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Planning and Equiping the School Lunchroom.

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PLANNING AND EQUIPPING THE SCHOOL LUNCHROOM

by

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requirements for the degree of Master of
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TABLE OF CONTENTS

Chapter		Page
I.	Introduction	1
II.	Planning the School Lunchroom	9
III.	Floor Materials	35
IV.	Equipment and Its Care	59
V.	Sanitation and Safety	92
	Bibliography	101

TABLE OF FIGURES

Figure		Page
I.	One Room School, Meal Load 18 to 25 Sheet No. 1.....	25
II.	One Room School, Meal Load 18 to 25 Sheet No. 2	26
III.	One Room School, Meal Load 18 to 25 Sheet No. 3	27
IV.	One Room School, Meal Load 18 to 25 Sheet No. 4	28
V.	Two to Four Class Room School, Meal Load 50 to 100, Sheet No. 1	29
VI.	Four to Six Class Room School, Meal Load 100 to 150, Sheet No. 2	30
VII.	Four to Six Class Room School, Meal Load 100 to 150, Sheet No. 4	31
VIII.	Six to Ten Class Room School, Meal Load 150 to 250, Sheet No. 4	32
IX.	Ten to Fourteen Class Room School, Meal Load 250 to 350, Sheet No. 5	33
X.	Fourteen to Twenty Room School, Meal Load 350 to 500, Sheet No. 6	34

TABLE OF TABLES

Table		Page
I.	Attributes of Floor Materials	38
II.	Floor Maintenance	43
III.	Record of the Resistance of Floorings to Staining	49
IV.	Schools Serving 75 to 150 Persons	75
V.	Schools Serving 150 to 250 Persons	79
VI.	Schools Serving 250 to 350 Persons	82
VII.	Schools Serving 350 to 500 Persons	87

Chapter I

INTRODUCTION

"Educators, parents, and others are recognizing that the school lunch is an integral part of education since it can make effective contributions in meeting basic physical and educational needs. In view of the expansion of school lunch programs and an increasing emphasis on planning school facilities for functional use, it is important that lunchrooms and food-service facilities in schools be planned in terms of local needs, and in terms of an accepted program for these facilities."[1]

Objectives of the school lunch program include:[2]

1. Improvement of general health of boys and girls

2. Development of desirable food habits in children and indirectly improving food habits of all faculty members

3. Development of an appreciation and understanding

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1. National Council on School House Construction, State Department of Education, Nashville, Tenn., 1946, p. 111.

2. Allen, M. A. and Barner, G. A., "Our School Cafeteria," The National Elementary Principal, Vol. 27, No. 3, December 1947, p. 9.

of the types of food necessary to meet the nutritional needs of children

4. Development of a situation in which eating food is a definite part of each child's school day

5. Development of an appreciation of the importance of cleanliness in selecting, storing, preparing and serving food.

The school is only one of many agencies that has a major influence in the development of spiritual values and in an appreciation of democracy. The home, the church and the community have influence and overlapping objectives which should parallel each other. The schools should ever be mindful of their responsibility to teach and train each individual in procedures that will lead to better and more purposeful ways of living.

A healthy body is the foundation for a sound, wholesome mind. Good substantial and nutritious lunches served in an attractive lunchroom with a pleasant inspiring atmosphere will result in desirable qualities of school children. The school lunchroom may make use of effective atmosphere, arrangement and corresponding circumstances to build and direct creative values. "All art is for the purpose of lifting man's spirit."[1]

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1. Department of Elementary School Principals. Spiritual Values in the Elementary Schools, Twenty-Sixth Yearbook; Washington 6, D. C., 1947, p. 5.

A spirit of thankfulness and a moment of quiet and reverence has a value that may reach beyond the walls of the lunchroom.

Cooperation and habits of responsibility and dependability may be developed when children are allowed to plan and share in the duties required for an efficient and wholesome atmosphere in the lunchroom. Students may set and arrange tables in order that a pleasing and friendly attitude may be fostered. Committees or groups from each room may plan and organize procedures in such a manner that each individual will at some time share the responsibility. Children may be led to consider it a privilege to provide and arrange flowers or other accessories for lunchroom decoration. Hosts and hostesses may also be chosen which will tend to develop and foster worthwhile values. Character building qualities which may be developed as children learn responsibilities essential to a good host or hostess include a pleasant manner, ability to carry on an interesting conversation, thoughtfulness for each individual and assuming his share of the responsibilities.

A simple procedure incorporating these basic ideas may prove helpful. All possible learnings and

experiences should be set up through the school lunch program in order to create an atmosphere of social and democratic living that will give opportunity for individual and group development. It is the duty of the teacher and principal to guide, direct and counsel when and where needed, so that a cheerful, friendly atmosphere may be created. Wholesome informality should be apparent. Valuable learnings and practices in social customs, housekeeping duties, development of manners, care of guests and pleasing conversation should result. There should be controlled freedom in the lunchroom but no regimentation. Good manners and ordinary rules of politeness, which allow children to converse in a happy manner as they prepare to return to their classroom for afternoon activities, should prevail. Lunch time should be characterized by attractiveness of room arrangement, orderliness of movement and good manners. The teacher should sit at the table with the children and be a member of the group. This practice might raise the level of pupil-teacher relationship, as well as provide a happy and sociable time. Order might be attained by a moment of silence or with soft music. Children should be encouraged to converse freely without disturbing other groups about them and to enjoy their

lunch in a friendly and pleasant manner. The situation would then be pleasing to teachers and pupils.

All children attending school should have a wholesome noon lunch -- preferably a hot one. Research has shown that children who eat an adequate hot lunch have gained as much as thirty-seven per cent more in weight than those who do not have the hot lunch. These same children also missed sixty-eight per cent fewer days in school.[1]

The school building should be planned and built to express a good educational philosophy and to meet local needs. Administrators, parents, teachers, pupils and laymen should have a share in the planning in order to have an effective and adequate school plant. A preliminary survey and systematic study of the needs should be made well in advance. The hot lunch is an important part of the health program and the school cafeteria should definitely be planned to care adequately for the needs of growing children. The kitchen, the storeroom and the dining area of the cafeteria should be scientifically planned and organized. Food should be

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1. Milligan, John P., "An Experiment in Leisurely Eating of School Lunches," The School Review, January 1948, p. 36.

wholesome, attractively displayed and served. If the school plant is effectively planned and organized, an educational program can be developed that will consider the emotional, mental, social and physical development of each individual.

Good food habits are essential to good health and the cafeteria set-up should aim for this development. A wholesome environment will reflect security and happiness in the child. Furnishings and equipment should be based on an understanding of the child and scaled to his world. Equipment which is attractive, adjusted to individual needs, functional in arrangement and design, and beautiful and durable in respect to building materials is highly desired. Pleasing colors, effective lighting, artistic windows, harmonious color schemes, suitable wall and floor materials and appropriate murals and paintings should be considered in decoration and finish. Safety, sanitation, good lighting (both natural and artificial), teacher and student comfort, human relationships and learning processes play significant roles in planning procedures. Facilities for the development of social competence should be provided and the environment should be conducive to that end. The lunch room provides unlimited facilities for the

development of leadership, tolerance and social justice.

Educators sometimes complain of lack of community interest in the schools. The school lunch program may provide an opportunity for developing this interest. Once the community is made aware of the need and purpose of the school lunch, its accomplishment might well be assured, since it is beneficial to both community and school in many ways.[1]

An effective school lunch program

1. Brings parents into closer affiliation with the schools, and interests them in school life

2. Develops harmony in the community

3. Enhances teaching of etiquette and of proper eating habits

4. Teaches children the importance of living together in a desirable way

5. Serves as an asset to any school, as it is a unifying agency developing a cooperative spirit between the school and the community.

"Health, more than any other factor except mental ability, determines the quality of the school work a pupil does. If children are to grow properly, be healthy, and develop normally in every way, they must

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1. Dickerman, Richard M., "A School Cafeteria - Now," School Board Journal, November 1948.

have nourishing food."[1] A good school lunch program is a means of assuring better health for many children.

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1. Allen, M. A. and Barner, G. A., "Our School Cafeteria," The National Elementary Principal, Vol. 27, No. 3, December 1947, p. 9

Chapter II

PLANNING THE SCHOOL LUNCHROOM

The United States maintains high sanitary conditions and its citizens enjoy standards of living that do more for health protection than any other country in the world. Sanitary conditions in our school lunchrooms are above the average of other countries and it is important that these standards and ideals be maintained and improved constantly. The information in this chapter discusses the steps in planning the lunchroom.

Pre-planning: Careful planning before construction is of major importance if later expense of rebuilding or remodeling is to be eliminated and if the moving or repairing of equipment is to be avoided. Original plans need to be adequate since unnecessary expenditures have been known to result from the selection of an undesirable location, allowance of too little working space, inefficient arrangement of areas and unattractive interior finishes and decorations. It is essential that a study of the total lunchroom situation be made in advance, and that plans be examined by those responsible for the

establishment and operation of the lunchroom.[1] As stated in Chapter I the objectives of the school lunch program are:

1. Improvement of general health of boys and girls

2. Development of desirable food habits in children and indirectly improving food habits of all faculty members

3. Development of an appreciation and understanding of the types of food necessary to meet the nutritional needs of children

4. Development of a situation in which eating food is a definite part of each child's school day

5. Development of an appreciation of the importance of cleanliness in selecting, storing, preparing, and serving food.

Many factors will influence the school lunch program and the support given it by the community. These habits and factors include economic status of the residents in the community, subsidy for the program, amount charged for meals, geographic location of the school, distances children travel to school, number and ages of pupils, length of noon hour, social climate of the school, type of lunches served and the educational philosophy of the community.

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1. Godfrey, Rosalie S. and Short, Gladys, "Recommendations for Lunchrooms," The Nation's Schools, January 1946, p. 34.

The percentage of pupils who are served by the lunchroom is generally from forty to eighty percent of the school enrollment although it may be higher in rural communities and when inclement weather conditions prevail. The lowest school enrollment justifying a separate lunchroom is estimated to be from thirty-five to fifty students. The installation of a small lunchroom however, depends upon the local situation. Even with federal aid small lunchrooms serving a complete plate lunch are difficult to operate. Improvised lunchroom facilities might be arranged in small schools but it is recommended that a main hot dish be provided with supplementary packed lunches brought from home.

The school lunchroom should be on the first floor with a central location convenient to classrooms, playground areas and delivery purposes. A basement location is undesirable. Flexibility of lunchrooms for multi-purpose use is desirable. The lunchroom should be easily accessible to community groups for evening and vacation use without it being necessary to open the entire school building.[1] The lunchroom is more likely

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1. Planning and Equipping School Lunchrooms, Federal Security Agency, Bulletin No. 19, 1946, p. 2.

to serve a dual purpose if other areas of the school can be closed off. Careful planning may accomplish this purpose.

The size of the school lunchroom will be affected by the total number participating in the hot lunch program, maximum number which may be seated at one time, continuous or intermittent service and the number of serving counters. Two or more counters will serve larger numbers of students at a given time, making possible fewer and shorter lunch periods. However the initial cost is increased, additional help and supervision is needed, additional floor area for counters and seating are required, and often one or more counters stand idle. Adequate space in the dining area requires ten to fourteen square feet per person which allows for comfortable seating and aids in the development of good health and social habits. Tables for six with two chairs on either side and one at each end are recommended for conversational purposes and ease of seating. The dining room should be well proportioned and rectangular with kitchen entrances on the longitudinal side.

Whether remodeling or building an entirely new unit much planning is necessary. The architect, of course, will have a significant contribution to make but

the superintendent, principal, teachers, students, lunchroom executives and others who may work in the unit should be consulted. Each has valuable suggestions to make.

A recommended layout for the development of a hot lunch program has been made. It calls for a separate building to provide sufficient room for serving fifty to sixty pupils at one time but might accommodate more if necessary. The following construction pointers are suggested:[1]

1. Working surfaces preferably 36 inches high

2. Flat cupboard doors with grooves to slide up and down or crosswise

3. Hardwood surface floor with center drain in kitchen area

4. Toe mold at base of cupboards

5. Drawers for silver, five inches deep with separate removable containers for knives, forks and spoons

6. Ventilation to outside in storage room

7. Adequate facilities for garbage disposal.

Scharf says, "Any study of school cafeterias on the whole will make it obvious that they were laid out

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1. Scharf, Sarah Maberly, "Layout for a School Lunch Unit," Practical Home Economics, September 1946, p. 447.

and planned without the assistance of the managers or teachers who were to operate the food services. In some of the newest schools absurdities include:

1. Lack of storage space within reasonable distance from the kitchen

2. Lack of provision for control of food on and after delivery

3. Carrying prepared food across corridors in which students must stand in line for service

4. No provision for students to wait in line except within the cafeteria itself

5. Locating equipment without regard to routing of processing and serving

6. Duplicating service units increasing operation costs

7. Attempting to serve all children in one or two short lunch periods

8. Poor management from the standpoint of supervision"[1]

An interesting account of a school cafeteria unit that was planned and built for the schools of Tucson, Arizona, is given by the superintendent, Mr. Morrow, "Ninety percent of the programs in physical education, social living, music, recreation and health are centered in or near the cafeteria building. Department heads, teachers, clerical staff, cafeteria workers, janitors,

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1. Scharf, Sarah Moberly, op. cit., p. 25.

a landscape architect and many pupils were consulted and their ideas were coordinated in the plans. Conferences were held, models built, changes made and the results of cooperative endeavors were incorporated. The value of planning and working together has been evidenced in the increased use of facilities."[1]

Receiving and Storing Food Supplies and Equipment: A protected platform should be provided for receiving and unloading supplies. This space should be located adjacent to the storeroom and kitchen, but each separate from the other. The food storage space needs to be adequate for canned and staple goods, for foods requiring refrigeration, and for vegetables and fruits. Such space should be free of motors, compressors, ventilation ducts and heating or water pipes. Separate storage space is essential for paper towels, soaps, soap powders, floor waxes and cleaning equipment.

