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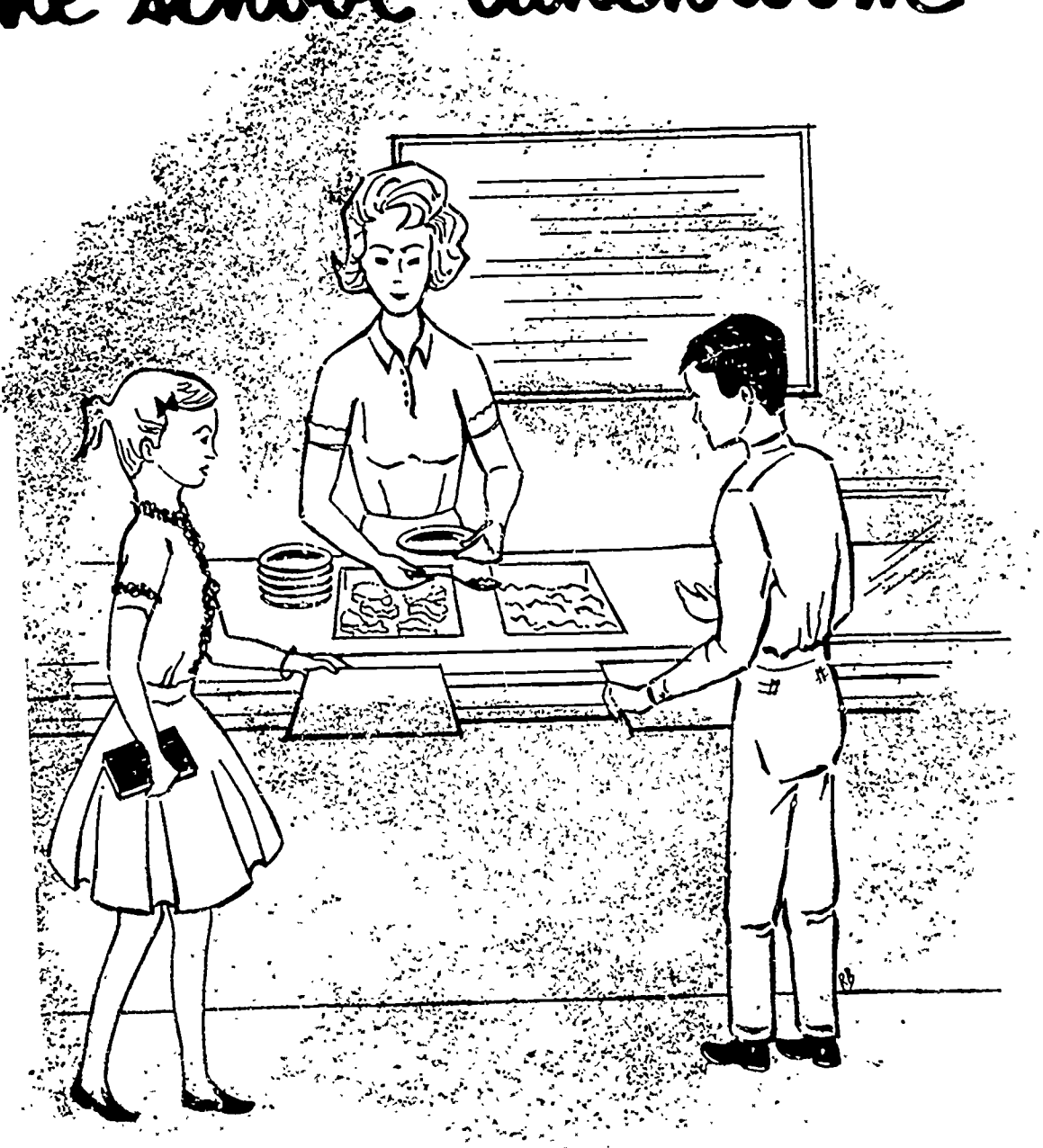
ABSTRACT

A pamphlet for the use of architects, school administrators, school lunch directors, and managers discusses the preparation of plans for new or remodeled buildings and the improvement of existing school lunch facilities. Included are sections on storage areas, kitchen areas, serving areas, dishwashing areas, dining rooms, central kitchens, classroom feeding, minimum equipment requirements for school kitchens (a chart broken down by number of lunches served from 100 to 1,500), and schematic drawings of school lunchroom kitchens. (RH)

planning and equipping the school lunchroom



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Planning and Equipping
the
School Lunchroom

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Division of School Buildings and Grounds

Foreword

This revised pamphlet is one of a series designed to improve specific areas of the school plant. It is hoped that it will be helpful to architects, school administrators, school lunch directors, and managers in the preparation of plans for new or remodeled buildings and in improving existing school lunch facilities.

Appraisals of the school lunch facilities were made by observation of Department field supervisors and by consultations with school administrators, school lunch directors, and equipment specialists in colleges. Staff members for school lunch supervision in the Bureau of Home Economics and in the Division of School Buildings and Grounds made the current revisions.

In arriving at the suggestions contained herein, Department field supervisors observed the efficiency of operation of existing school lunch facilities in various parts of the State and held consultations with school administrators, school lunch directors, and equipment specialists. Staff members in the school lunch supervision unit of the Bureau of Home Economics Education and in the Division of School Buildings and Grounds made the current revisions. The pamphlet represents, therefore, a composite of the thinking of many different people.

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Supervisor, Division of School Buildings and Grounds

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Contents

Section 1

Introduction

The major objective of the school lunch program is to improve the nutritional status of school children. The noon lunches that a child eats in the course of a school year have an appreciable influence on his health, his education, and his general welfare. The school lunch helps children to develop an active interest in their nutritional needs and to improve their eating habits. The Council on Foods and Nutrition of the American Medical Association states: "The Council believes that one of the valuable functions of a school lunch program is to provide training in sound food habits." This is accomplished by serving a combination of foods of fundamental nutritional importance, prepared to conserve important vitamin and mineral elements.

Adequate space and appropriate equipment contribute to a smoothly functioning service. Attractive surroundings and an unhurried, pleasant dining atmosphere promote desirable social behavior and good citizenship.

The well planned lunchroom should make possible sanitary food handling practices. Facilities and equipment must meet recommended sanitary standards to assure the service of safe food.

Each school lunchroom is an individual problem which requires careful analysis and planning before actual construction and placing of equipment take place. The combined efforts of architects, consulting engineers, equipment specialists, sanitarians, and the State and local school lunch supervisory staff should assure a lunch facility that will be useful for many years. There is no set plan that will meet the needs of every school.

Section 2

Factors Involved in Planning

Factors to be considered in the planning are:

- Number of pupils to be served

  Sufficient space should be provided for all students who may eat in school and for a high percentage of pupils who will purchase lunch. Pleasant surroundings promote good behavior. Fast service will encourage students to purchase a complete lunch.
  Future needs of the program should be considered to allow for expansion.

- Number of lunch periods

  It is suggested that three periods of not less than 30 minutes each be used in serving all the pupils in any one school building. Thirty minutes has proved to be sufficient time to allow pupils to go to lockers and toilet rooms before eating, facilities service, makes maximum use of personnel's time and kitchen equipment, and allows pupils sufficient time for eating.

- Age of the pupils

  In primary and elementary schools, less serving and preparation space is necessary. Simple menus and small quantities of food are needed to satisfy the nutritional requirements and appetites of this age group.

- Type of lunch to be served

  To encourage maximum participation in the high school, a provision should be made for choices within the menu or for serving different types of complete lunches. Milk and ice cream may be offered for children of all age groups who bring their lunches from home.

  A choice of lunches or a more varied menu will require a longer counter and more equipment for preparation. The highest participation has been found in elementary schools that offer one complete lunch and milk. The service of only one type of lunch for elementary children will teach students to accept a variety of foods, will speed service, and will require less equipment and personnel.

- Availability of utilities

  Determine whether public utilities such as gas, electricity, water, and sewers are available, or if private utilities must be provided. Availability and cost of utilities will be a factor in selection of equipment.

- Quantities in which food is purchased

  In areas where frequent deliveries are available, schools will require less storage space than in rural or isolated districts where deliveries may be irregular or less frequent.

- Extent of use by the community

  Space for accessory items that may be needed for adult group meetings and other school-community groups should be included.

- Durability of materials

  Materials for construction and for equipment should be durable and planned to be useful without major remodeling or additions for years. Availability of service on equipment is an important factor in selection.

- Location

  Consideration should be given to a location that is accessible for deliveries and student groups. Many schools are planning the location of the school lunchroom in the area of the auditorium, the gymnasium, and the school shops because these units are in great demand for community activities. It should be possible to use the lunchroom and its facilities without opening the entire school.

SECTION 3

Space Requirements

In determining the total space requirements for school lunch facilities, you should consider carefully the factors listed in section 2 (pages 2, 3), minimum equipment requirements (pages 28–33), and schematic diagrams (pages 37–41).

Small Operations

The space allotted to each area of the food service department should be well balanced for economy in construction, efficiency of operation, and the production of a high quality and large quantity of food. This requires careful planning of the location of specific areas, a compact arrangement of equipment, and adequate aisle space.

The determination of space for the dining room is based on the number of students to be seated at one time, but space for the kitchen and related areas must be based on the total number of meals to be prepared and the type of service. Small operations will require a higher number of square feet per meal to provide space for essential facilities.

