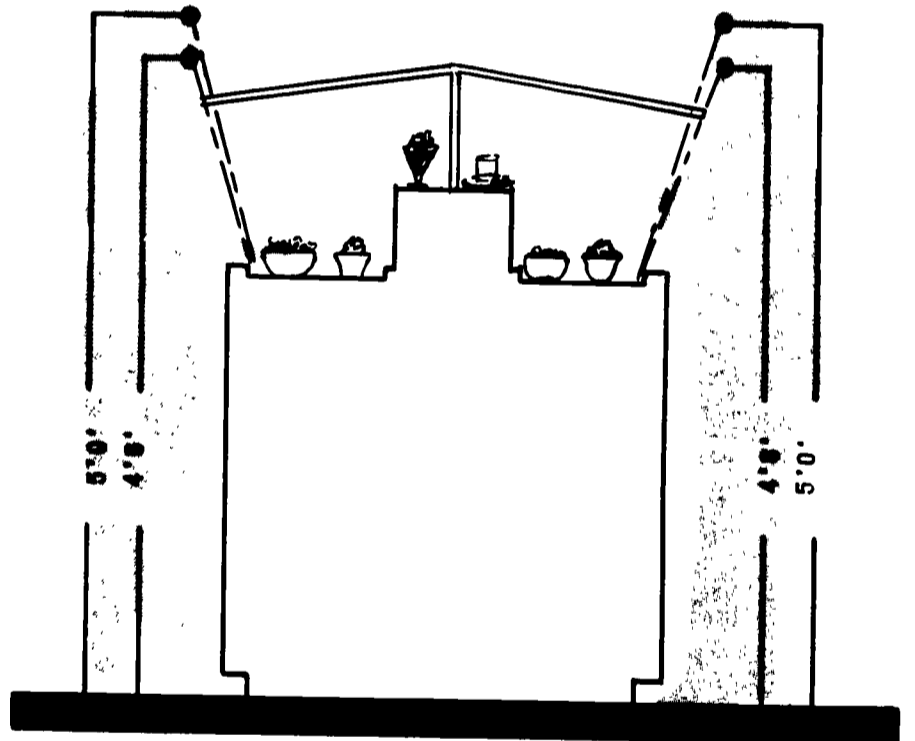
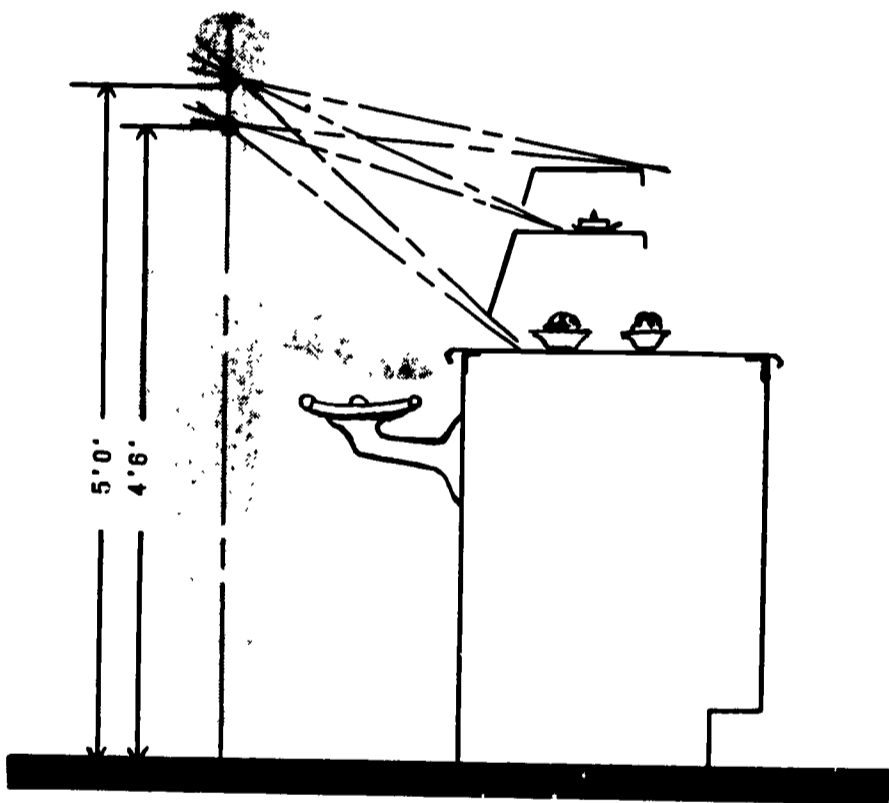
## SELF-SERVE

Foods on display in cafeterias, buffets, and smorgasbords are to be protected from customer contamination by glass or plastic guards. Hand openings for self-service are permitted on counter or table fronts.