Factors which determine the size of the storage room include: nearness to market, frequency of buying, quantity purchased at one time, amount of surplus products carried in stock, the school lunch canning program and amounts of beverages and milk used. The storeroom floor

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1. Scharf, Sarah Moberly, op. cit., p. 26.

area should equal approximately one-sixth of the kitchen floor area. The breadth and depth of shelving should provide for economical and convenient storage for containers of varied sizes and types. A small cupboard in which valuable articles such as silver, special china and glass dishes may be kept safely is essential.

Processing Unit: The efficient handling and preparation of foods requires adequate space which should be separate from the cooking center, the dish washing center and the pots and pans washing center. This space should be near the food room and cooking center and conveniently located near the salad table and refrigeration unit. Provision for an orderly sequence of food processing is a time saver. The location of the following equipment needs consideration for efficient and convenient use: sinks with drain boards or table surface for sorting and washing, a hardwood surfaced cutting board, a mechanical peeler next to a sink or emptying directly into one and a refrigerator. Table surface is necessary for cutting, grinding or slicing meats and for dressing poultry.

Food Preparation Unit: A minimum of 3 square feet of space per person is needed in the kitchen area if less than 200 people are being served. An average of $1\frac{1}{2}$ square

feet per person should be allowed when 200 to 500 persons are served. Five hundred or more persons should have an allowance of one square foot per person. The kitchen should be well proportioned and rectangular with an entrance directly into the dining room. Activities connected with receiving, preparing and serving food should be routed in an orderly direction with separate routes for serving and for cleaning dishes. The lighting in the kitchen area should provide no less than forty candle foot over each working unit. Ventilation should be adequate for comfort and should provide for the removal of cooking odors and fumes. This may be accomplished by installation of exhaust fans.[1]

The meat and vegetable cooking center should be located near the food preparation and serving units and grouped in sequence. The cook's table should be located near the range with space for storage of condiments. Sufficient pot and pan storage space is essential. Provision for holding cooked foods at proper temperature is necessary. Ample working space with well grouped equipment for preparation of baked foods should be

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1. Godfrey, Rose and Short, Gladys, "Recommendations for Lunchrooms," The Nation's Schools, Volume 37, No. 1, January 1946, p. 34.

provided. A hardwood-top table with space for the worker's tools located near the serving unit and refrigerator should be provided for making salads and preparing cold foods. There should also be adequate space for holding salads and other cold foods at proper temperature prior to serving.

The lunchroom entrance should be located near the serving unit to permit easy access to the dining area. Suitable space should be planned for serving food, with trays, napkins, silverware and dishes conveniently placed in the service line. Space needed for serving depends upon the number to be served, the number of shifts and whether table or cafeteria service is being used. For serving groups of 500 to 800, less space will be needed if two thirty-minute periods are provided rather than a single period. More persons can be served in a given length of time by providing plate lunches served from several counters than with cafeteria service. As the number served increases kitchen and storage areas will need to be increased.

Dining Unit: The dining unit should be separate from the kitchen unit. Entrances into the dining area and exits from the area should avoid crossing the serving lines.

"The total area of dining space should be determined on the basis of the number of persons to be seated at one time. Nine to twelve square feet of dining room space is the usual allowance per person. In planning for new school buildings which will include large school lunch programs, consideration should be given to the advisability of having several dining rooms serviced from the same kitchen, rather than one large dining room."[1]

Tables seating from four to eight persons each are preferred. Eighteen to twenty-four inches linear table space should be planned for each pupil or student. Recommended tables include square tables 3' x 3', or oblong tables ranging from 6' to 8' in length and from 30" to 36" in width. The type of table will depend upon the number to be seated and the method of serving. If trays are used more table space is necessary. The height of the tables and size of the chairs should be determined by the size of the pupils. Graduated sizes of tables and chairs should be provided so that all children may be comfortably seated. Shelves, hooks and

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1. Planning and Equipping School Lunchrooms, Federal Security Agency, Bulletin No. 19, Washington, D. C., 1946, p. 5.

rods should provide room for books, wraps or other articles the pupils might bring to the lunchroom. Conveniently located lavatory facilities are essential.

The National Bureau of Standards [1] recommends the following table heights for school use: 20, 23, 26, and 29 inches; with chairs 11, 13, 15, and 17 inches respectively. The dining table tops may be of hardwood, linoleum or tempered pressed wood properly edged with wood or metal. Plastics are also available and satisfactory.

The dish return window should have a convenient location preferably near the dish washing area and screened from the sight of the diners.

A platform at one end of the dining room would add to its flexibility and provide space which may be used as a teachers' dining area.

Plans should provide for adequate lighting--both natural and artificial. Light colored ceilings and walls make for lighter and more cheerful rooms. Window areas in the dining area should be one fourth of the total floor space with provision for uniform brightness

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1. Planning and Equipping School Lunchrooms, Federal Security Agency, Bulletin No. 19, Washington, D. C., 1946, p. 6.

throughout the room. A desirable brightness ratio should approximate 3:1. Ventilation should be natural with windows on longitudinal sides. In new construction consideration should be given to ventilation louvres separate from fenestration. Mechanical ventilation may be necessary wholly or in part. Air turnover should be approximately thirty cubic feet per minute per person. artificial heat should provide uniform temperature and humidity throughout the entire lunch unit.

Clean-Up Unit: The center for dish washing should be adjacent to or convenient to the dining room. Within this area space should be provided for receiving soiled dishes, scraping, disposing of waste, stacking dishes, bottles and trays. A three-compartment sink with dish baskets provided or a dishwashing machine properly installed is necessary for pre-washing, washing, rinsing, sanitizing and drying.[1] State health regulations and requirements should be known to all concerned and rigidly adherred to. All dishes and silverware should be rinsed for ten seconds at 170°F. An ample hot water supply delivered to the dishwashing machine will provide for

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1. Planning and Equipping School Lunchrooms, Federal Security Agency, Bulletin No. 19, Washington, D. C., 1946, p. 9.

the required bacteria reduction and quick dish drying. A booster heater for raising temperature of hot water taken from the building supply to 170°F. will provide for better sterilization in the dishwashing machine. The dishwashing machine must be kept in good working order at all times. The spray openings must be carefully washed, pipes cleared and openings rinsed clean. The table for receiving soiled dishes needs a drain to prevent liquids and foods from entering the dishwashing machine. An area for draining cups prior to and after they are washed, a suitable place for racking or stacking plates and space for containers for receiving clean silverware are essential. A table large enough to allow one minute for dishes to drain is desirable. Closed shelves will protect clean tableware from airborne bacteria. An extra sink for holding, soaking, washing, rinsing and sanitizing baking dishes, pots and pans is convenient and saves time.

A well planned kitchen provides arrangements which make heavy lifting unnecessary. A slide for returning empty racks to loading zones is a time saver. Sufficient dish baskets or racks should be provided for air-drying. Space for rack storage will aid in keeping them in good

condition.[1]

Garbage containers at the preliminary food preparation unit and at the soiled dish tables are necessary. Fly-proof garbage containers near the kitchen exit, and a conveniently located incinerator are essential.

Manager's Office: "Adequate, convenient, and comfortable space with a certain amount of privacy and a conveniently located closet for wraps and storage should be provided for the lunchroom manager. A good location for the office is adjoining the dining room and kitchen. Supervision is facilitated by raising the space six to eight inches above the floor level. By careful planning arrangement can be made so that supervision will not be difficult. This location affords maximum use of office and minimum absence of the manager from the scene of activities. The office should be provided with adequate artificial and natural light and ventilation."[2] A desk and a filing cabinet for keeping records should be provided for the manager.

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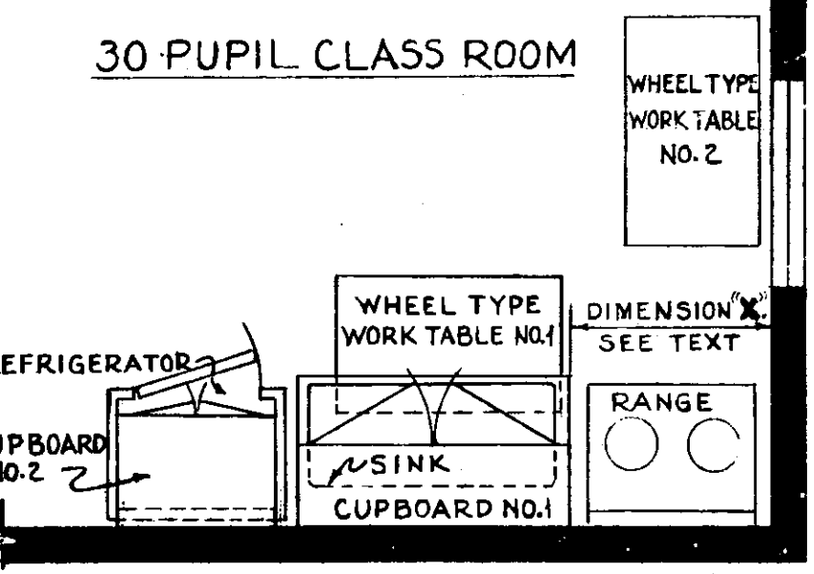
1. Bryan, Mary De Garmo, "Dishwashing Techniques," The Nation's Schools, July 1946, p. 56.

2. Godfrey, Rosalie S. and Short, Gladys, "Recommendations for Lunchrooms," The Nation's Schools, January 1946, p. 40.

The following pages show reproductions of floor plans suitable for schools ranging in size from the one room rural school serving up to twenty-five pupils to the twenty classroom school serving as many as 500 pupils. A study of these plans may be used as a guide in planning lunchroom facilities in a particular situation.