Specific areas to be considered are:

- **Receiving and storage.** Dry storage space should be planned for a 2 weeks' supply of purchased food and a 6 weeks' supply of government commodities. Space should be included for checking deliveries and, where necessary, an outside loading dock. The placement and adequacy of refrigerated storage for the large quantities of milk handled in the school lunch program should be given special attention.

- **Food production areas.** The locations of work centers, equipment within the kitchen, and related areas should be carefully analyzed for control of main aisles of traffic and flow of work. Adequate aisle space around equipment should allow for doors to open, personnel to work, and carts to move Allow a minimum aisle width of 36 inches where one person works alone; 42 inches where more than one person may work, or persons must pass each other.

- **Serving area.** Avoid unnecessary use of space in the serving area.

Plan counter length consistent with attractive, fast service. Aisle space in front of counters should allow for orderly passage of a single line of students.

- Dishwashing and maintenance. The required space will vary considerably with the type of equipment and dishwashing machine installed. Rackless machines, used in very large operations, require a minimum of 18 by 3 feet, but use less space for soiled and clean dishes.

- Dining area. Allow 9 to 12 square feet per person per sitting. The size of table and age of student must be considered. Structural features must be recognized in the planning. Posts and partitions will require additional space. Square tables, seating four, require more space proportionally than long rectangular tables, seating 6–8, but are more conducive to good behavior. Folding and in-wall tables, used for small children, may require only 8 square feet per child. This type table does not permit flexibility in seating capacity when the room is used for other purposes.

- Employee and office facilities. Space requirements will vary with number of employees and the organization of the program in the district. See page 27.

Section 4

Storage Areas

Receiving Area

- The delivery entrance for school lunch supplies should be located at ground floor level, adjacent to the kitchen and storeroom, near a service driveway, and away from playgrounds or student traffic.
- An outside loading platform should be provided in schools that receive large quantities of food and supplies. Protection from the elements should be considered. Heavy-duty doors with self-closing and locking devices to separate the receiving area from the outside entrance or loading platform are advisable.
- A receiving area inside the building to facilitate the checking of deliveries should adjoin the delivery entrance. If possible, this area should be separate from kitchen or storeroom and be equipped with scales and a shelf or table.

Dry Food Storage Area

- The location of the dry food storage area should be convenient to the kitchen and the delivery entrance.
- Adequate space and equipment should be provided for the orderly storage and security of all foods not requiring refrigerated or freezer storage. Shelf width plus 3 feet of aisle space are adequate.
- Space requirements (*see* section 3) will vary with the number of lunches served, the purchasing practices of the school, and the frequency of deliveries. The allowance of one-third to one-half of a square foot of floor space for each lunch served per day is based on normal conditions and a 2-week supply of staples, exclusive of space for nonfood storage. In districts with a central warehouse for the storage of staples and Direct Distribution Commodities, the space allotted in individual buildings may be adjusted to delivery schedules from the warehouse. Consideration should be given to variations in volume of Direct Distribution Commodities.

- Building surfaces and equipment should be designed for easy cleaning and to protect foodstuffs from spoilage or contamination by heat, moisture, rodents, or vermin.
- Outside walls should be insulated, and walls or floors below ground level should be vapor sealed. Heavy wire mesh may be used for inside walls.
- The ventilation must be adequate to remove all offensive odors or fumes and to prevent condensation on walls or equipment. Mechanical ventilation with automatic temperature control for continuous operation day and night may be used if natural ventilation through security sash or vents to the outside is not possible. All vents to the outside should be screened.
- A room temperature below 70° F. should be maintained in the dry food storage area. Lower temperatures are preferable to minimize spoilage, deterioration of food, and losses in nutritive value. A reliable wall thermometer should be installed. The room should be kept free of uninsulated pipes, motors, or other devices that produce heat, or surfaces difficult to keep dust free.
- Equipment should include shelving, floor racks or portable platforms, dollies for bulk storage cans, and a hand truck. Arrange equipment to accommodate can sizes, cases, and bulk storage containers.
- Allow at least 1-inch clearance from walls and 6 inches from floor for air circulation and ease of cleaning; a minimum of 30 inches of aisle space for access to shelves, or 42 inches if portable platforms or platform trucks are to be used.
- Locking devices, security sash, and entrances to storage areas should be carefully planned.
- More than one entrance to storage areas prevents full utilization of storage space and makes supervision and control of stock difficult.

Nonfood Storage Area

- Storage space is needed for soaps, detergents, cleaning supplies and paper goods. This area should be separated from food storage to prevent absorption of chemical odors by foods. It should be located adjacent to kitchen, dishwashing, and maintenance areas.
- The walls, ceiling, and floor should be impervious to moisture and easy to maintain.

Refrigerated Storage

- Location for refrigerated storage should be planned to be accessible to the following areas: receiving area, cook's table, salad preparation area, and serving counter.
- Amount and type of refrigeration are dependent upon the number of lunches served, the types of menu offered, and frequency of delivery. Types of refrigerators commonly used are milk cooler, reach-in, and walk-in, or a combination. Reach-in refrigeration is normally used for storing salads, some bottled milk, and small quantities of all foods that require refrigeration while the walk-in refrigerator is utilized for larger items. (*See* equipment list, page 31.)
- Temperature of refrigerated units should be maintained at approximately 38° F. Every refrigerator or frozen-food storage cabinet should be equipped with a thermometer that is easy to read and has a rust- and dust-proof scale and frame. Walk-in coolers should be equipped with a remote-reading thermometer.
- Specifications should include regulator valves, compressor, evaporator coils, self-defrosting cycles, and other required equipment to operate the units. A lock should be provided for each unit.
- Refrigerated space for milk must be provided in addition to other refrigeration needs. (*See* section 6.)
- Reach-in refrigerators should be institutional type (minimum size, 25 cubic feet). Interior and exterior finishes should be noncorrodible and easily cleaned. Interiors should be fitted with door-operated electric lights, adjustable plated wire shelves or noncorrodible slides for trays.

The location of a refrigerator presents a more difficult problem when only one refrigerator is used than when several are used, as more areas have to be served by the single unit. It is generally advisable to locate one refrigerator near the center of the kitchen so as to serve the salad preparation table, the cook's table, and the serving counter. A pass-through unit that opens from both sides may be advantageous. If it cannot be located adjacent to both production and service areas, it should be equipped for accommodating mobile carts. A larger reach-in refrigerator is necessary when a walk-in refrigerator is not provided. Two small reach-in refrigerators are preferable to one if space is available for proper placement. In school kitchens that have more than one refrigerator, it is recommended that the reach-in refrigerator in which salads are stored be located near the serving counter and the salad preparation area.

Adequate refrigeration for milk should be provided in or near the serving counter. The second refrigerator, which may be the walk-in type, should be located near the delivery entrance and convenient for the cook's use. A reach-in section on the walk-in is convenient for small items.

- Walk-in refrigerators simplify handling large quantities of food and cleaning procedures, even though the maintenance cost may be slightly higher than for a reach-in. The walk-in should be flush with the floor so that carts and racks can be wheeled directly into the unit and the box may be easily cleaned. A drain should be located just outside the door.

  Walk-ins that are at least 8 by 10 feet should be considered to allow two storage areas 30 to 36 inches wide with a 3- to 3½-foot aisle. Doors should be wide enough (minimum, 42 inches) to permit passage of large pieces of mobile equipment. A combination reach-in, walk-in may be considered.

Freezer Storage

- As frozen foods are being used more and more, consideration should be given to the storage space for these foods. A frozen-food storage unit, located as near the kitchen as possible, is also advantageous in many school lunchroom kitchens to prevent waste of perishables. The frozen-food unit may be a part of the walk-in refrigerator, or it may be a separate unit. If a combination unit is used, placement of doors should be planned to use a minimum of cooler space for passageway into the freezer.
- If the door of a walk-in freezer does not open into a refrigerated area, it may be necessary to have a heating device installed on the door to prevent its freezing tight from condensation.
- A temperature of 0° F. or below should be maintained. Schools that plan to freeze large amounts of food may want to investigate flash-freeze equipment.
- Frozen-food storage space depends upon the purchasing practices, frequency of delivery, and number of meals served. One cubic foot will store approximately 30 to 35 pounds packed in cases. Authorities for equipment have used .1 to .3 cubic feet per meal served per day. The upright type of container should have one fixed freezing shelf with other shelves adjustable and/or removable for maximum storage.
- Freezer space should be allowed for ice cream storage. This is less expensive than using counter space.

SECTION 5

Kitchen Area

An efficiently planned kitchen will enable labor hours to be used to best advantage. Structural features of the building and equipment needs will affect the space requirement. A kitchen serving a small number of meals will require a higher square footage per meal than a kitchen serving a large number. A rectangular kitchen allows for the most efficient arrangement of equipment. Avoid unnecessary dividing walls within the preparation area.

Location

- The school lunchroom kitchen should be located adjacent to the dining room, accessible to outdoor entrances, and convenient to storage facilities.

Construction Features

- The walls and ceiling of the kitchen should be light in color, smooth, impervious to moisture, and easy to wash and keep in good repair. Select harmonious colors and materials that will contribute to the attractiveness of the room. A wainscoting with a hard, impervious surface, such as vitreous spray glaze or glazed tile, is desirable. Painted, waterproof, hard plaster may be used in areas not subject to splashing or daily washing. Soundproofing between the kitchen, dining, and other school areas is desirable.