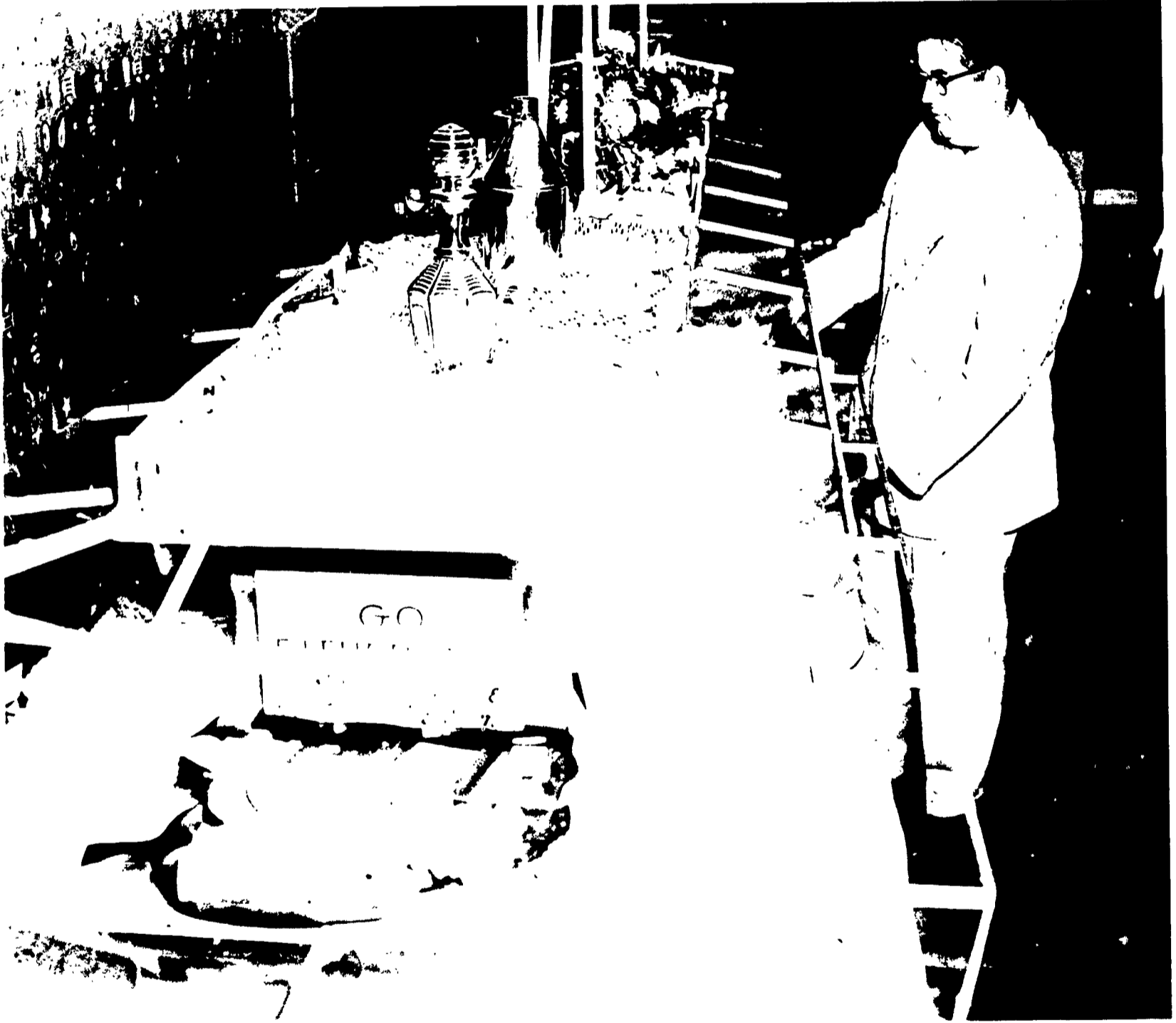
The protective guards are to be mounted so as to intercept a direct line between the mouths of the average height customers (approximately 4 feet 6 inches to 5 feet

above the floor) and the food being displayed. Guards may be any shape within these limits.

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 50° F. These temperatures inhibit the growth of harmful bacteria.



Proper placement of counter guard in smorgasbord or buffet-type display. Guard should be placed so as to protect food from contamination by the mouth of average-sized person, or approximately 4'6" to 5' above floor.