30 PUPIL CLASS ROOM



PART PLAN OF ONE ROOM SCHOOL HOUSE
ARRANGEMENT (1) FOR LUNCH PREPARATION

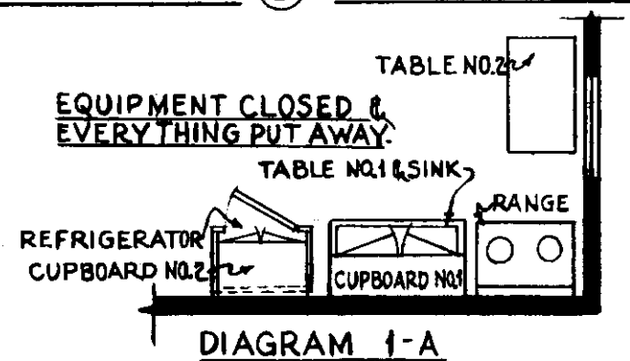


DIAGRAM 1-A

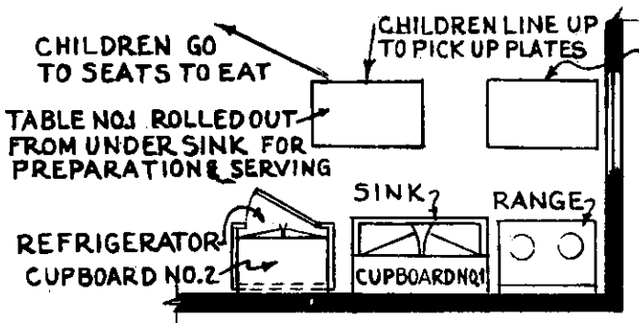


DIAGRAM 1-B

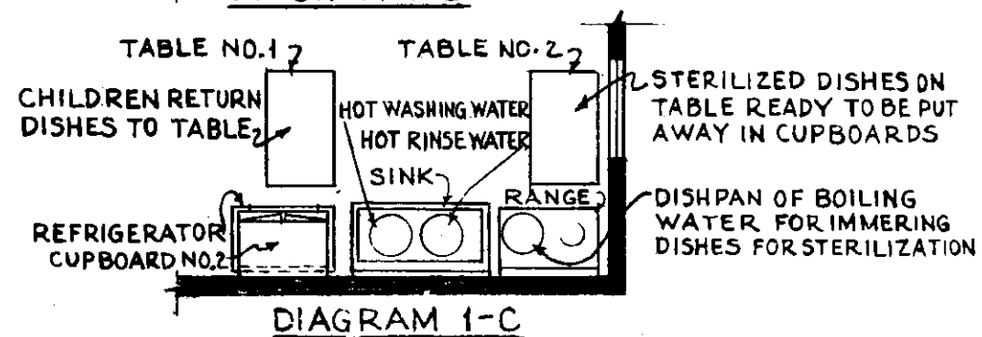


DIAGRAM 1-C

OPERATING DIAGRAMS

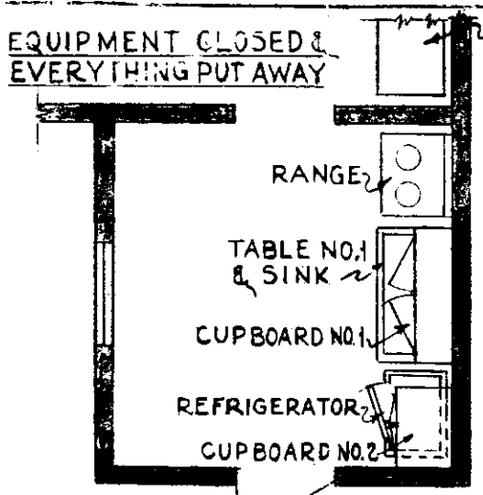


DIAGRAM 2-A

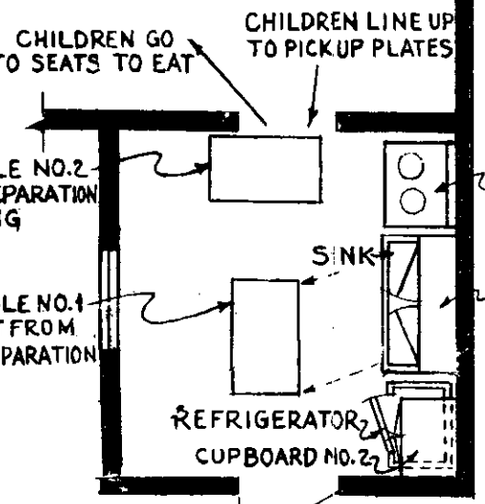


DIAGRAM 2-B

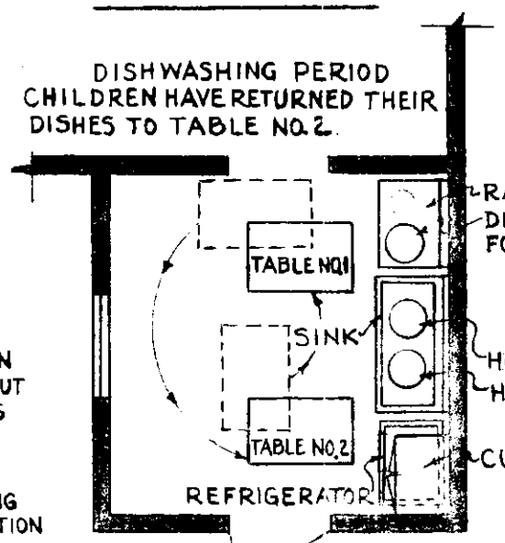
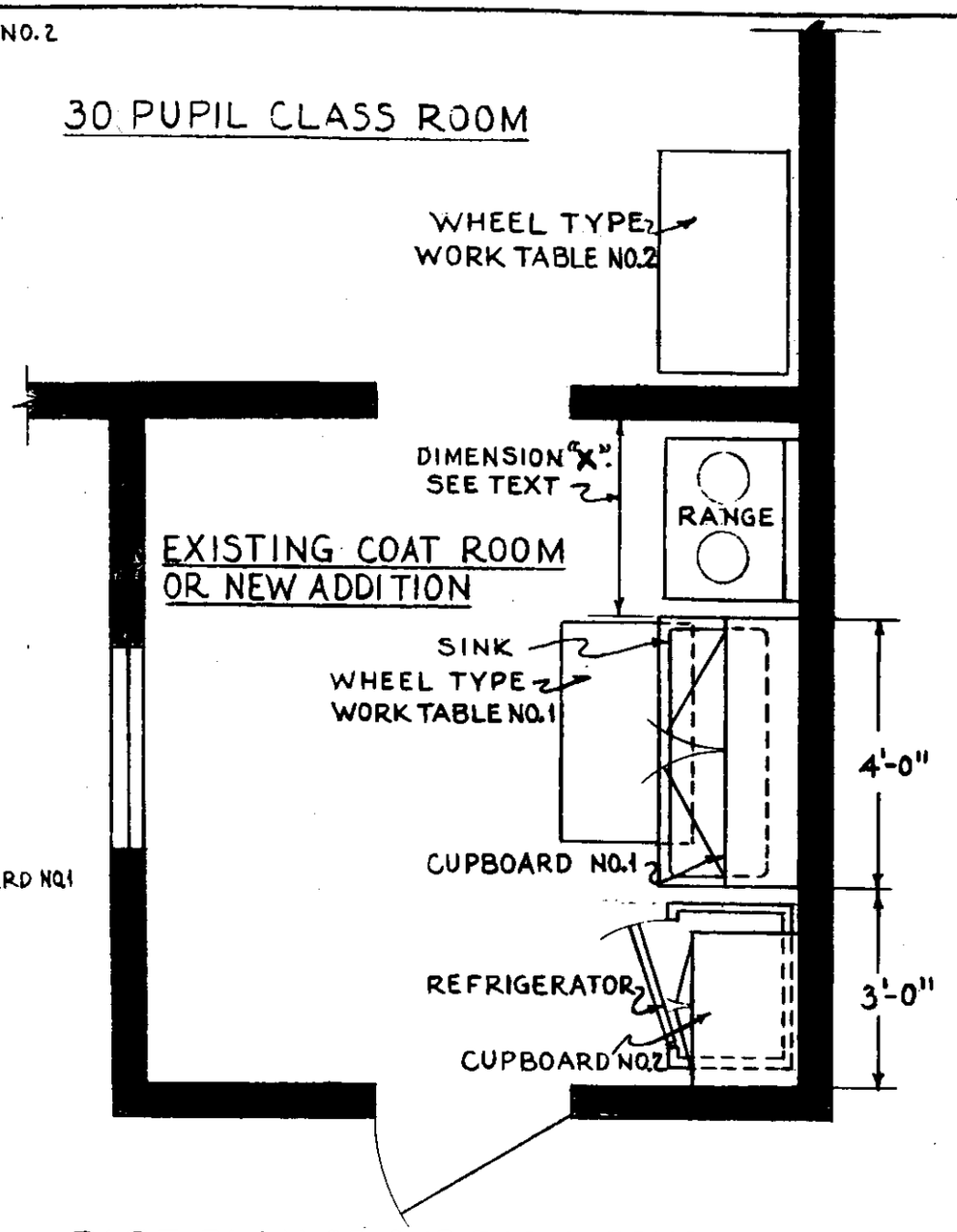


DIAGRAM 2-C

OPERATING DIAGRAMS

30 PUPIL CLASS ROOM



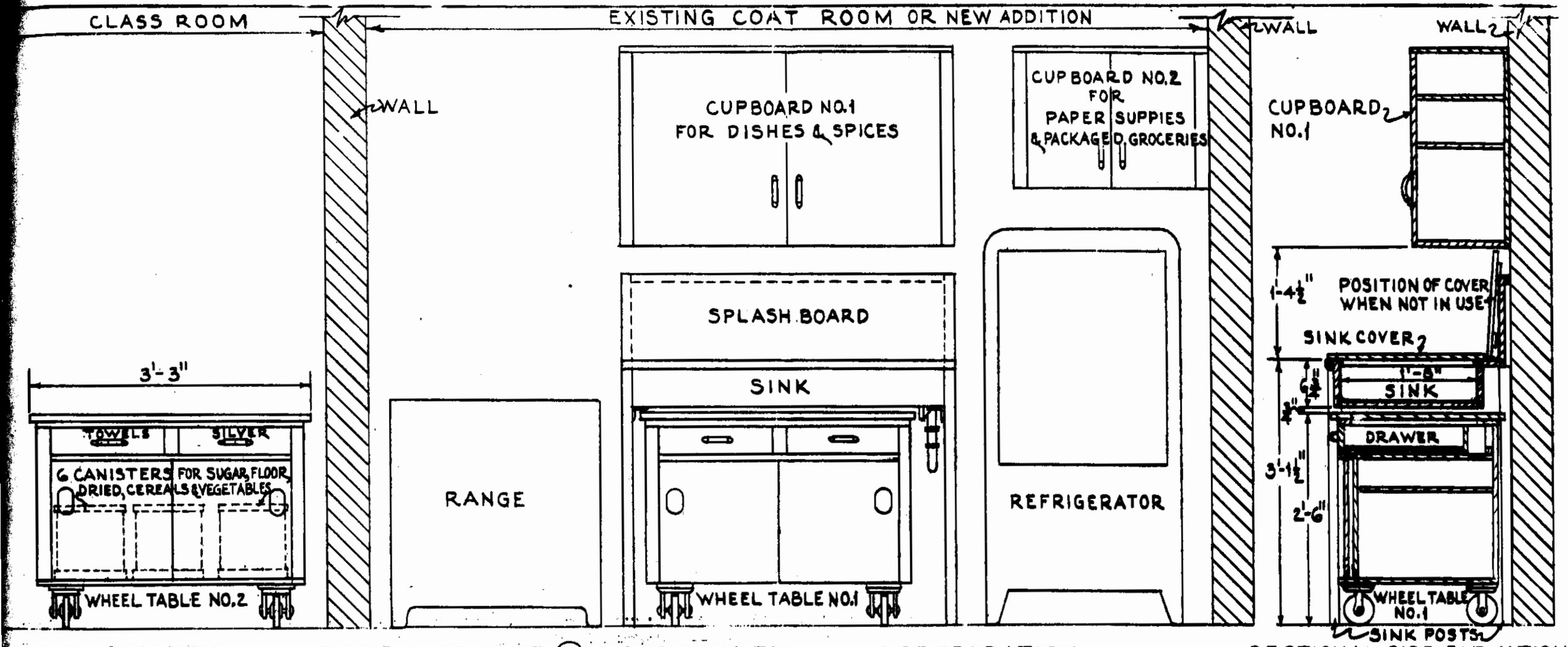
PART PLAN OF ONE ROOM SCHOOL HOUSE
ARRANGEMENT (2) FOR LUNCH PREPARATION

SCALES = 0 1' 2' 3'
0 2' 4' 6'

SCHOOL LUNCH FACILITIES MANUAL		
SERIES	TITLE OF SHEET	SHEET No
SL 25	ONE ROOM SCHOOL MEAL LOAD 18-25	1.
	FLOOR PLANS	1-31-46

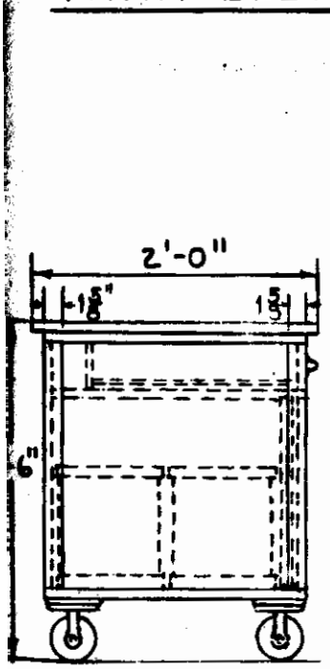
SCHOOL LUNCH DIVISION
FOOD DISTRIBUTION PROGRAMS BRANCH
PRODUCTION AND MARKETING ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