- For kitchen floors, slip-resistant quarry tile, ceramic tile or terrazzo are most durable. Asphalt or rubber tile which is slip resistant and able to withstand acid and alkali damage may be used, but it will need frequent replacement in heavy work areas. Kitchen floor installations should include a fireproof slab under stoves and ovens coved to the floor line. Coved bases at the walls are desirable. Drains recessed in the floor facilitate cleaning. The floor should be pitched toward the drains. Floors under and around steamers and kettles should be drained independently of other floor areas. Curbs or gutters should be so constructed as to avoid being a hazard.

- Windows are most desirable. They should be located to provide cross ventilation if possible and should be high enough to permit equipment to be located beneath them. A 48-inch sill height is usually adequate. Locks should be provided.
- If food carts are to be used, the width of doors must be considered.
- Kitchen doors and windows should be screened. It is advisable to screen the dining room to allow for opening of windows during warm months.
- Sufficient lighting, natural and artificial, is necessary. Windows are preferable to skylights. If windows cannot be provided, a skylight, preferably of heat-absorbing, light-diffusing glass, must be included.
- Mechanical ventilation, separate from the ventilation provided for the places of pupil occupancy, should be given careful consideration. Over the cooking equipment, a built-in vent or vented hood which provides approximately 100 cubic feet exhaust ventilation per minute per square foot of hood opening is usually adequate. Two-speed fans are desirable. Make-up air should be provided at least for the amount of air which is exhausted. Supply air may be drawn from the dining room or from an outside grill with automatic heating coil.
- Special wiring and outlets are required for heavy-duty equipment. All lighting and wiring should comply with National Electrical Code requirements. Determine total voltage requirements of equipment to be installed for present and future needs and provide wiring and outlets accordingly. Locate one duplex outlet (120 volt, single phase) approximately every 10 linear feet, 6 inches above working level for small equipment such as slicers, mixers, etc.
- Avoid exposed conduits, pipes, and other surfaces that are difficult to keep clean. Allow adequate space for cleaning all walls near fixed equipment. Suggested clearance space is 18 inches for cooking equipment, 12 inches for tall equipment such as refrigerators, from 3 to 5 inches for rims of work tables and sinks, and 3 to 5 inches of space between adjacent units of equipment.

Food Preparation Areas

The preparation of a complete hot lunch requires several individual kitchen areas, such as hot food, vegetable, salad and sandwich, baking and dessert. A small school lunchroom kitchen usually requires only two separate preparation areas for hot and cold foods. Each preparation area requires special equipment. The table of equipment require-

ments on page 28 indicates essential items of equipment for the service of 100 to 1,500 complete hot lunches daily. A la carte preparation would require additional equipment.

Hot Food

The hot food preparation area should be located convenient to that section of the counter which includes the hot unit (food heat-retaining unit). Nearness to refrigerated areas is also desirable.

Basic equipment for the hot food preparation area consists of one range or other cooking equipment, and a cook's table. These should be spaced about 3 or 4 feet apart. As the number to be served increases, deck ovens, steam-jacketed kettles, and deck steamers should be added rather than the number of ranges increased. These last two items require a supply of steam. If more than two pieces of steam cooking equipment are to be installed, consider providing a boiler for direct steam instead of a self-generated unit. Steam may be provided directly from the boiler room or by self-contained steam-generating equipment operated by gas or electricity.

Shelves, a ceiling rack, or a portable pan rack should be provided near the cook's table for storage of pots and pans. Drawer space for small utensils should be provided. A water supply near the cook's table is essential. This may be provided by a nearby compartment sink, or the cook's table may be equipped with a built-in sink approximately 15 by 15 by 10 inches.

Water over the range or steam kettles is convenient.

The mixers, cutters, slicers, and similar equipment should be located in the kitchen areas where they are to be used.

Vegetable

The vegetable preparation area should be located, if possible, near the point of delivery of supplies and convenient to the storage facilities.

The vegetable preparation area should include a two-compartment sink equipped with drainboards to provide space for sorting, trimming, and cutting vegetables. When more than 100 complete lunches a day are to be prepared, a mechanical peeler is desirable. This may be portable or installed adjacent to the vegetable sink.

In schools serving less than 200 complete lunches daily, a three-compartment pot and pan sink may be located adjacent to the clean dish table and used for the preparation of vegetables. Vegetable preparation can be completed before there is any necessity for the washing of pans. A cutting or chopping board should be available for use on the

metal surface during vegetable preparation. This cutting board may be 1 or 2 inches in thickness and should fit inside the edges of the clean dish table or drainboard.

Salad and Sandwich

The salad and sandwich preparation area should be near the serving counter, the refrigerator, and the vegetable sink. In the larger kitchens, a small sink and a reach-in or pass-through refrigerator may be needed in this area. Work space, cutting boards, and storage space for equipment used in this unit should be provided.

Baking and Dessert

The baking and dessert preparation area should be located near the ovens, refrigerators, and mixer. In a large kitchen, this may be a separate unit.

A deck oven is desirable in a kitchen where 100 or more lunches are prepared daily. It is advisable to install a deck oven rather than a second range.

The amount of oven space depends upon the type of menu. In schools, bake decks are more satisfactory than roasting decks. A maximum of three bake decks should be included in one bank of ovens. An automatic temperature control at each deck level is desirable.

A baker's table or equivalent work space should be provided whenever the space on the cook's table is insufficient for the needs of both cooking and baking preparation. (*See* equipment list, pages 28, 29.)

A mixer should be conveniently located for baking and cooking purposes.

Storage space for baking utensils should be provided in the baker's table or on a portable pan rack. Portable cooling racks are necessary.

Section 6

Serving Area

Location

The serving area may be located in the kitchen or in a separate room adjacent to the kitchen. The arrangement, however, should be such that these areas may be closed off from the dining room. This permits the use of the dining room for other purposes, such as music rehearsals, meetings, conferences, dramatics, or a study hall. There is no valid reason for separating serving and preparation areas, but they should be easily accessible to the dining room.

Serving Counters

The speed of service has a direct effect on the number of student lunches sold. Serving facilities should be planned with careful attention to all factors that influence speed and economy of service. These factors are the type of menu to be served, scheduling of lunch periods, seating capacity of the dining room, work efficiency of counter personnel, initial cost of installation, and future costs of operation.

Studies indicate that 12 or more students per minute can be served a simple lunch. A set lunch is the quickest and easiest to serve. When a choice of lunches, choices within the lunch, or a la carte items are offered, fewer students per minute can be served.

Fast, efficient, and economical service can best be provided with short, straight counters. Long curves rather than sharp angles allow for faster movement of lines and fewer accidents.

Number

- In schools serving less than 100 meals daily, food may be served from a table in the kitchen or directly from the range through a serving window, making a separate counter unnecessary.

- One serving counter can accommodate a maximum of 175 to be served per sitting. For each additional 175 persons per sitting, another counter should be provided.

Length

- The length of the serving counter is determined by the type of menu to be served. A length of 15 to 20 feet provides space for trays, hot and cold food, tableware, and a checker or cashier. A choice of lunches or a la carte service may require more space. Shorter counters and space at the beginning of the counter for a portable tray cart are less expensive and make possible more efficient and rapid service.

Height

- The recommended height for a serving counter in a junior-senior high school is 36 inches from the floor; in primary and elementary schools, 28–32 inches. With lower counter installations, the floor on the kitchen side of the counter should be depressed 4 to 6 inches to provide efficient working heights for adult workers.

Arrangement

- A hot unit inset and display shelves over the cold food section are desirable in schools serving more than 200 lunches daily. The openings in the hot food section should accommodate interchangeable insets of various sizes and depths. In the interest of economy, hot food units may be eliminated if a simple meal is served.

- A low glass food protector erected along the top front of that part of the serving counter dispensing hot food and salads is a desirable feature. A single deck food protector is usually installed across the hot unit section of the counter. This is useful in passing food to older students. In elementary schools, a pass-out space at counter height should be allowed at the end of the hot unit.

- Refrigerated cold pans in school lunch counters are not recommended. Refrigeration behind the counter for trays of set up salads or desserts is preferable. One or two display shelves over the cold food section wide enough to accommodate trays of pre-portioned cold foods aid in replenishing the counter.

- Self-service and refrigerated storage space for milk should be carefully planned. In addition to other refrigeration requirements, one cubic foot net capacity for each 50–75 half-pint containers, depending on the size and shape, will be needed. Self-service may be provided at the counter or adjacent to it from a mechanically cooled horizontal chest, with or without an automatic elevating device. With adequate cooler space, portable racks may be wheeled to a space in the counter during the serving period.

- A minimum of counter space should be allocated to ice cream service. A one- or two-compartment cabinet can be refilled from freezer storage located in another area.

- Space at the end of the counter can be provided for the cashier in most cases. This may be portable or part of the serving counter. The necessary equipment should be arranged so the cashier can sit or stand at the end of the counter. When the cashier has an unrestricted view of the counter rail for several feet ahead of the stand, the lines move more quickly. If counter space is at a premium the cashier may be located in the dining room at the exit from the serving counter. However, this arrangement is not desirable. It increases confusion and accident hazard and slows down students leaving the serving area.

- Double service generally operates more economically and efficiently when the two service lines meet at a common point where the money is collected.

- Serving counters may be made up of portable units. This type of counter is useful for in-room feeding or for an auxiliary service line in the dining room. A space should be provided at the beginning of the counter for a portable tray cart. This arrangement is less expensive and eliminates unnecessary handling.

- Under-counter space for covered dish carts provides economical and convenient storage for dishes and saves the cost of installing a counter front below the tray rail.
  If there is space between the floor and the bottom of the counter, it should be adequate to allow for easy cleaning.