## HELPFUL PUBLICATIONS

Publications free from your local health department or the Ohio Department of Health:

*Good Food Service*, including the Food Service Law and Regulations

*Dishwashing*, by Hand, by Machine

*Food Storage*

*Rat Control*

*Insect Control*

*The Refuse Problem*

*Water Supply, Sewerage and Sewage Treatment for Public Buildings in Ohio*

*The Ohio Plumbing Code*

*Cross Connection Control in Ohio*

National Sanitation Foundation, Ann Arbor, Michigan

*Standards Number 1, Soda Fountain and Luncheonette Equipment*

*Standards Number 2, Food Service Equipment*

*Standards Number 3, Spray-Type Dishwashing Machines*

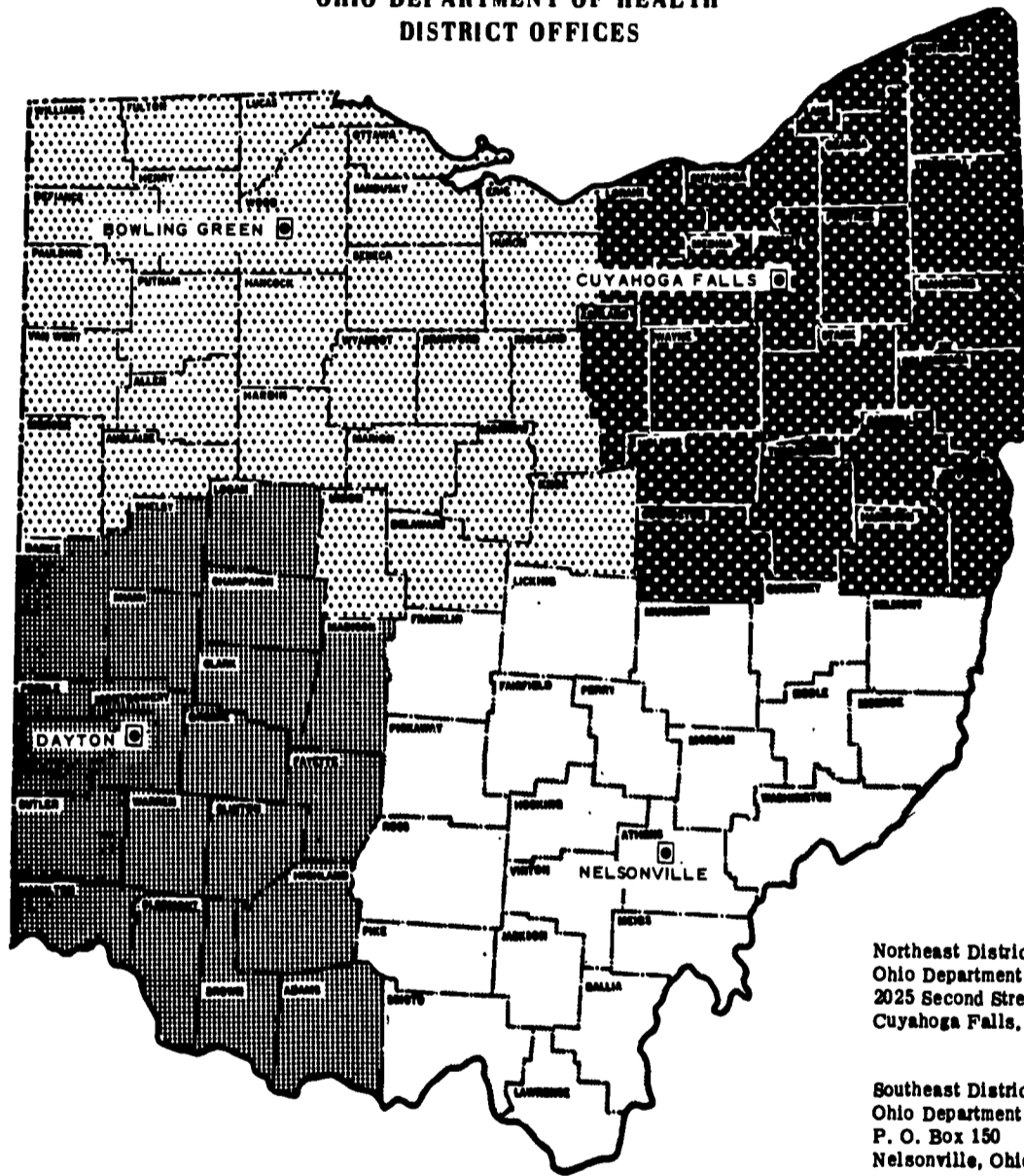
*Standards Number 4, Gas and Electric Commercial Cooking and Warming Equipment*

*Equipment Listed as Meeting National Sanitation Foundation Standards*

American Gas Association, 420 Lexington Avenue, New York 17, N.Y.

*Enough Hot Water...Hot Enough*

**OHIO DEPARTMENT OF HEALTH  
DISTRICT OFFICES**



**Northeast District Office**  
Ohio Department of Health  
2025 Second Street  
Cuyahoga Falls, Ohio

**Northwest District Office**  
Ohio Department of Health  
133½ South Main Street  
Bowling Green, Ohio

**Southeast District Office**  
Ohio Department of Health  
P. O. Box 150  
Nelsonville, Ohio

**Southwest District Office**  
Ohio Department of Health  
310 Ludlow Bldg.  
136 South Ludlow Street  
Dayton, Ohio