Figure I

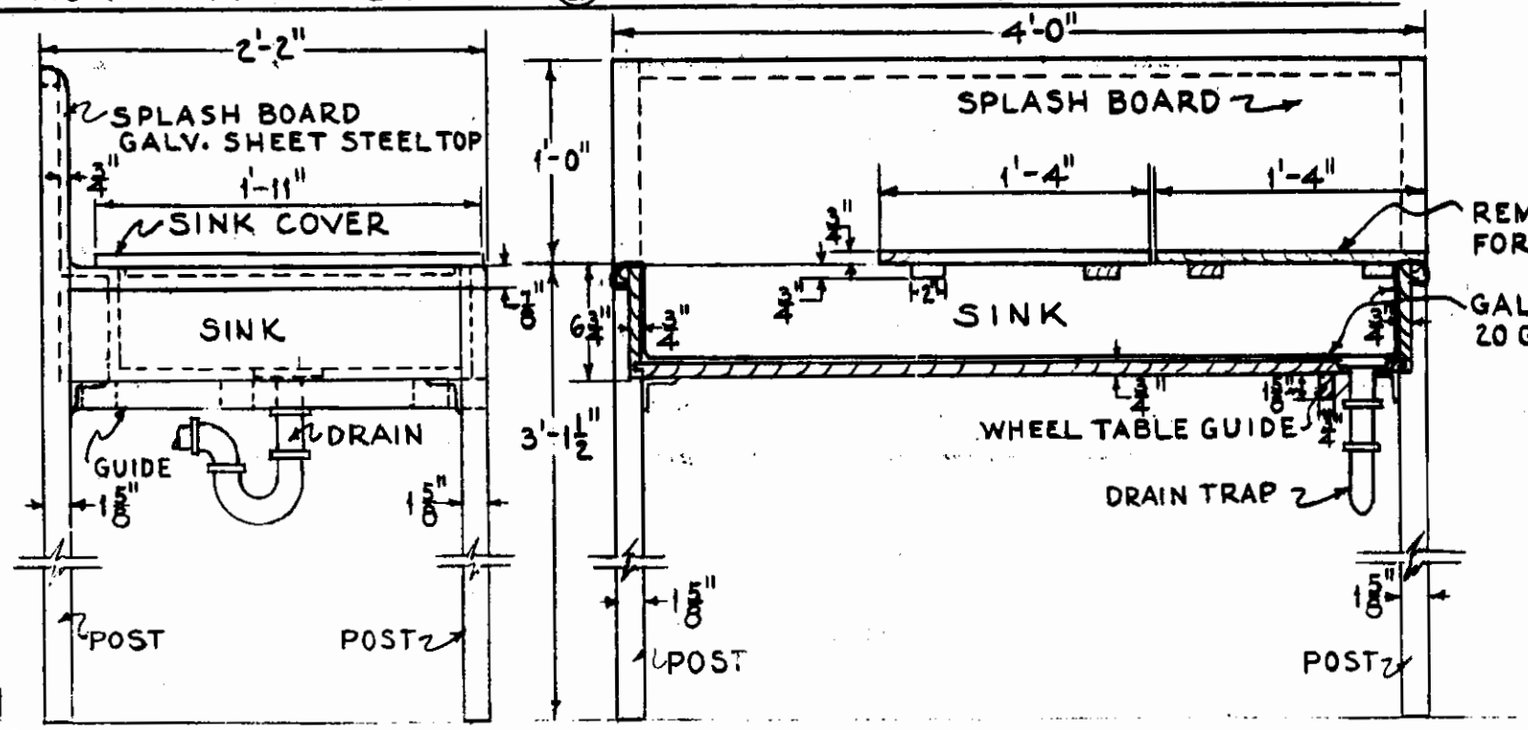


FRONT ELEVATION OF ARRANGEMENT ② ASSEMBLY FOR LUNCH PREPARATION

SECTIONAL SIDE ELEVATION



SIDE ELEVATION OF WHEEL TABLE NO 2



SIDE ELEVATION OF SINK SECTIONAL FRONT ELEVATION OF SINK

SCALES = 0 1' 2' 0 1' 2' 3'

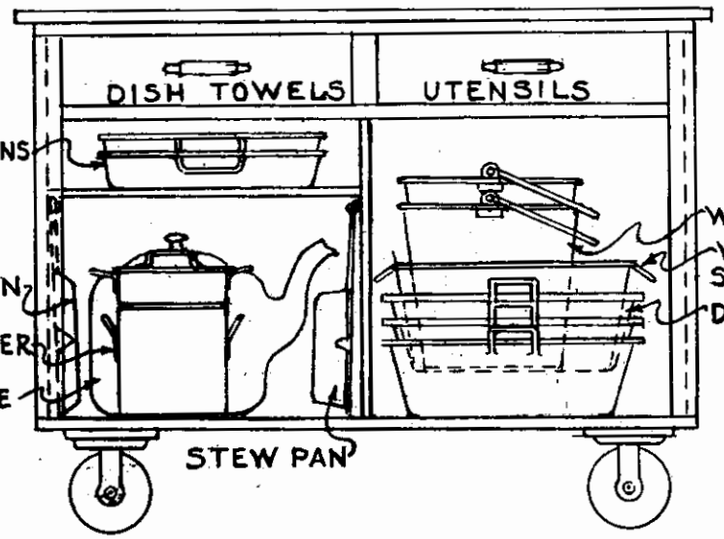
REMOVABLE SINK COVERS FOR WORK AREA

GALVANIZED SHEET STEEL NO. 20 GAUGE MINIMUM

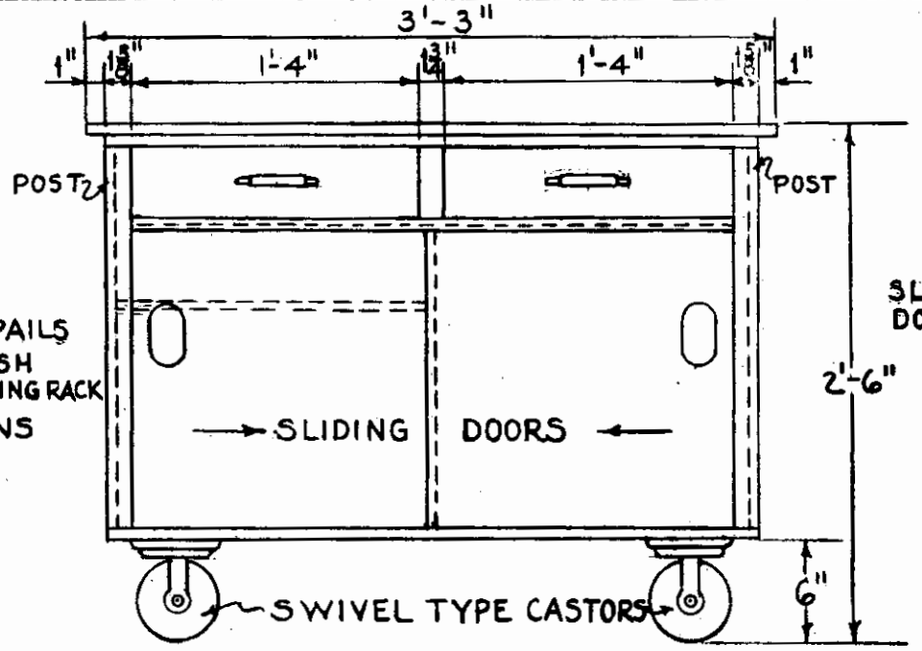
SCHOOL LUNCH FACILITIES MANUAL		
SERIES	TITLE OF SHEET	SHEET NO
SL 25	ONE ROOM SCHOOL MEAL LOAD 18-25	2
	ELEVATIONS & SINK DETAILS 1-31-46	

SCHOOL LUNCH DIVISION
FOOD DISTRIBUTION PROGRAMS BRANCH
PRODUCTION AND MARKETING ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