- Tray slides should be wide enough to provide a good base for trays and located lower than the top of the counter.

- Consider a small table in the dining room for service items that tend to slow up the line: adult beverage service, items that do not require constant attention of workers, or those to which patrons help themselves.
  The menu board should be located at eye-level and clearly visible for people in the serving line.

Section 7

Dishwashing Area

Location

- The dishwashing unit should be located adjacent to the dining room with the dish-return window placed to eliminate cross-traffic between students depositing their trays and those entering the dining room from the serving area.
- The dishwashing facilities may be located in the kitchen area with a straight. L-shaped, or U-shaped arrangement of soiled dish table, dishwashing machine or dishwashing sinks, and clean dish table.
- In a school lunchroom kitchen serving less than 100 complete lunches daily, dishwashing sinks are generally used instead of a dishwashing machine. They should be placed in the same general location as the dishwashing machine in a larger installation. It is recommended that a three-compartment sink be installed which will provide for soaking, washing, and sanitizing rinse.
- In schools serving less than 500 lunches daily, a dishwashing area as part of the kitchen is more efficient and pleasant than a separate dish room. A partial partition to hide the soiled dish table from the view of patrons in the serving line is advisable.
- In larger kitchens, a separate dish room may be considered.

Construction Features

- Walls, ceilings, and floors should be impervious to moisture and easy to clean.
- Floors should be slip resistant and well drained.
- Walls behind dishwashing equipment should be protected by a splash-back at least 6 inches high immediately above the dish table.
- A stainless steel cowl should be built on both sides, front and back, where the tables attach to the dishwashing machine to avoid splashing.
- Grease traps, floor drains, and other connections should comply with the American Standard Plumbing Code.
- Water softening equipment may be necessary in some areas for satisfactory operation and maintenance of equipment.

Hot Water Supply

- The hot water supply to the kitchen is most important. Pressure and temperatures must be maintained properly to wash, sanitize, and allow for the air-drying of china, plastics, and tableware.
- The water temperature at the pre-rinse should be 110° —140° F., on the wash tank 140° —160° F., and on the final rinse 180° F. A waterflow pressure of 20 to 25 pounds should be maintained.
- In many schools it may be advisable to install separate hot water tanks for the kitchen to keep a continuous supply of 140° —160° F. water and a booster tank to secure the 180° F. temperature for the final rinse.

Ventilation

- Removal of excess steam from the dishwashing area is essential for the air-drying of dishes.
- Mechanical ventilation should be separate from that which serves areas occupied by pupils.
- An exhaust fan located in the dishwashing machine as near the water level as possible is desirable. A direct flue connection is usually more effective than a vented hood.
- Elimination of walls between the dish room and the preparation area will enable air to move freely.

Equipment Installation

- For hand washing of dishes and pots, a three-compartment sink with drainboards at both ends should be provided. A chemical sanitizer may be used in the final rinse instead of 180° F. rinse water. A tray with a removable perforated section approximately 8 inches wide installed between the first two sections of this three-compartment sink is useful for scraping pots and pans.
- Size requirements for dishwashing machines, pre-wash sinks, and soiled and clean dish tables are given in the equipment list on page 30.
- The machine selected should meet the standards of the National Sanitation Foundation.
- A sink for pre-flushing of dishes is recommended unless the machine has a built-in pre-rinse. This sink should be recessed in the soiled dish table at least 24 inches from the entry of the machine to allow

space for one loaded rack of dishes. The installation should allow dish racks to slide over or rest on the sink while dishes are being sprayed. The unit should be equipped with an overhead spray on a flexible mounting controlled by a foot pedal or a self-closing hand valve. Cold water and 140° F. water connections should be provided. A waste disposer may be a part of this installation. Perforated metal inserts for sinks to catch food particles and guards to salvage silverware from disposers should be provided.

- A rinse injector attached to the machine will hasten the air-drying of plastics and prevent spotting of tableware. Toweling of dishes is unsanitary and time-consuming.

- Belt conveyor machines with nylon links and pegs are finding favor because of labor-saving due to the elimination of basket handling. However, full loading of this type of machine is essential to satisfactory operating efficiency. The high initial cost of installation makes it practical for only very large schools.

- The soiled dish return window should be wide enough so two students can deposit trays at one time. The opening should not exceed 18 inches in height to reduce noise and conceal unattractive appearance of soiled dish tables. Openings underneath the dish return window for silver and papers are practical if the construction is carefully planned.

Storage Space

- Storage space for dish racks when not in use and for washing powders and detergents should be provided in the dishwashing area.

- If dish storage space under or near the serving counter is limited, space in the dish room should be allowed.

- Covered portable dish trucks are convenient for storing and carting dishes and trays to the location where they are to be used.

Section 8

Dining Room

A pleasant dining area adds to the enjoyment of the lunch and to the development of desirable social behavior. A careful analysis of the needs of the school will result in a room that is functional and suitable for the purposes for which it is to be used. Consideration should be given to the possible growth of the lunch program and increase in enrollment.

Location

- The dining room should be adjacent to the school kitchen and planned so that it can be completely closed off from the kitchen and serving area.[1] When the counter opens directly into the dining room, consider a flexible roll-down grill equipped with a lock. If it is important to eliminate kitchen noise from the dining room, a soundproof wall should be substituted.

- The kitchen is sometimes placed between two smaller dining rooms. This arrangement may be advantageous in some of the larger K–12 or junior-senior high schools since it permits the segregation of different age groups.

- Folding doors in a large dining room will make it possible to divide the dining room into small sections or open the entire area for a large function.

Construction Features

- Slip-resistant, resilient, grease-proof flooring is desirable. Hard maple or oak flooring is satisfactory when properly maintained. Coved bases at walls facilitate cleaning.

- The walls should be smooth, impervious to moisture, easy to clean and keep in good repair. Washable paper or paint on hard plaster

[1] New York State Education Department, Division of School Buildings and Grounds. *Designing the Central School Plant as a Community Center.* (Albany; The Department.) p. 5.

is satisfactory. Wood and plaster board are not rodent-proof, are most easily damaged, and are difficult to maintain. The walls around the dish-return window should be protected with a finish that can be washed daily.

- The dining room should be acoustically treated. Structural features between the kitchen and the dining room should be designed to shut out kitchen noises.
- Doors should be located for orderly travel of students from serving counter to dining tables to dish-return area and to exit. Doors should be at least 36 inches wide for one-way traffic and 60 inches wide for two-way traffic. Screens on windows and outside doors are desirable. A blow-down fan or other means of fly control at the entrances to the dining room from other parts of the school may be considered. Doors to serving and kitchen areas need soundproofing if the dining area is a multipurpose room. A ready exit from kitchen to dining room should be planned.
- Both natural and artificial lighting are necessary. Glare and excessive glass which leads to overheating should be avoided. Adequate lighting for night activities should be provided. Electric outlets may be required for fans and portable serving units.
- A small platform or stage at one end of the room would make the room more usable for various types of school and community programs.[1] Accessible storage space should be provided for equipment used for these programs and for any furniture that must be removed from the dining room.
- Frequent use of the dining room when school is not in session makes it advisable to provide for separate heating.
- One or more refrigerated drinking fountains should be installed in the hall near the dining room exit. The drinking fountain should be a protected angle-jet type, approximately inches high for primary grades and 36 inches high for others.
- Picture moldings, pegboards, and bulletin boards have been found useful in school dining rooms. Blinds, shades, draperies, curtains, and planters at the windows add to the attractiveness of the room but should not be allowed to interfere with ventilation.
- Fabric curtains or draperies improve acoustics.
- An electric outlet conveniently placed for adult coffee service should be considered.

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[1] *Ibid.*

Tables and Seating

- See space requirements (page 5). Plan for approximately 24 linear inches of table space per person. In arranging the dining room furniture, allow aisle space between tables and chairs to include passage area and that occupied by a person seated at the table. A minimum passage area is 18 inches between chairs. Therefore, tables must be placed 4½ feet apart. Diagonal arrangement of tables utilizes space better than a square arrangement and gives a more trouble-free traffic lane.
- Small tables will allow a more flexible arrangement, give the dining room an atmosphere of spaciousness, and permit small friendly groupings. Small tables should be large enough to accommodate four trays. Lightweight folding tables, easily removed and stored, could be considered if the room is used for functions requiring only chairs.
- Table heights should be selected for the comfort of the students. In schools serving all grades a compromise height between 30 inches, normally used for adults, and 24 inches, suitable for small children, should be chosen. All chairs and tables should be equipped with glides to facilitate moving and to minimize noise. A self-leveling device on table legs will prevent rocking. Chairs are preferable to stools or benches. They provide back support, set desirable standards for good social behavior, and may be easily stacked for cleaning. Chair seats should be 10 to 12 inches below the table top.
- Fold-in-wall tables may be considered when it is desirable to secure rapid cleaning of the dining room even though the initial expense for this type of table is greater. These tables installed in wall recesses, are manufactured approximately 14 feet long. Ordinarily this type of table, seating about 16, will be installed on only one side of the dining room, necessitating the purchase of the conventional type of dining table or a folding table with attached benches for the balance of the dining room. Fold-in-wall tables do not have the advantage of separate tables and chairs and are not satisfactory for teen-agers and adults. The space near the wall by the attached tables may be difficult to keep clean.
- Table tops should be covered with resilient materials that are heat and stain proof, easy to keep in good condition, and that help to eliminate dining room noise. These materials are available in colors that would harmonize with the general color scheme. It is recommended that top surfaces be bound with some type of metal or heavy plastic edging, unless a self-edging is provided.