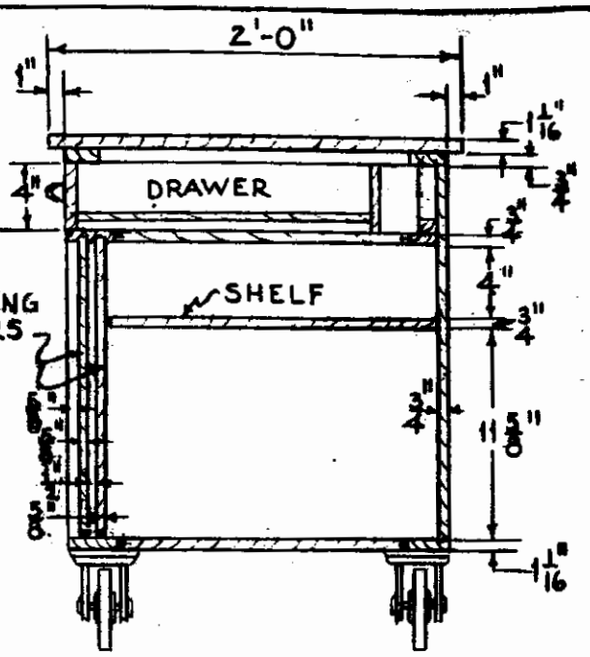
Figure II



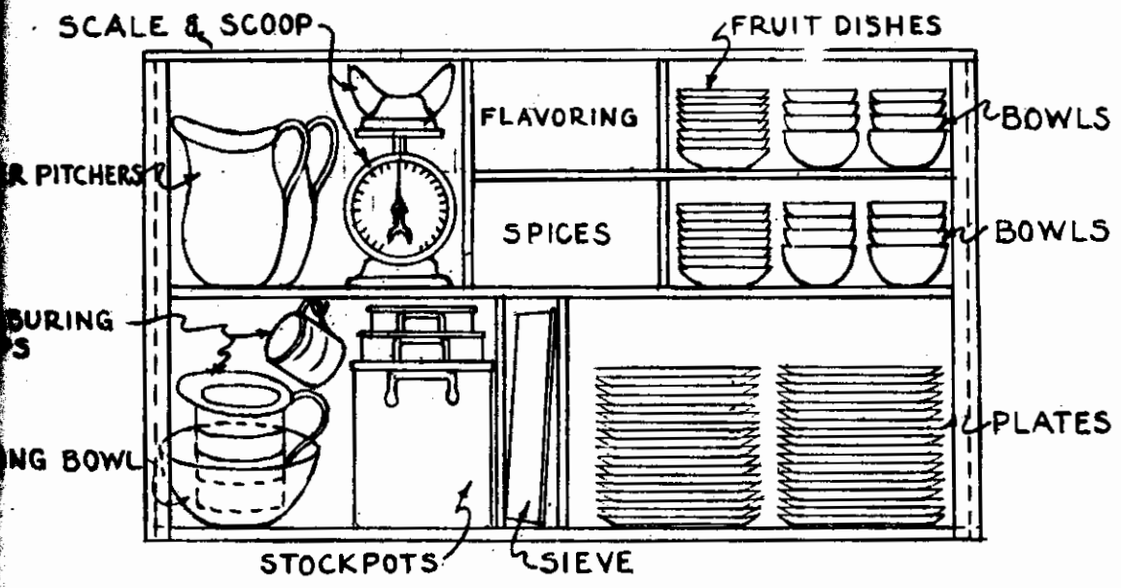
SEMBLY OF EQUIPMENT IN WHEEL TABLE NO.1
DOORS NOT SHOWN



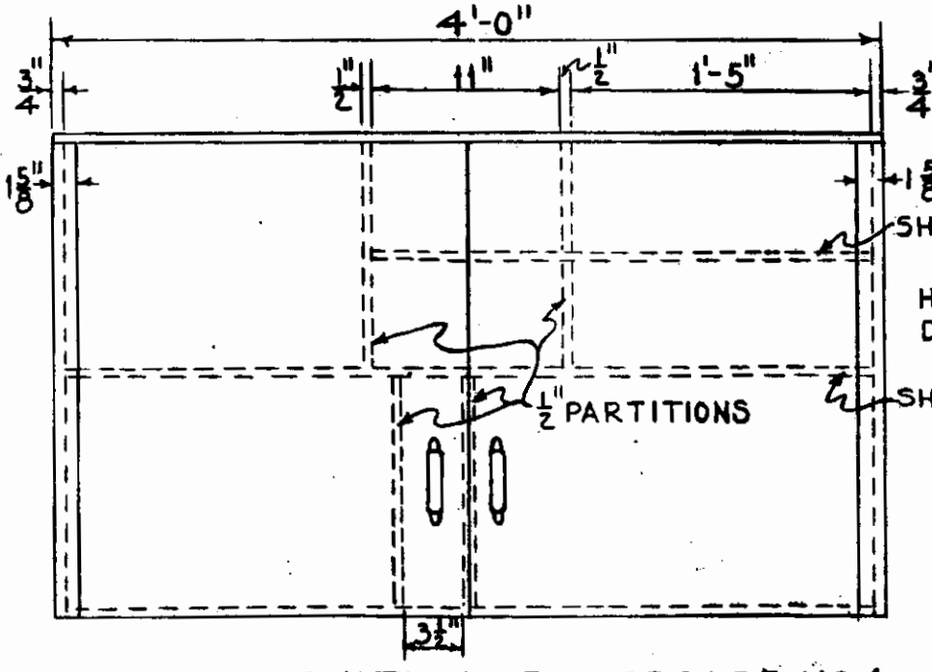
FRONT ELEVATION OF WHEEL TABLE NO.1



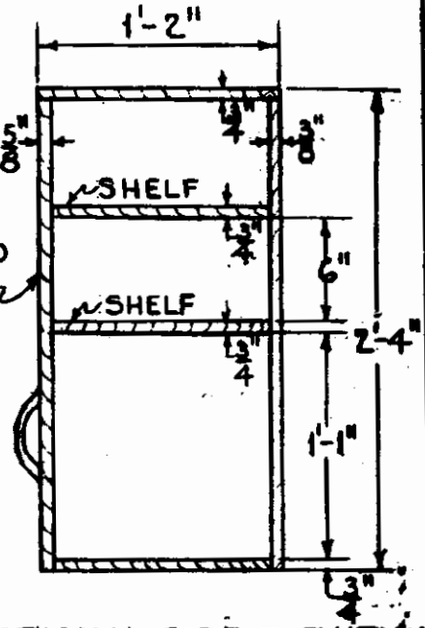
SECTIONAL SIDE ELEVATION



ASSEMBLY OF EQUIPMENT IN CUPBOARD NO.1
DOORS NOT SHOWN

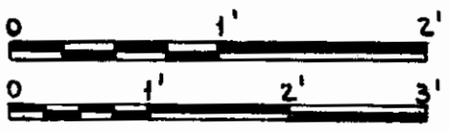


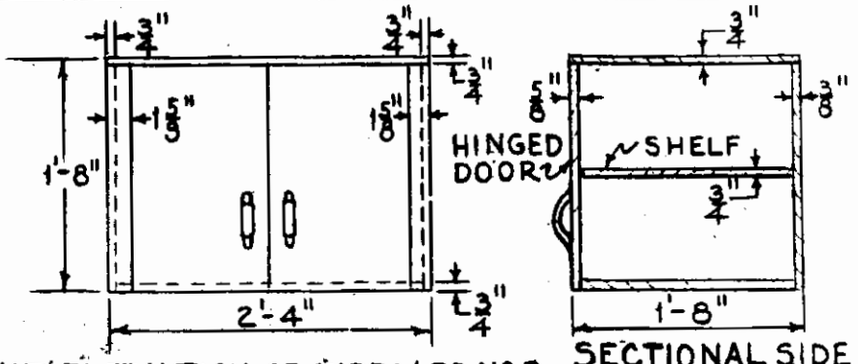
FRONT ELEVATION OF CUPBOARD NO.1



SECTIONAL SIDE ELEVATION

SCALES =





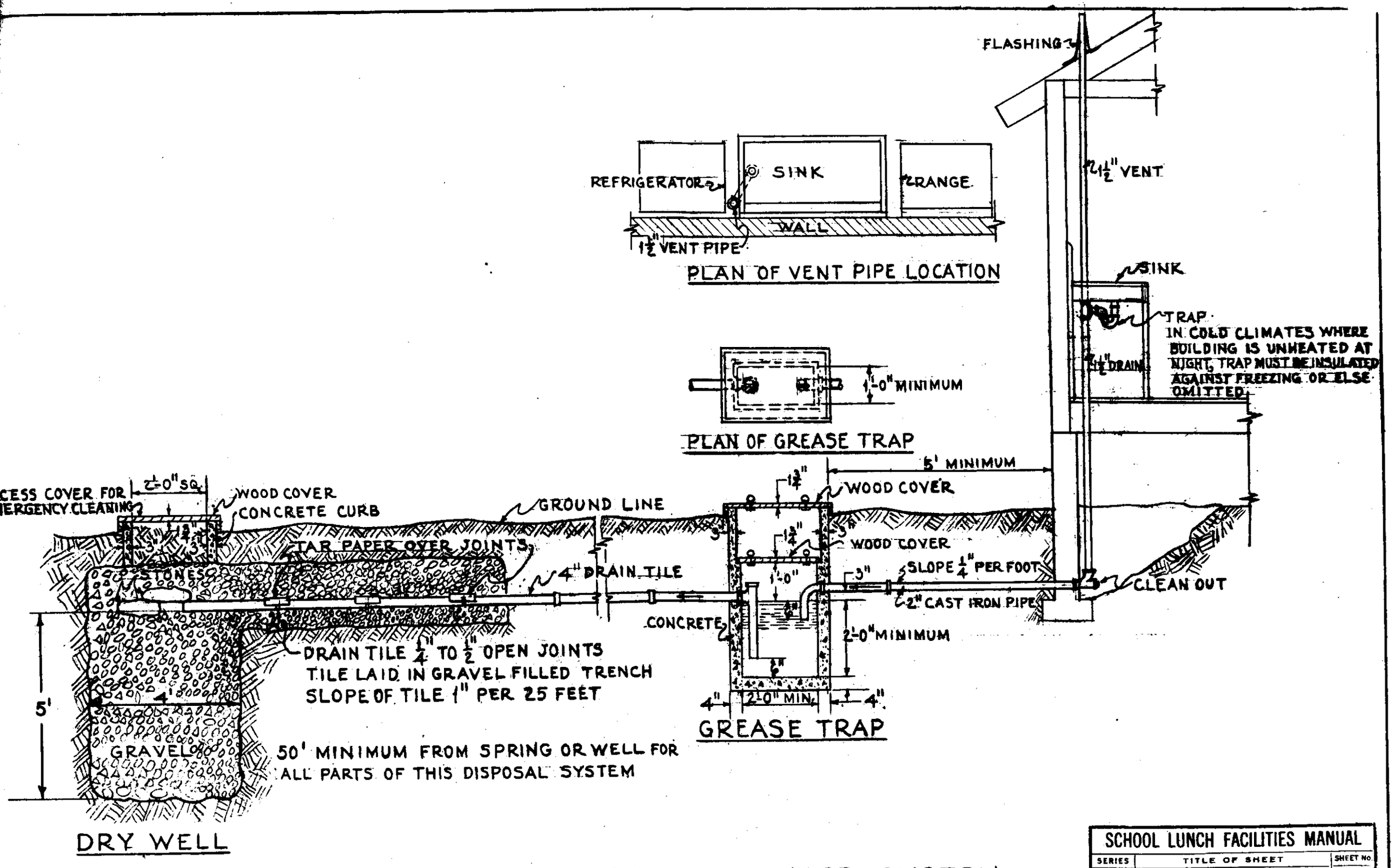
FRONT ELEVATION OF CUPBOARD NO.2

SECTIONAL SIDE ELEVATION

SCHOOL LUNCH FACILITIES MANUAL		
SERIES	TITLE OF SHEET	SHEET NO.
SL 25	ONE ROOM SCHOOL MEAL LOAD 18-25	3
	DETAILS OF CABINETS	1-31-46

SCHOOL LUNCH DIVISION
FOOD DISTRIBUTION PROGRAMS BRANCH
PRODUCTION AND MARKETING ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

Figure III



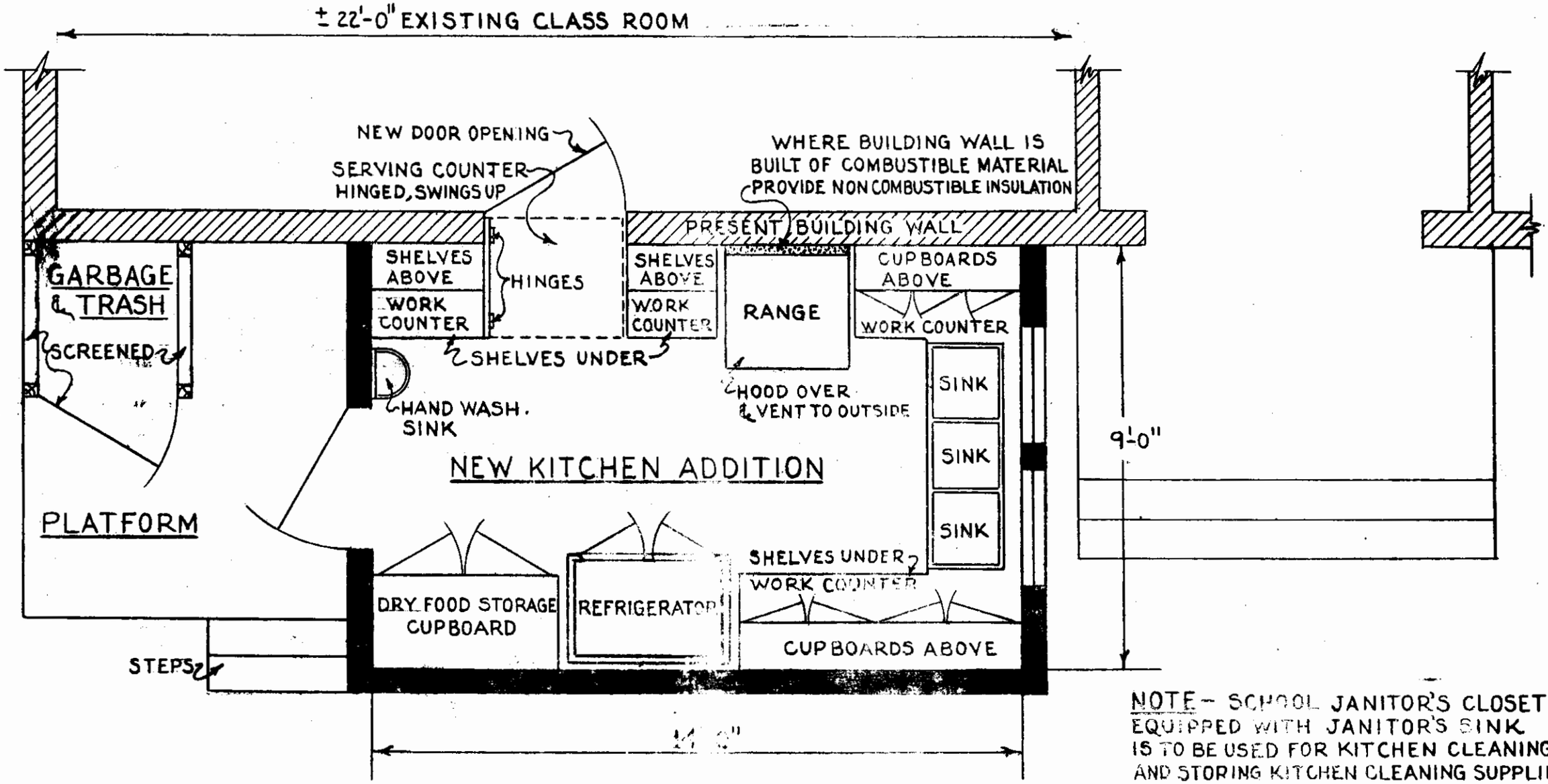
SECTIONAL ELEVATION OF DRAINAGE SYSTEM

SCALE = 0 2' 4' 6'

SCHOOL LUNCH FACILITIES MANUAL		
SERIES	TITLE OF SHEET	SHEET NO.
SL 25	ONE ROOM SCHOOL MEAL LOAD 18-25	4
	SINK DRAINAGE SYSTEM (FS1-46)	

SCHOOL LUNCH DIVISION
FOOD DISTRIBUTION PROGRAMS BRANCH
PRODUCTION AND MARKETING ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

Figure IV



NOTE – SCHOOL JANITOR'S CLOSET EQUIPPED WITH JANITOR'S SINK IS TO BE USED FOR KITCHEN CLEANING AND STORING KITCHEN CLEANING SUPPLIES.

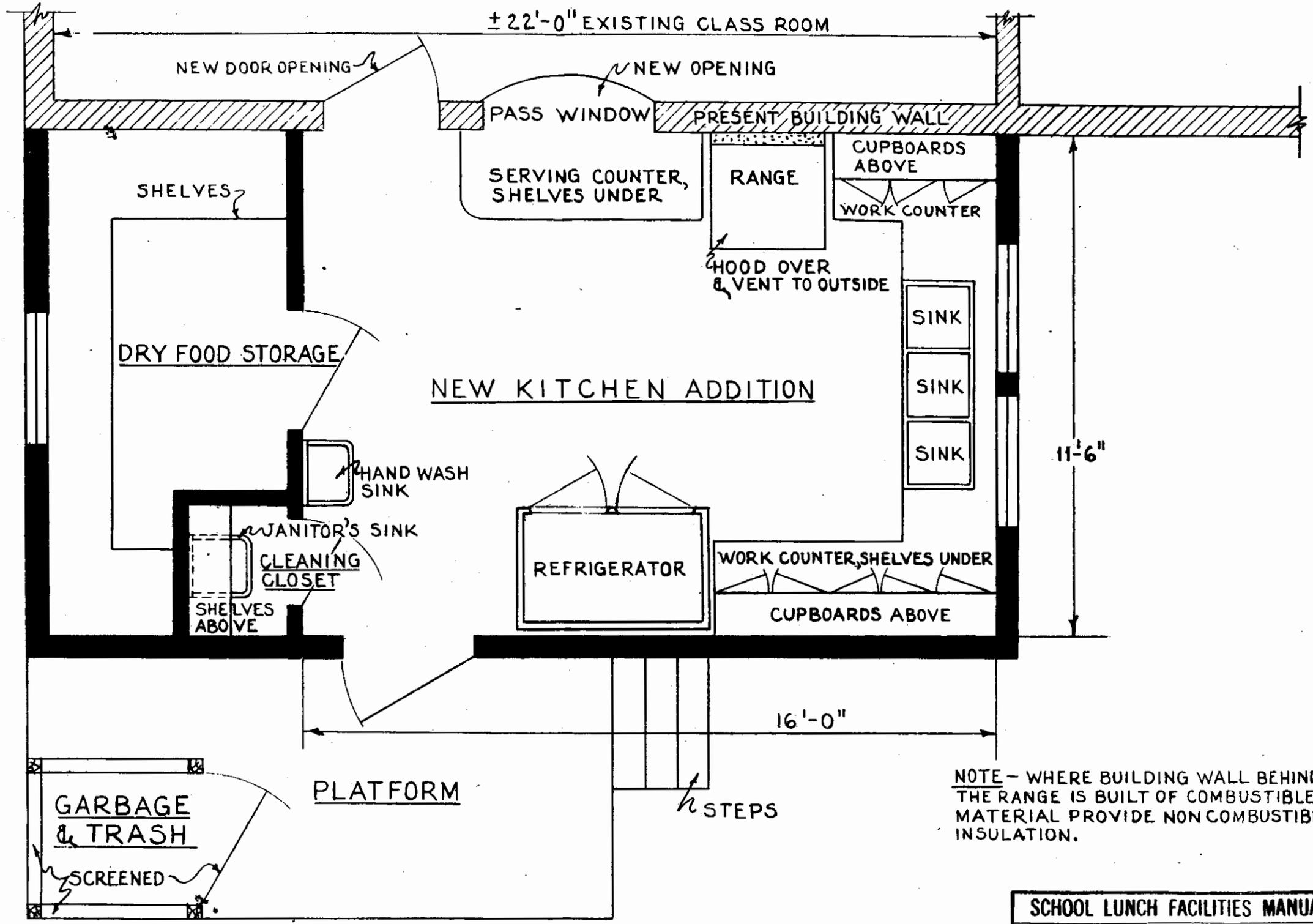
PLAN OF NEW KITCHEN ADDITION FOR TWO TO FOUR CLASS ROOM SCHOOL

SCALE = 0 1' 2' 3' 4'

SCHOOL LUNCH FACILITIES MANUAL		
SERIES	TITLE OF SHEET	SHEET No.
SL 100	2 TO 4 CLASS ROOM SCHOOL MEAL LOAD 50 TO 100	1
	FLOOR PLAN	4-946

SCHOOL LUNCH DIVISION
FOOD DISTRIBUTION PROGRAMS BRANCH
PRODUCTION AND MARKETING ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

Figure V



NOTE – WHERE BUILDING WALL BEHIND THE RANGE IS BUILT OF COMBUSTIBLE MATERIAL PROVIDE NON COMBUSTIBLE INSULATION.

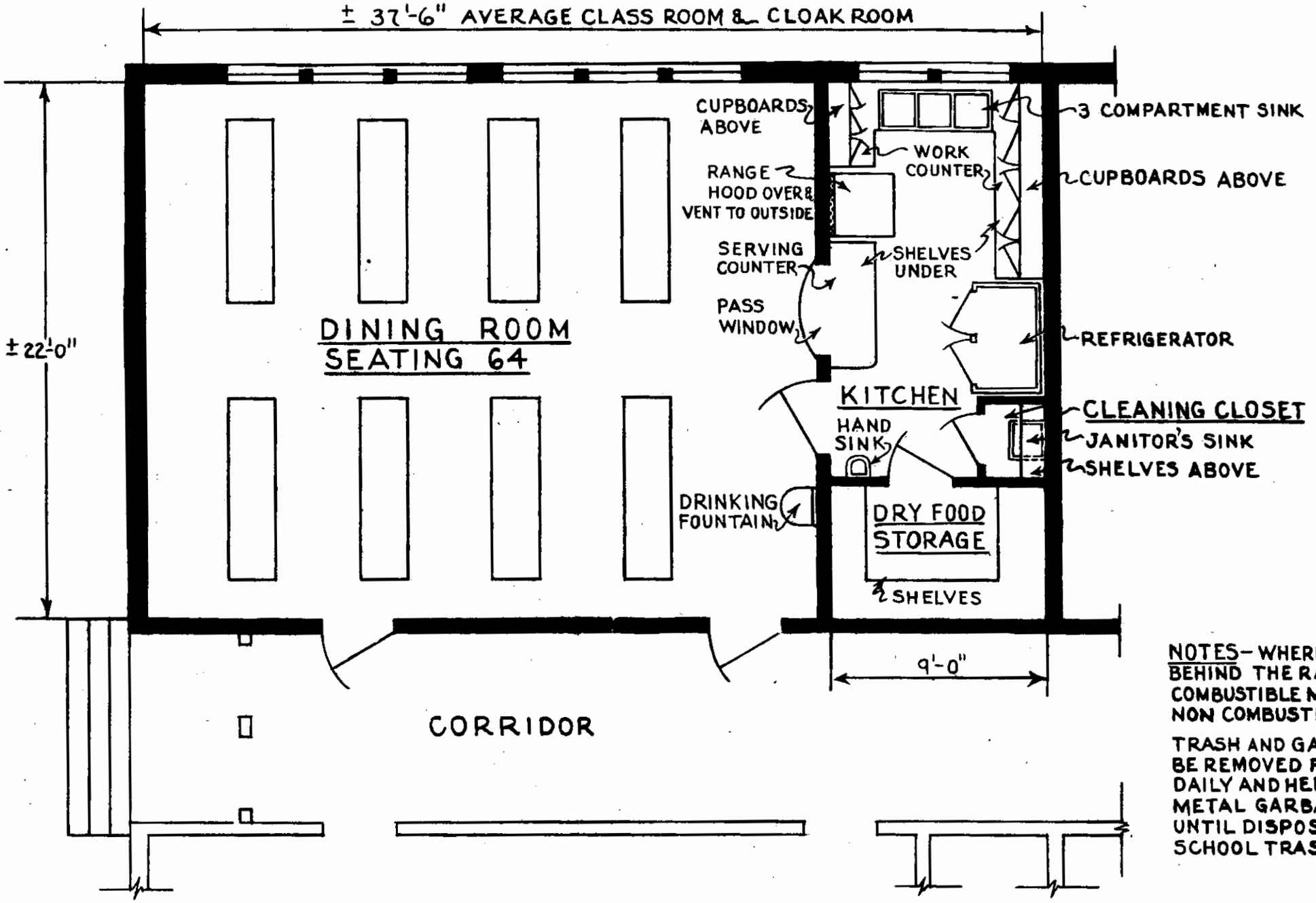
PLAN OF NEW KITCHEN ADDITION FOR FOUR TO SIX CLASS ROOM SCHOOL

SCALE = 0 1' 2' 3' 4'

SCHOOL LUNCH FACILITIES MANUAL		
SERIES	TITLE OF SHEET	SHEET No.
SL 150	4 TO 6 CLASS ROOM SCHOOL MEAL LOAD 100 TO 150	2
	FLOOR PLAN	4-9-46

SCHOOL LUNCH DIVISION
FOOD DISTRIBUTION PROGRAMS BRANCH
PRODUCTION AND MARKETING ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

Figure VI



NOTES– WHERE BUILDING WALL BEHIND THE RANGE IS BUILT OF COMBUSTIBLE MATERIAL PROVIDE NON COMBUSTIBLE INSULATION.

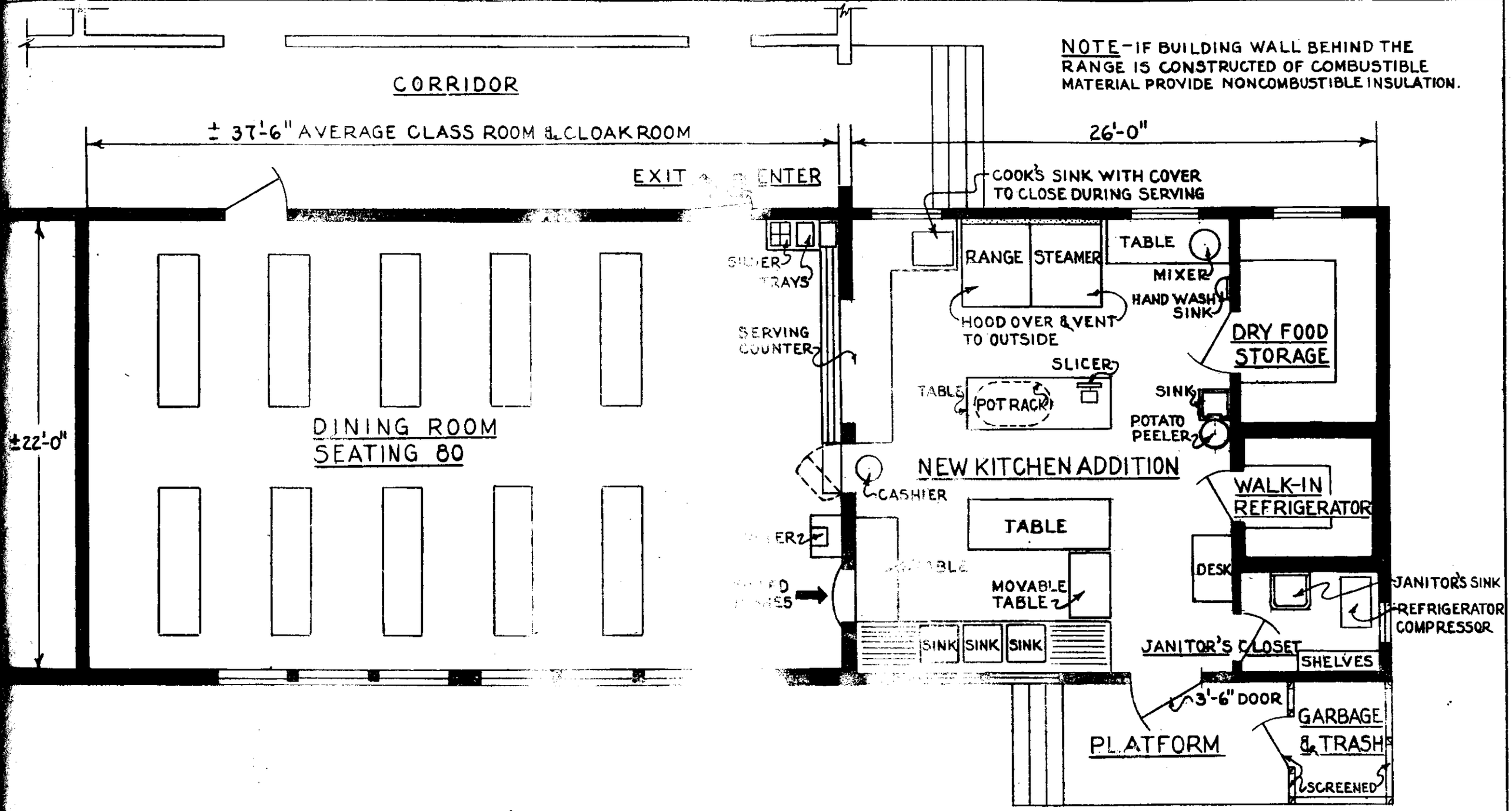
TRASH AND GARBAGE SHOULD BE REMOVED FROM THE KITCHEN DAILY AND HELD IN COVERED METAL GARBAGE CONTAINERS UNTIL DISPOSED OF WITH OTHER SCHOOL TRASH.

PLAN OF PRESENT CLASS ROOM CONVERTED TO A KITCHEN & DINING ROOM

SCALE = 0 2' 4' 6' 8'

SCHOOL LUNCH FACILITIES MANUAL		
SERIES	TITLE OF SHEET	SHEET No.
SL 150	4 TO 6 CLASS ROOM SCHOOL MEAL LOAD 100 TO 150	3 4
	FLOOR PLAN	4-9-46
SCHOOL LUNCH DIVISION FOOD DISTRIBUTION PROGRAMS BRANCH PRODUCTION AND MARKETING ADMINISTRATION UNITED STATES DEPARTMENT OF AGRICULTURE		

Figure VII



PLAN OF NEW KITCHEN ADDITION WITH PRESENT CLASS ROOM CONVERTED TO A DINING ROOM

SCALE = 0 2' 4' 6'

SCHOOL LUNCH FACILITIES MANUAL		
SERIES	TITLE OF SHEET	SHEET No.
SL 250	6 TO 10 CLASS ROOM SCHOOL MEAL LOAD 150 TO 250	4
	FLOOR PLAN	4-9-46

SCHOOL LUNCH DIVISION
FOOD DISTRIBUTION PROGRAMS BRANCH
PRODUCTION AND MARKETING ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

Figure VIII

NOTE-TRASH AND GARBAGE SHOULD BE REMOVED FROM THE KITCHEN DAILY AND HELD IN COVERED METAL GARBAGE CONTAINERS UNTIL DISPOSED OF WITH OTHER SCHOOL TRASH.