Section 9

Central Kitchens

School districts contemplating a building program of more than one building may wish to explore the possibilities of a central kitchen. In this plan, food is prepared in the kitchen and transported to other buildings. The establishment of this type of food service requires careful analysis. The maximum requirement must be forecast from the number of schools to be served, the size and age of the student bodies, and the expected percentage of participation. Decisions must be made regarding the method of transporting food and whether dishes and trays will be washed in the small buildings or returned to the central area.

The advantages of this type of program are:

- Space requirements for kitchens in satellite schools are less, but additional space must be allowed in the central kitchen for equipment used to assemble and transport food.
- Total initial equipment costs would be less since large food preparation equipment would be centered in one building.
- Labor costs should be less. Labor hours can be reduced in satellite schools. In the central kitchen, laborsaving equipment only economical in large operations can be purchased. Better co-ordination and training of personnel make possible maximum use of labor time.
- Close supervision of food by a trained person assures the preparation of uniform products.
- Records can be centralized.
- Delivery of purchases to one unit is more economical. Quality and weight of merchandise can be checked more accurately in one place.
- Primary or elementary schools — which may have a low participation in the fall and spring, when children can walk home, but a high participation during bad weather — can be serviced. The fluctuation in participation could require financial aid for such a small program

to operate independently. Transportation of food and supplies to these areas would be fairly simple because of the small amount of food involved.

Disadvantages to be studied are:

- Specially equipped trucks and insulated or electrically heated containers or carts are expensive. It may be difficult to maintain the temperature of a minimum of 140° F. essential for keeping hot food safe.
- Individual schools will require serving facilities, refrigeration, a sink and possibly dishwashing equipment. a place to keep food warm, and a small storage area. Locker and dressing space for personnel will be needed. Disposal service, if used, may be fairly expensive.
- A fully equipped kitchen will not be available for community affairs.
- Labor costs for loading and transporting of food must be considered.
- Personnel for working only part time may not be obtainable.
- Menus will be restricted to items that can be prepared in advance. Less choice will be available for the older child. Individual school menu preferences cannot be considered.
- If portions are not served accurately, food could be short or result in waste.
- It is impractical to transport food to large junior or senior high schools because of the quantities of food required.
- The educational value of the program is apt to be lessened. Children may have little opportunity to plan menus or develop the feeling that the program is an important part of their own school.

Section 10

Classroom Feeding

This type of food service is recommended for kindergarten and may be desirable for primary children. There is less confusion and more opportunity for pleasant conversation when the small child is in his own environment, seated at tables and chairs appropriate for his size. By sharing responsibility for lunch service, children become more interested in learning to recognize and taste unfamiliar foods of a wide variety.

The lunch period can be adjusted to meet the children's needs and sufficient time allowed without interfering with the schedule of the remainder of the school. Servings, adapted to the individual child, can be offered.

Provision must be made for transporting food and keeping it at the proper temperature. For several rooms, an electrically heated food conveyor should be considered. Paper napkins, straws, and sponges for clean-up may be kept in the classroom; waste baskets may be lined with wet-strength paper or plastic bags. Labor for transporting food, serving, and clean-up must be available.

Section 11

General Considerations

Sanitation and Safety

- Ease of cleaning should be considered in the installation of permanent equipment and in the selection of surface finishes of equipment, walls, floors, and ceilings. Kitchen, storage, and dining areas should be properly ventilated, heated, and lighted. Refer to appropriate section for specific details.

- All equipment and installations should meet standards of the National Sanitation Foundation. *NSF* on the piece of equipment indicates approval.

- All lighting and wiring should comply with National Electric Code requirements.

- Traps, drains, pipes, electric conduits, shelves, and bottom surfaces of equipment should be approximately 8 inches above the floor to facilitate cleaning. Piping should come out of walls rather than floors whenever possible. If pipes must be visible, they should be of a design and material that will not mar the beauty of the installation.

- Adequate provision should be made for hose connections for rinsing floors, flushing soiled dish tables, cleaning mobile equipment, and washing cans. Floor drains should be located away from the work area with the floor slightly sloped toward the drain.

- Garbage and trash should be disposed of daily. An outdoor screened or enclosed platform for temporary storage is advisable. If daily collection cannot be provided, a refrigerated room for garbage should be considered. Cans should be thoroughly cleaned and scalded soon after they are emptied. The cleaning process may be done by a mechanical can-washer or in the boiler room where an adequate supply of hot water is available.

- Suitable protection against fire should be planned. Fire-resistant

materials, approved extinguishers, and fire blankets should be provided. Extinguishers must be periodically checked by the local fire department.

Floor Cleaning Facilities

- A mop closet and utility sink should be available for use by the kitchen personnel. The best location for such a closet is directly off the kitchen. Such closets should be ventilated and a space provided for the hanging of mops to expedite drying.

- A broom closet and small storage for cleaning supplies and other cleaning equipment should be provided in the kitchen or very near it.

Employee Facilities

- Suitable lavatory, toilet, and locker facilities to meet the need of all the lunchroom employees should be provided near the kitchen. The water closet should be completely partitioned off from the lavatory and separated from the food preparation area by two self-closing doors. In small schools, such facilities for these workers are usually included in the regular school facilities. The place where clothing is to be hung should be long, deep, and wide enough for the clothing to hang without crowding. Lockers for purses and a rod for hanging clothes are more economical and preferable to a locker that will not accommodate hangers. Dressing space and a bench or chair should be included. Hand sinks, soap and paper towel dispensers, and waste baskets should be provided in strategic work areas in the kitchen.

Office Space

- A place should be provided for the keeping of records in connection with the operation of the school lunchroom.

- In a small school, a desk and file space in the kitchen area for the person in charge of the operation is usually adequate.

- In a large school, a separate office for the manager is desirable. This gives the manager a place in which to keep program records and materials, to interview employees and salesmen. The office may be located either adjoining the kitchen or near it.

- The office for the director of several schools should be located in the central administration suite.

Section 12

Minimum Equipment Requirements for School Kitchens

NUMBER OF COMPLETE LUNCHES PER DAY	PLAN I (100–200)	PLAN II (200–350)	PLAN III (350–500)	PLAN IV (500–750)	PLAN V (750–1,000)	PLAN VI (1,000–1,500)
Cooking equipment[1]						
Ranges, heavy-duty sections (approximately 36″ by 38″ or larger) with oven	One section	One or two sections	One or two sections	One or two sections	One section	One section
Oven, deck, capacity in multiples of 18″ by 26″ pans (baking decks are desirable)	2–4 pans	4–6 pans	6–8 pans	8–12 pans	8–12 pans	12–16 pans
Steam-jacketed kettle	one 20–30 gal. (optional)	one 30 gal. desirable	one 30–40 gal.	two 30–40 gal.	two 40 gal.	two 60 gal. or one 40 gal. and one 60 gal.
Compartment steamer, capacity to accommodate four 12″ by 20″ by 4″ pans per compartment		1–2 compartments desirable	1–2 compartments	2–3 compartments	2–3 compartments	2–4 compartments
Tables[2]						
Receiving (24″–30″ wide), may be portable	one 3′–4′	one 3′–4′	one 4′–5′	one 4′–5′	one 5′–6′	one 5′–6′
Cook's (with ceiling-hung pan racks, shelves below, and 2 drawers,[3] 30″ wide)	one 5′–6′	one 5′–6′	one 6′–7′ (with sink 15″ by 15″ by 12″)[4]	one 6′–7′ (with sink 15″ by 15″ by 12″)[4]	one 6′–9′ (with sink 15″ by 15″ by 12″)	one 6′–9′ (with sink 15″ by 15″ by 12″)

Salad-sandwich (with shelf below and one 10″ shelf above top; drawers, 30″ wide)	one 5′–6′	one 5′–6′	one 5′–6′	one 5′–6′	one 5′–6′	one 5′–6′
Baker's (with portable bins and drawers 20″ wide)	Use other work area	One 4′–5′ desirable	One 4′–5′ desirable	One 5′–6′	One 8′	One 8′
Vegetable preparation (with shelves and drawers 30″ wide)	Use other work area	Use other work area	Use clean dish table	One 6′–8′ desirable	One or two 6′–8′	One or two 6′–8′
Multipurpose Portable		Desirable for all size units				
Sinks						
Dishwashing (three-compartment, approximately 54″ by 18″ by 14″)	One (only if under 100 lunches are served)					
Vegetable (two-compartment, approximately 48″ by 24″ by 14″)	One desirable	One optional	One	One	One	One
Pot and pan (three-compartment, approximately 72″ by 24″ by 14″	Use dishwashing sink	One	One	One[5]	One[5]	One[5]
Pre-rinse (See dishwashing equipment)						
Cook's (See cook's table)						

[1] Combination of range, oven, and steam equipment may be varied to provide equivalent capacities depending upon preferred method of cooking. Hood, ventilator, and water connection should be provided for cooking unit. Oven space in range may be considered as part of the total oven capacity specified.

[2] Allow approximately 4 linear feet of table top for each food production employee. Can opener attached to a portable table is convenient. Space beneath tables for carts is desirable.

[3] One drawer fitted for knife storage, preferably with locking device

[4] If water supply is not immediately accessible.

[5] Consider mechanical flush equipment for 500 or more.