SUPPLIES

CORRIDOR

EXIT

ENTER

DISH TRUCK TO BE STORED UNDER TABLE

DISHWASHING MACHINE. IF DISHWASHING MACHINE IS NOT USED, INSTALL 3 COMPARTMENT SINK.

JANITOR'S CLOSET

SINK

SHELVES OVER

SINK

SCRAPE HOLE CAN UNDER

SHELF

WALL TYPE DESK

DRY FOOD STORAGE

POTATO PEELER

REFRIGERATOR

SINK SINK SINK

±3'-6"

CASHIER

SOILED DISHES

RAIL

HINGED

KITCHEN ARRANGED WITH LOCKED DOORS SO THAT DINING ROOM MAY BE USED FOR PURPOSES OTHER THAN DINING ONLY.

DINING ROOM

SLICER

WORK TABLE

MIXER

COOK'S TABLE

POT RACK

HAND WASH SINK

SINK

WATER

SERVING COUNTER

HOOD OVER & VENT TO OUTSIDE

WALK-IN REFRIGERATOR

MAY HAVE DRAWERS & BINS FOR BAKING SUPPLIES

WORK TABLE

STEAMER RANGE RANGE

WOOD TOP

SILVER

TRAYS

SHELF BELOW FOR STORAGE OF DISHES

±37'-6" AVERAGE CLASS ROOM & CLOAKROOM

EXISTING CLASS ROOM

LAN OF PRESENT CLASS ROOMS CONVERTED TO A KITCHEN & DINING ROOM

SCALE = 0 2' 4' 6' 8'

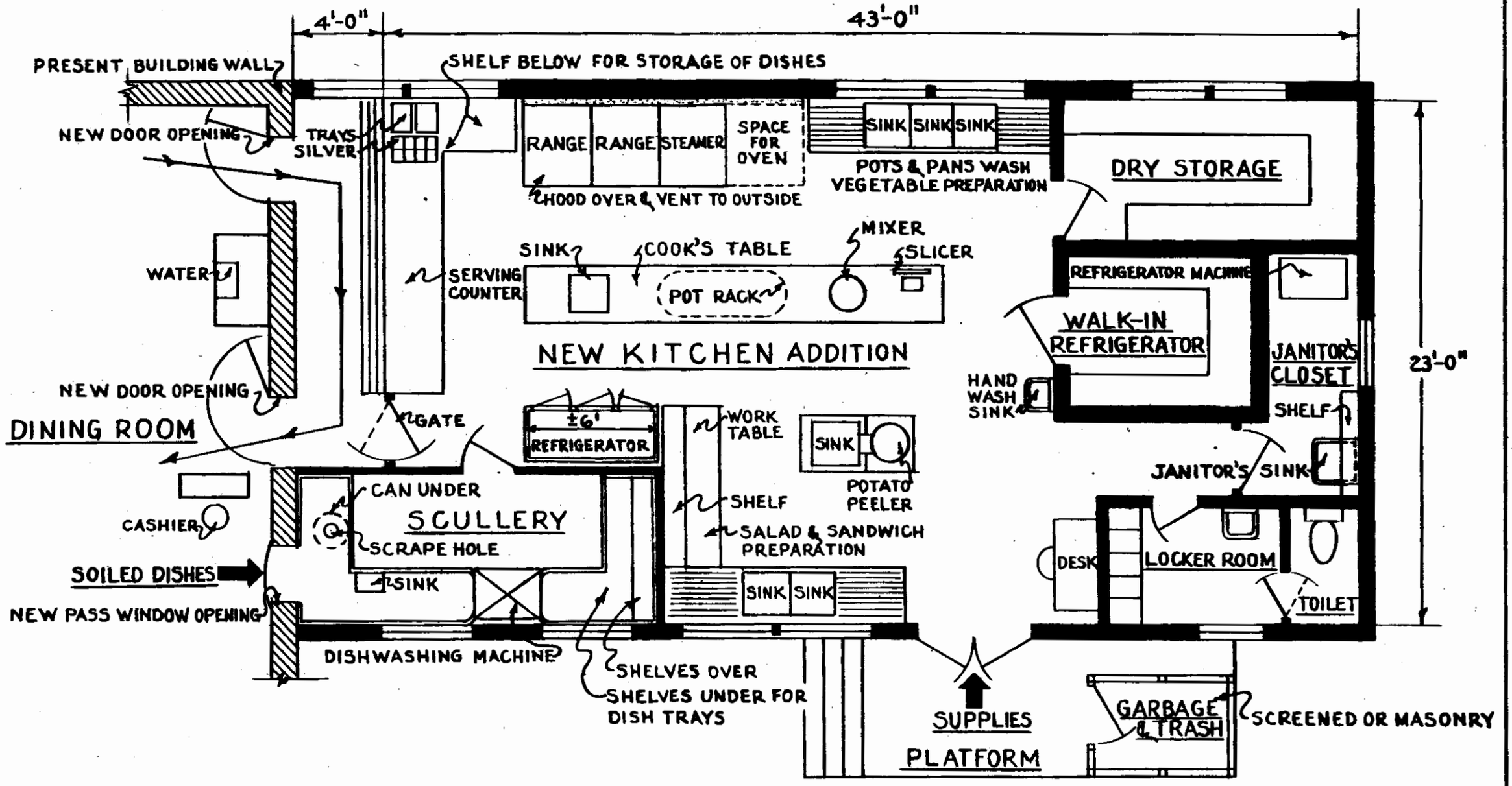
NOTE - REFRIGERATOR MACHINERY HOULD NOT BE INSTALLED IN THE TORAGE ROOM NOR OPEN IN THE KITCHEN. ACHINERY SHOULD BE INSTALLED IN THE ASEMENT BELOW OR ON PROPER SUPPORTS BOVE THE REFRIGERATOR.

NOTE - WHERE BUILDING WALL BEHIND THE RANGE AND STEAMER IS BUILT OF COMBUSTIBLE MATERIAL PROVIDE NON COMBUSTIBLE INSULATION.

SCHOOL LUNCH FACILITIES MANUAL		
SERIES	TITLE OF SHEET	SHEET No.
SL 350	10 TO 14 CLASS ROOM SCHOOL MEAL LOAD 250 TO 350	5
	FLOOR PLAN	4-9-46

SCHOOL LUNCH DIVISION
FOOD DISTRIBUTION PROGRAMS BRANCH
PRODUCTION AND MARKETING ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

Figure IX



PLAN OF NEW KITCHEN ADDITION FOR FOURTEEN TO TWENTY CLASS ROOM SCHOOL

SCALE = 0 2' 4' 6' 8'

NOTE - WHERE BUILDING WALL BEHIND THE RANGE AND STEAMER IS CONSTRUCTED OF COMBUSTIBLE MATERIAL PROVIDE NON COMBUSTIBLE INSULATION.

SCHOOL LUNCH FACILITIES MANUAL		
SERIES	TITLE OF SHEET	SHEET No.
SL 500	14 TO 20 CLASS ROOM SCHOOL MEAL LOAD 350 TO 500	6
	FLOOR PLAN	4-9-46

SCHOOL LUNCH DIVISION
FOOD DISTRIBUTION PROGRAMS BRANCH
PRODUCTION AND MARKETING ADMINISTRATION
UNITED STATES DEPARTMENT OF AGRICULTURE

Figure X

Chapter III

FLOOR MATERIALS

There are many types of floor materials which affect the efficiency, health, and safety of workers. Rough, slippery and uneven floors are hazardous and nonresilient floors are hard to walk on. The choice of floor materials used in a school cafeteria should be made with the help of the superintendent, teachers, students and employees, as well as the architect.

The Code of the United States Health Service which regulates eating and drinking establishments states: "The floors of all rooms in which utensils are washed shall be smooth, shall be of such construction as to be easily cleaned and shall be kept clean and in good repair."[1]

Kitchen floors with an impervious surface will not absorb organic matter. These floors are easier to clean and keep free from odors. Clean floors are conducive to clean food handling methods. Kitchen floors should be

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1. Farnham, Mary, "The Care of Floors in School Lunchrooms," School Management, December 1947, p. 1.

clean and dry during preparation, cooking, and serving of meals. Properly constructed floors kept in good repair are found to be easily cleaned.

Factors that influence the selection and quality of flood materials:[1]

1. Durability
2. Appearance
3. Ease of cleaning
4. Quietness
5. Non-slippriness
6. Low maintenance cost
7. Resistance to stain
8. Resistance to moisture
9. Resilience
10. Low original cost

These factors are desirable but all are not found in any one material; therefore it is necessary to decide upon those most desired in the particular place in which they are to be used. If the cafeteria is to be used for additional purposes other than for eating, this may influence the selection of flooring. It is advisable to check with the community's sanitary code to see if the materials chosen and the care given meet the requirements.

Types of Floors: The types of floors most frequently used in school cafeterias, dining rooms and kitchens are concrete, wood, terrazzo, tile and linoleum. Hardwoods are used extensively for dining rooms and give good service. Soft woods are not recommended as they

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1. Farnham, Mary, op. cit., p. 229.

are difficult to maintain. To keep hardwoods in excellent condition one can use a good filler which seals the wood pores and gives a firm surface. This filler is preferred to varnish or shellac. Oil or point finishing is undesirable. Properly seasoned hardwoods well laid and finished will not deteriorate.

The advantages and disadvantages of various types of flooring are summarized in Table I on the following page.

Table I

ATTRIBUTES OF FLOOR MATERIALS[1]

Floor	Advantages	Disadvantages
Concrete	Cheap to lay Fireproof Easy to clean Color may be incorporated into concrete when mixed	Hard to walk on Cracks easily Has a poor appearance Absorbs grease Requires frequent repainting Incorporated colors may fade Difficult to patch when repairs are needed
Wood	Easy to work on Easy to clean Attractive	Absorbs grease and stains Requires frequent waxing
Terrazzo	May be laid over concrete or wood construction Attractive Sanitary Durable Hard Impervious to stains Easy to clean	Noisy Lack of resiliency
Tile	Non-absorbent Variety of colors Highly resistant to wear	Slippery when wet (a non-slip variety available)

1. Farnham, Mary, op. cit., p. 230.

Table I (Cont.)

ATTRIBUTES OF FLOOR MATERIALS

Floor	Advantages	Disadvantages
Tile (Cont.)	Available in a variety of sizes, shapes and colors	
Linoleum	Attractive Easy to work on Easy to clean Durable	Heavy equipment may leave imprints Requires frequent waxing

Three grades of linoleum are manufactured in six foot widths and in five gauges of thickness ranging from three-sixteenths to one-quarter inch. All grades are available in plain, jaspe, inlaid and printed patterns. Battleship linoleum which is extremely heavy, may be obtained in a variety of colors including green, gray and brown. Inlaid linoleum is distinguished from other types in that the color is incorporated in the manufacturing and the pattern extends through the linoleum and will not wash or wear off. In printed linoleum the pattern is superimposed on plain linoleum and is wholly unsuitable for cafeterias or any place that is subject to hard wear. The care and skill employed at the time linoleum is laid affects its wearing qualities. The floor should be absolutely smooth and entirely level before the linoleum is laid and cemented to it. The seams and sides should be moisture proof as water and dampness will rot linoleum. Waxing improves the appearance and helps to prevent wear. Excessive washing removes oil so an oily base cleaning solution should be used.

The United States Office of Education recommends the following types of flooring for school cafeterias:[1]

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1. Farnham, Mary, op. cit. p. 27.

quarry tile, terrazzo with abrasive finish, and grease resistant asphalt tile for kitchens and asphalt tile for dining areas.

Methods of Floor Cleaning: Linoleum and tile floors should be dry mopped daily or damp mopped with luke warm water and mild soap. A thorough cleaning with warm mild soap suds followed by rinsing with clear warm water and rewaxing and polishing all spots which receive heavy wear should be accomplished once a month. The entire floor should be waxed twice a year or more often if necessary. Severe weather often causes harder usage.

Floor tile may be mopped and surface stains removed by scrubbing with hot water and fine abrasive powder or tri-sodium phosphate solution (one-half ounce to two gallons of warm water).

Cement and terrazzo floors should be scrubbed with hot water and fine abrasive powder then rinsed thoroughly. To remove grease or oil from floors, wet the surface thoroughly before applying a solution of tri-sodium phosphate (four ounces to two gallons of water). Then scrub with a stiff brush and rinse thoroughly. These floors should be hardened before they become stained. This may be accomplished by using two and one-half pounds stock solution of magnesium

silicofloride to one gallon of water which should be applied in three dilutions of increasing strength at twenty-four hour intervals as follows:

First application: one gallon of stock solution to two gallons of water

Second application: one gallon of stock solution to one gallon of water

Third application: one gallon of stock solution to one-half gallon of water

Apply with a stiff brush or broom and keep the floor evenly wet for one hour. Twenty-four hours after the third application rinse the floor thoroughly with clear water and mop dry.