NUMBER OF COMPLETE LUNCHES PER DAY	PLAN I (100–200)	PLAN II (200–350)	PLAN III (350–500)	PLAN IV (500–750)	PLAN V (750–1.000)	PLAN VI (1,000–1.500)
Hand, with soap and towel dispenser (located accessible to all work areas)	One	One	One	One	One or two	One or two
Mop[6] (see page 27)						
Dishwashing equipment Dishwashing Machine	One tank (stationary rack with timer control desirable)	One tank (rack conveyor type)	One tank (rack conveyor type)	Two tanks (rack conveyor type)	Two tanks (rack conveyor type)	Two tanks (rack conveyor type)
Pre-wash with spray (see page 18)	Sink 24″ by 24″, with dish machine	Sink 24″ by 24″, or food disposer	Sink 24″ by 24″, or food disposer	Sink 24″ by 24″, food disposer or pre-wash machine	Sink 24″ by 24″, food disposer or pre-wash machine	Sink 24″ by 24″, food disposer or pre-wash machine
Disposer[7]	Optional	Optional	Optional	Optional	Optional	Optional
Rinse Injector	One	One	One	One	One	One
Soiled dish table (30″ wide)	Approx. 4 linear feet or equivalent sink drainboard	Approx. 6 linear feet or equivalent sink drainboard	Approx. 9 linear feet	Approx. 9 linear feet	Approx. 11 linear feet	Approx. 14 linear feet

Clean dish table (30″ wide)	Approx. 6 linear feet or equivalent sink drainboard	Approx. 6–8 linear feet or equivalent sink drainboard	Approx. 8 linear fee.	Approx. 8 linear feet	Approx. 8 linear feet	Approx. 8 linear feet
Serving						
Counter 30″ wide with tray rail (space for enclosed portable trucks underneath)	Single, 15′	Single, 18′ to 20′	18′ to 20′, one for elementary school, two for high school	Two, 18′ to 20′	Two or three, 18′ to 20′	Three, 18′ to 20′
Hot food inset (openings for pans, 12″ by 20″ by 8″, with individual heat control)	3 pans	3–4 pans	4 pans	4 pans per counter	4 pans per counter	4 pans per counter
Cold food section, plain counter top (shelf above, cart storage underneath, see pp. 15, 16)	4′–6′	4′–6′	6′ per counter	6′ per counter	6′ per counter	6′ per counter
Tray stands[8]	One	One	One per counter	One per counter	One per counter	One per counter
Cashier's station (see page 16)						
Refrigeration						
Reach-in box. Walk-in box (Approx. $\frac{1}{4}$ to $\frac{1}{3}$ cu. ft. per meal served)	Consider both reach-in and walk-in when total capacity needed exceeds 60 cu. ft.		30–40 cu. ft. reach-in and walk-in, approx. 8′ by 10′	40–60 cu. ft. reach-in and walk-in, approx. 8′ by 10′	60–80 cu. ft. reach-in and walk-in, approx. 8′ by 10′	60–80 cu. ft. reach-in and 1 or 2 walk-ins, 9′ by 10′ or larger

[6] May be in a closet directly accessible to the kitchen or a part of the custodian's facilities convenient to the kitchen
[7] Disposers add load to independent sewage systems and must be considered in the design of such systems.
[8] Tray stand should be portable, located at beginning of the serving counter.

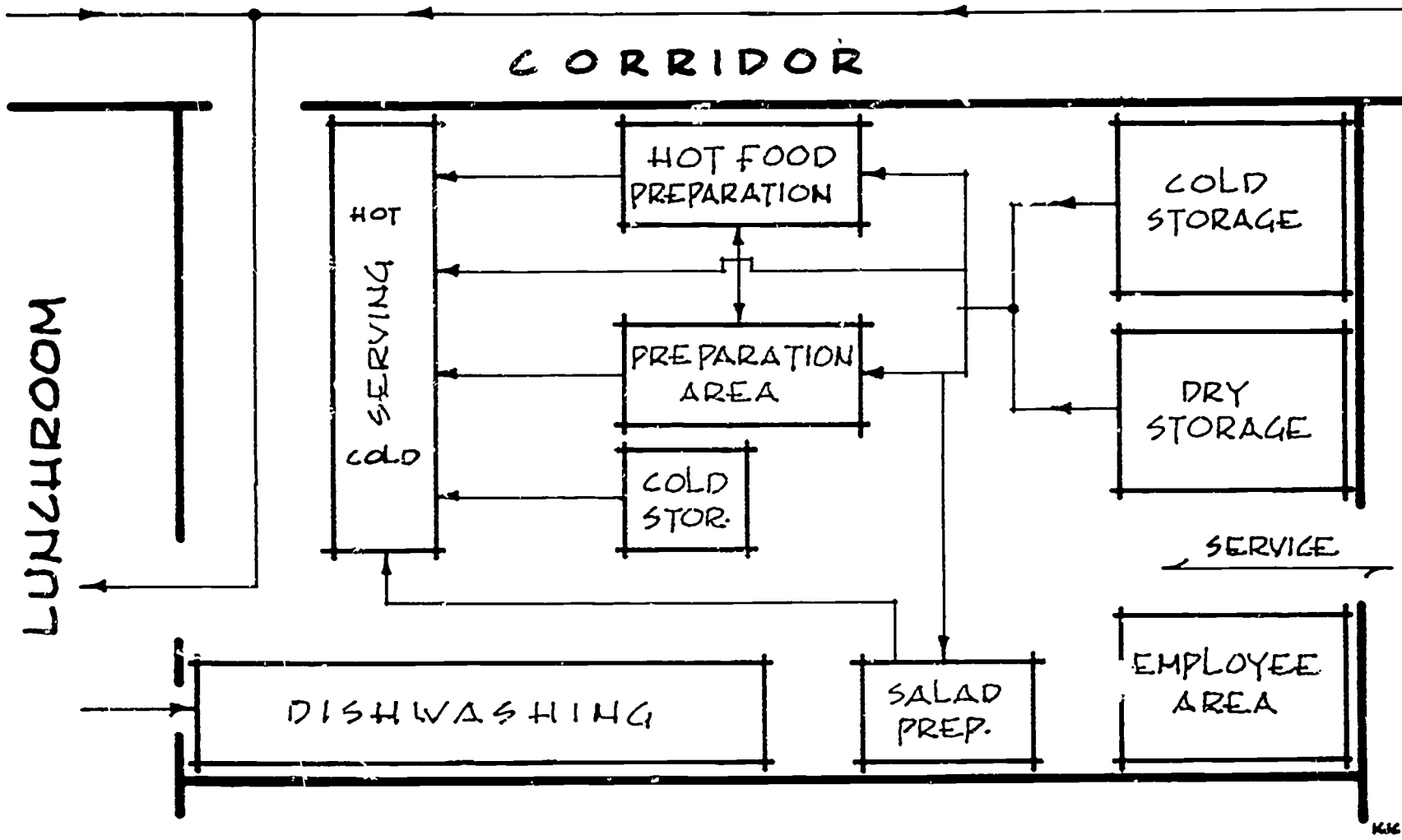
NUMBER OF COMPLETE LUNCHES PER DAY	PLAN I (100–200)	PLAN II (200–350)	PLAN III (350–500)	PLAN IV (500–750)	PLAN V (750–1,000)	PLAN VI (1,000–1,500)
Milk service, located in or near counter (see page 15)	1 cu. ft. capacity for each 50 to 75 cartons					
Ice cream cabinet	No more than one or two compartments in counter					
Frozen food storage (see page 9)	Desirable	Desirable	Essential	Essential	Essential	Essential
Kitchen machines						
Mixer with bowl adapter and attachments[9]	One 20-qt. table model	One 20- to 30-qt. pedestal type	One 20- to 30-qt. pedestal type (plus extra bowls)	One 60-qt. (30–40 adapter) pedestal type plus one 12-qt. table model desirable	One 60-qt. (30–40 adapter) pedestal type plus one 12- to 20-qt. table model desirable	Two 60-qt. (30–40 adapter) pedestal type plus one 12- to 20-qt. table model
Food chopper	Omit (add grater and slicer mixer attachments)	Omit (add grater and slicer mixer attachments)	Omit (add grater and slicer mixer attachments)	Desirable	One pedestal type	One pedestal type
Meat slicer		One semi-electric, 6″ cutting capacity	One semi-electric, 9″ cutting capacity	One semi-electric, 9″ cutting capacity	One semi-electric, 9″ cutting capacity	One semi-electric, 9″ cutting capacity
Vegetable peeler (emptying in sink)	One, 15-lb. capacity desirable	One, 15-lb. capacity	One, 15-lb. capacity	One, 15-lb. capacity	One, 15- to 20-lb. capacity	One, 20-lb. capacity

Portable equipment						
Utility trucks, approximately 22″ by 3′ with shelves	Essential number and size depend upon layout of kitchen.					
Racks Cooling—portable, 4 to 6 slatted shelves or angle slides Utensil—portable, 4 to 6 slatted shelves		Number depends on local needs, amount of baking, etc.				
Platform truck	Desirable	One	One	One	One	One
Bins on casters or dollies for cans	As needed	As needed	As needed	As needed	As needed	As needed
Enclosed holding cabinet for hot or cold food				One	One	One or two
Office						
Desk and chair	One	One	One	One	One	One
File cabinet	One	One	One	One	One	One
Scales						
Portable floor model[10]		One	One	One	One	One
Table model[11]	One	One	One	One	One	One

[9] A table-model mixer may be set on a portable cabinet, equipped with a brake, for the storage of attachments.
[10] Maximum 400-pound capacity, one-quarter to one-half of a pound graduations
[11] Commercial type, 25- to 30-pound capacity, one-quarter to one-half of an ounce graduations, platter top desirable

Section 13

Schematic Drawings of School Lunchroom Kitchens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LUNCHROOM
HOT FOOD PREPARATION
HOT SERVING
COLD
PREPARATION AREA
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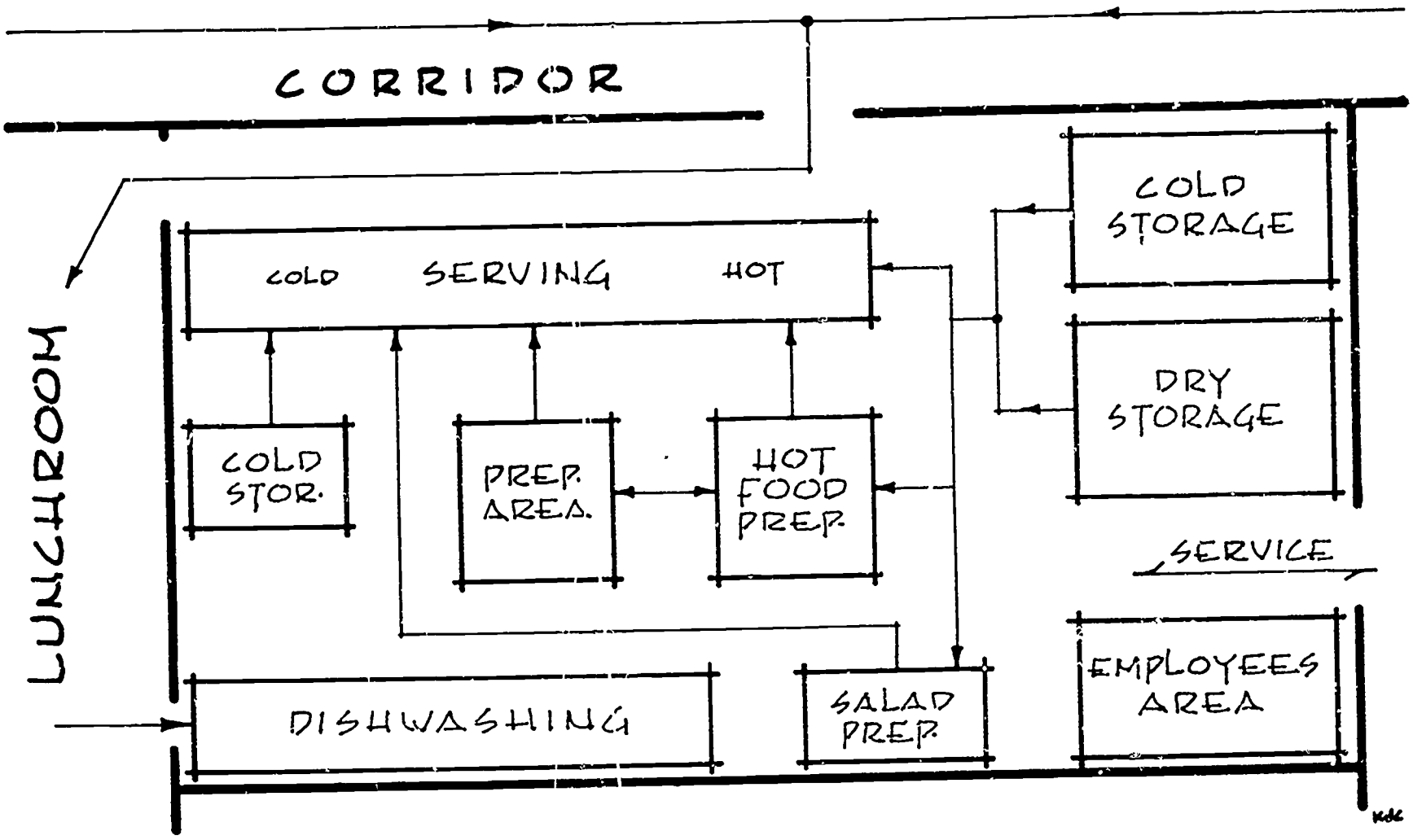
COLD STORAGE
DRY STORAGE
SERVICE
DISHWASHING
SALAD PREP.
EMPLOYEE AREA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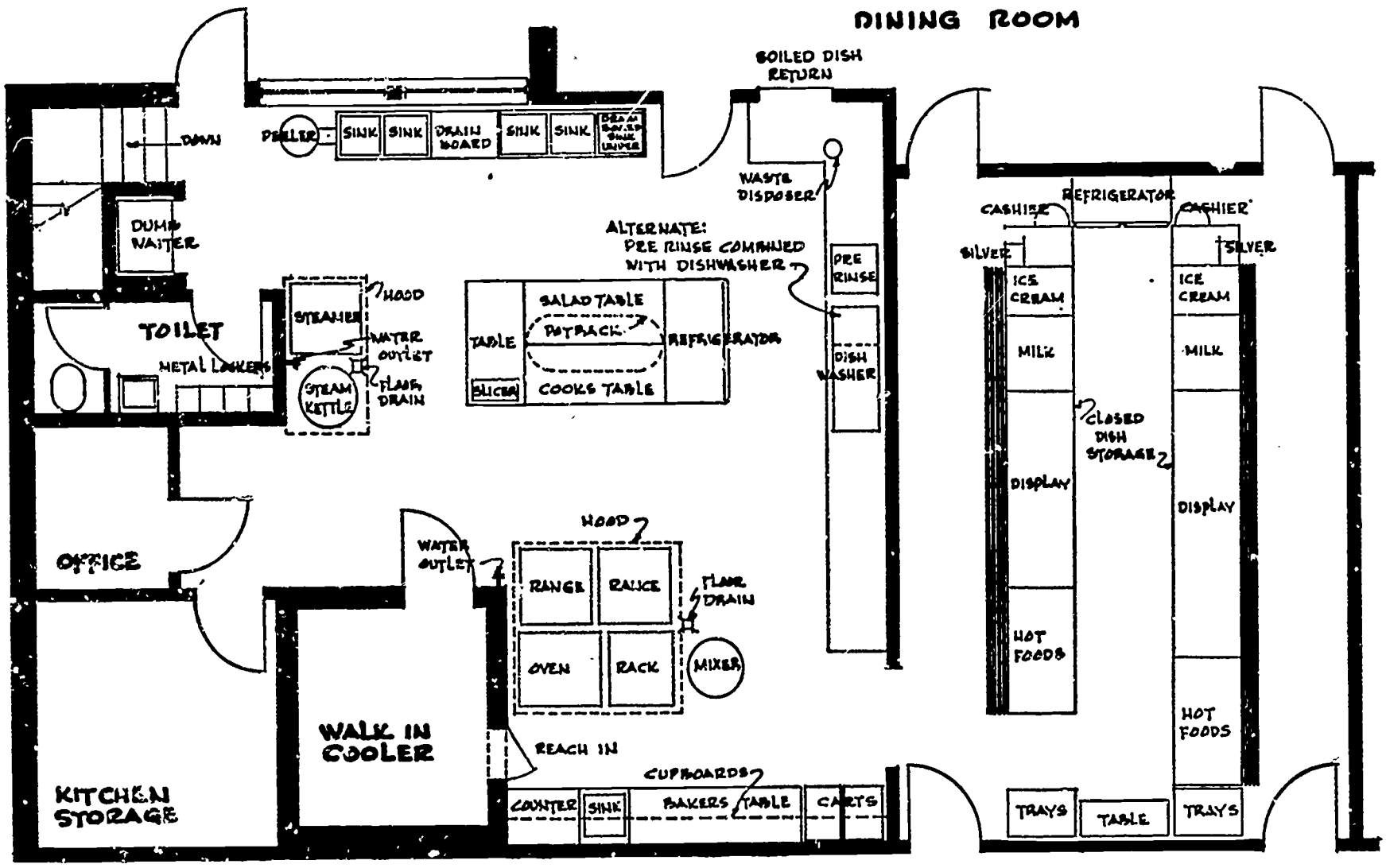
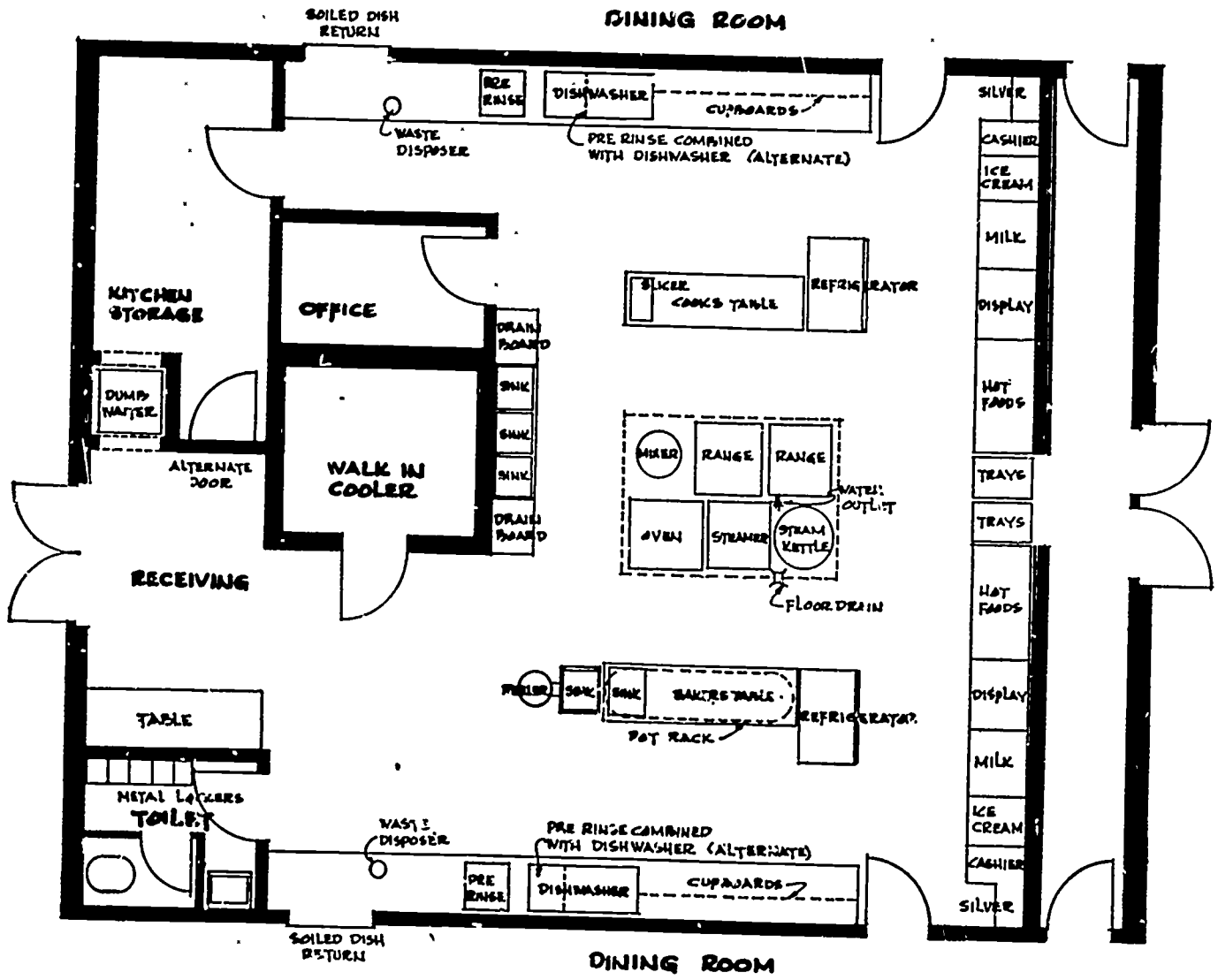
SERVICE
DISHWASHING
SALAD PREP.
EMPLOYEES AREA


DINING ROOM
SOILED DISH RETURN
DUMB WAITER
PEELER
SINK
SINK
DRAIN BOARD
SINK
SINK
WASTE DISPOSER
ALTERNATE: PRE RINSE COMBINED WITH DISHWASHER
PRE RINSE
DISH WASHER
HOOD
STEAMER
WATER OUTLET
FLOOR DRAIN
STEAM KETTLE
TOILET
METAL LOCKERS
SALAD TABLE
POT RACK
TABLE
REFRIGERATOR
SLICER
COOKS TABLE
CASHIER
REFRIGERATOR
CASHIER
SILVER
SILVER
ICE CREAM
ICE CREAM
MILK
MILK
CLOSED DISH STORAGE
DISPLAY
DISPLAY
HOT FOODS
HOT FOODS
OFFICE
WATER OUTLET
HOOD
RANGE
RANGE
FLOOR DRAIN
OVEN
RACK
MIXER
WALK IN COOLER
REACH IN
CUPBOARDS
KITCHEN STORAGE
COUNTER
SINK
BAKERS TABLE
CARTS
TRAYS
TABLE
TRAYS


SOILED DISH RETURN
DINING ROOM
ICE RINSE
DISHWASHER
CUPBOARDS
WASTE DISPOSER
PRE RINSE COMBINED WITH DISHWASHER (ALTERNATE)
SILVER
CASHIER
ICE CREAM
MILK
DISPLAY
HOT FOODS
TRAYS
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DISPLAY
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ICE CREAM
CASHIER
SILVER
KITCHEN STORAGE
OFFICE
DRAIN BOARD
SINK
SINK
SINK
DRAIN BOARD
DUMP WATER
ALTERNATE DOOR
WALK IN COOLER
RECEIVING
SLICER
COOKS TABLE
REFRIGERATOR
MIXER
RANGE
RANGE
WATER OUTLET
OVEN
STEAMER
STEAM KETTLE
FLOOR DRAIN
TABLE
METAL LOCKERS
TOILET
POT RACK
REFRIGERATOR
WASTE DISPOSER
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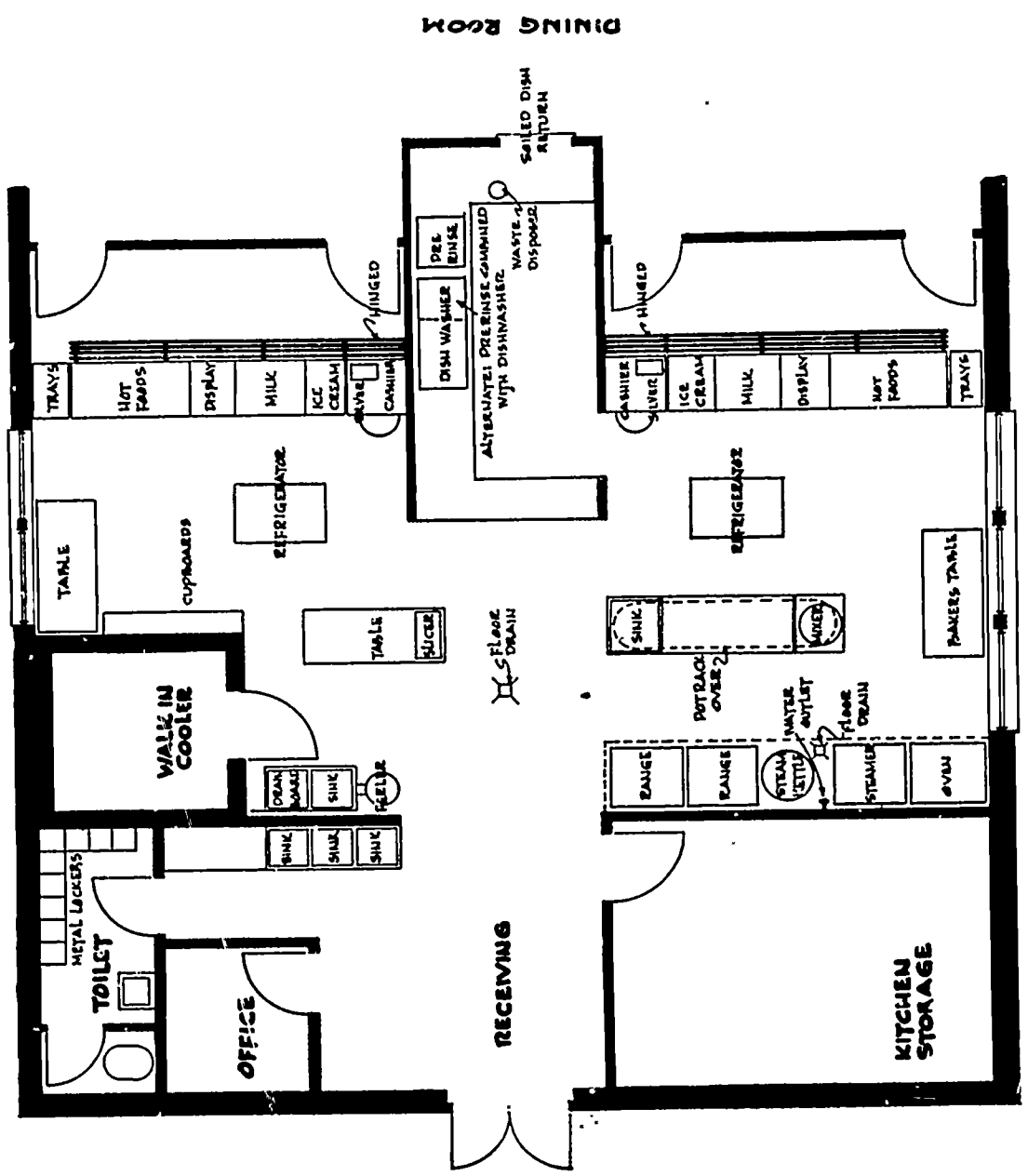
DISHWASHER
CUPBOARDS
SOILED DISH RETURN
DINING ROOM


DINING ROOM
SOILED DISH RETURN
PRE RINSE
DISH WASHER
ALTERNATE: PRE RINSE CHANNEL WITH DISHWASHER
WASTE-DISPOSER
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CASHIER
SILVER
CASHIER
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DISPLAY
HOT FOODS
TRAYS
TABLE
CUPBOARDS
REFRIGERATOR
REFRIGERATOR
TABLE
SLICER
FLOOR DRAIN
SINK
MIXER
POT RACK OVER
WATER OUTLET
FLOOR DRAIN
PANCAKE TABLE
WALK IN COOLER
DRAIN BOARD
SINK
FREEZER
SINK
SINK
SINK
RANGE
RANGE
STEAM KETTLE
STEAMER
OVEN
METAL LOCKERS
TOILET
OFFICE
RECEIVING
KITCHEN STORAGE