The psychological effect of cleanliness on those using the school lunchroom is of paramount importance and gives confidence in the cleanliness of food served and enjoyment of it. Methods of cleaning and caring for floors:

Table II

FLOOR MAINTENANCE[1]

Type of Floor	Method of Cleaning	Cleaning Materials
Linoleum Rubber tile Asphalt tile	Daily: Dry mop; damp mop if necessary	Lukewarm water and mild soap
	Monthly: 1. Damp mop with warm, mild soap suds to remove dirt and dust 2. Rinse with clear warm water 3. Rewax spots which receive heavy wear 4. Polish with weighted brush or electric floor polisher	Liquid water base wax
	Twice yearly: Rewax entire floor oftener if needed	
	Special care: 1. Never use strong soaps or harsh scouring powders 2. Never flood surface with water 3. Never use shellac,	

1. "Establishing and Operating a Restaurant," United States Department of Commerce, Washington 25, D. C., p. 178-179.

Table II (Cont.)

FLOOR MAINTENANCE

Type of Floor:	Method of Cleaning :	Cleaning Materials
	Special care (cont.) 3. (cont.) varnish, or lacquer 4. Equip furniture with cushion glides or rubber casters. Steps to follow in damp mopping: 1. Assemble all necessary equipment 2. Use two buckets: one for cleaning solution, one for clear, warm rinsing water 3. Apply cleaning solution with mop, covering small area at a time, and scrub 4. Wring mop and pick up soiled solution 5. Wring mop and rinse area with clear water	
Floor tile	Mop. Surface stains can be removed by scrubbing	Hot water and fine abrasive powder or tri-sodium phosphate solution: ½ ounce to 2 gallons warm water
IMPORTANT	Avoid slopping base boards with scrub water	

Table II (Cont.)

FLOOR MAINTENANCE

Type of Floor:	Method of Cleaning :	Cleaning Materials
Cement Terrazzo	1. Wet floor 2. Scrub 3. Rinse thoroughly	Hot water and fine abrasive powder
	To remove grease or oil (should be done rarely) 1. Wet floor 2. Apply solution 3. Scrub with stiff 4. Rinse thoroughly	Trisodium phosphate solution: 4 ounces to 2 gallons warm water
	Special care: Cement and terrazzo floors may be hardened before they become stained	
	To Harden: 1. Make up stock solution of magnesium silico fluoride: 2½ pounds to 1 gallon water. This solution is applied in three dilutions of increasing strength at twenty-four hour intervals. Apply with stiff broom or brush and keep floor evenly wet for one hour. a. First application: Use 1 gallon of stock solution to 2 gallons water b. Second application: Use 1 gallon of stock solution to 1 gallon of water	

Table II (Cont.)

FLOOR MAINTENANCE

Type of Floor:	Method of Cleaning :	Cleaning Materials
	c. Third application: Use 1 gallon of stock solution to ½ gallon water	
	2. Twenty-four hours after third application, rinse thoroughly with clear water and mop dry.	

Resistance of Floorings to Staining: Floor coverings differ in their ability to resist staining according to their composition and surface finish. The United States Bureau of Standards states that "all stone types of floorings are more resistant to stains and are therefore easier and less expensive to clean than fibrous materials."[1]

Surface treatment such as paint, penetrating floor seal, and wax protect certain floorings from deep stain penetration. Many stains which cause only surface discoloration may be removed with clear water while others yield to the use of a mild detergent; stains penetrating into floorings require more severe treatment for their removal while some stains are impossible to remove. The effect of the cleaning procedure upon the flooring is important.

Table III on the following pages shows results of successively cleaning certain floorings with (1) clear water at 140°F., (2) water at 140°F. to which 1 tablespoon of a mild detergent was added, and (3) an abrasive powder. Stains were the result of leaving French

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1. United States Bureau of Standards, "Resistance of Floor Materials to Staining and Chemicals," T R B I, February 10, 1947, p. 6.

Dressing, butter, blackberry juice, ink and iron on the floor surfaces for periods from twenty-four hours to one week.[1]

The numerals 1, 2 and 3 designate the successive cleaning procedures.

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1. Goodrich, Dorothy, op. cit., p. 65-66.

Table III

RECORD OF THE RESISTANCE OF FLOORINGS TO STAINING[1]

Flooring	French Dressing : 24 hours	French Dressing : 7 days	Butter : 24 hours	Butter : 7 days
Ceramic Tile Unwaxed	1.Faint darkened area 2.No change 3.Removed	1.Darkened area 2.No change 3.Removed white area	1.No Stain	1.Faint white area 2.No change 3.No change
Waxed	1.Clearly outlined white ring 2.No change 3.No change	1.Darkened area 2.No change 3.Marked white area	1.No stain	1.Marked whitened area 2.No change 3.No change
Terrazzo Unwaxed	1.Darkened area 2.No change 3.Removed	1.Whitened area 2.No change 3.Removed	1.No stain	1. No stain
Waxed	1.Faint darkened area 2.No change 3.Removed	1.White area 2.No change 3.No change	1.No stain	1.White area 2.No change 3.Increased
Red Quarry Tile	1.No stain	1.No stain	1.No stain	1.No stain
Tan Quarry Tile Unwaxed	1.Oily stain spread 2x original area 2.No change 3.No change	1.Darkened area 2.No change 3.Faint dark area	1.No stain	1.No stain
Waxed	1.Oily stain (less intense than on unwaxed) 2.No change 3.Reduced $\frac{1}{2}$	1.Darkened area (less than on unwaxed) 2.No change 3.Faint dark area	1.No stain	1.No stain

1. Goodrich, Dorothy, op. cit., Table IX.

Table III (Cont.)

RECORD OF THE RESISTANCE OF FLOORINGS TO STAINING

Flooring	French Dressing: 24 hours	French Dressing: 7 days	Butter: 24 hours	Butter: 7 days
Magnesite	1.Intense oily stain --sharp outline 2.No change 3.Oil removed	1.Darkened area 2.No change 3.Removed-- white area	1.Oily stain-- medium in- 2.Reduced ¼ 3.White ring	1.Faint white area 2.No change 3.Increased
	Blackberry: 24 hours	**Blackberry: 7 days**	**Ink: 24 hours**	**Ink: 7 days**
Ceramic Tile Unwaxed	1.Faint dark stain 2.No change 3.No change	1.Faint dark stain 2. No change 3.Removed	1.Dark stain 2.Reduced ½ 3.Removed	1.Dark stain 2.No change 3.Removed
Waxed	1.Faint dark stain 2.No change 3.No change	1.Faint dark stain 2.No change 3.Removed. Finish removed	1.Dark st'n 2.Reduced ½ 3.Removed. Finish destroyed	1.Deep stain 2.No change 3.Removed. Finish destroyed
Terrazzo Unwaxed	1.No stain	1.Faint dark stain 2.No change 3.Removed	1.Dark stain 2.Reduced 1/8 3.Removed	1.Dark stain-- deep penetration 2.No change 3.Removed
Waxed	1.No stain	1.Faint dark stain 2. No change 3.Removed. Finish destroyed	1.Dark stain 2.Reduced 3.Removed. Finish destroyed	1.Dark stain-- deep penetration 2.No change 3.Removed. Finish destroyed
Red Quarry Tile	1.No stain	1.Faint dark stain 2.No change	1.Faint dark stain	1.Dark stain-- deep pene-

Table III (Cont.)

RECORD OF THE RESISTANCE OF FLOORINGS TO STAINING

Flooring	Blackberry		Ink	
	24 hours	7 days	24 hours	7 days
Red Quarry Tile(Cont.)		3.Removed	spread over 2x original area 2.No change 3.Removed	tration 2.No change 3.Removed
Tan Quarry Tile Unwaxed	1.Medium dark stain 2.No change 3.No change	1.Deep dark stain 2.No change 3.Reduced 2/3	1.Dark stain. Deep penetration 2.No change 3.No change	1.Deep black stain 2.No change 3.Reduced 1/3
Waxed	1.Medium dark stain 2.Reduced 2/3 3.No change	1.Deep dark stain 2.No change 3.Reduced 2/3	1.Dark stain. Deep penetration 2.Reduced 1/3 3.No change	1.Deep black stain 2.No change 3.Reduced 1/3
Magnesite	1.Deep brown stain 2.No change 3.Reduced 1/3	1.Deep brown stain 2.No change 3.Reduced 1/3 rough surface	1.Dark st'n --deep penetration 2.No change 3.White area	1.Deep black stain 2.No change 3.Reduced 1/8 rough surface
	Iron			
	24 hours		7 days	
Ceramic Tile Unwaxed	1.Faint brown stain 2.No change 3.Removed		1. Faint brown stain 2. No change 3. Removed	
Waxed	1.No stain		1.Faint stain 2.No change 3.Removed. Finish destroyed	
Terrazzo Unwaxed	1.No stain		1.Faint brown stain 2.Removed	
Waxed	1.No stain		1.Faint brown stain 2.Removed	

Table III (Cont.)

RECORD OF THE RESISTANCE OF FLOORINGS TO STAINING

Flooring	Iron			
	24 hours		7 days	
Red Quarry Tile	1.No stain		1.Faint brown stain 2.No change 3.No change	
Tan Quarry Tile Unwaxed	1.Faint stain 2.Removed		1.No stain	
Waxed	1.Faint stain 2.No change 3.Removed. Finish destroyed		1.No stain Water marked	
Magnesite Unwaxed	1.No stain		1.Medium dark stain 2.No change 3.Removed	
	French Dressing		Butter	
	24 hours	7 days	24 hours	7 days
Waxed	1.White outline of stain--wax removed 2.No change 3.White area wax removed	1.White area 2.No change 3.Increased	1.No stain	1.Faint white area 2.No change 3.Increased
Maple Wood Waxed	1.No oily penetration--white spot 2.No change 3.Finish removed	1.Oily stain--deep penetration 2.No change 3.Reduced slightly Finish removed.Surface roughened	1.No stain	1.Oily stain Medium deep penetration 2.No change 3.Reduced ½ Finish removed.Surface roughened
Beech Wood Waxed	1.No stain wax removed 2.Surface roughened	1.Same as Maple	1.No stain	1.Same as Maple

Table III (Cont.)

RECORD OF THE RESISTANCE OF FLOORINGS TO STAINING

Flooring	French Dressing : 24 hours	French Dressing : 7 days	Butter : 24 hours	Butter : 7 days
Beech Wood Waxed (Cont.)	3. White area Finish destroyed			
Tan Cork-- Plain Unwaxed	1.Oily stain 2x original area 2.No change 3.Reduced slightly	1.Oily stain 2.No change 3.Reduced ¼	1.Oily stain 2x original area 2.No change 3.Reduced slightly	1.Dark stain, faintly 2.No stain 3.Faintly visible
Waxed	1.Oily stain 3x original area 2.No change 3.Reduced 1/8 whitened area	1.Same as unwaxed 2.No change	1.Oily stain 2x original area 2.No change 3.Reduced 1/8 whitened area	1.Same as unwaxed
Cork - High Density	1.Slight absorption of oil 2.No change 3.No change	1.White area 2.No change 3.No change	1.No stain	1.No stain
Rubber Tile Waxed	1.White ring 2.No change 3.Finish removed. Surface roughened	1.Softened 2.No change 3.Finish destroyed Surface roughened	1.Faint white ring 2.No change 3.Finish removed Surface roughened	1.White area No softening 2.No change 3.Finish removed Surface roughened

Flooring	Blackberry : 24 hours	Blackberry : 7 days	Ink : 24 hours	Ink : 7 days
Magnesite Waxed	1.Medium brown stain 2.Reduced ½ 3.No change wax removed	1.Deep brown stain 2.No change 3.Reduced ¼ whitened area	1.Approximately ½ intensity of stain on unwaxed 2.No change 3.Removed	1.Deep black stain 2.No change 3.Reduced slightly whitened area

Table III (Cont.)

RECORD OF THE RESISTANCE OF FLOORINGS TO STAINING

Flooring	Blackberry		Ink	
	24 hours	7 days	24 hours	7 days
Maple Wood Waxed	1. Purple stain Deep pene- 2. Intensity decreased 1/3 3. Unsightly white spot faint stain	1. Brown stain Deep penetration 2. No change 3. Reduced 2/3 Finish removed Surface roughened	1. Deep penetration Blue stain 2. Intensity decreased 3. No change	1. Deep black stain 2. No change 3. No effect on stain Finish removed Surface roughened
Beech Wood Waxed	1. Penetration deeper than on Maple 2. No change 3. Intensity ½ Finish destroyed	1. Same as Maple	1. Penetration deeper than Maple 2. No change 3. Intensity 1/3. Finish destroyed	1. Same as Maple
Tan Cork - Plain Unwaxed	1. Deep dark stain 2x original area 2. Reduced ¼ 3. Barely visible	1. Large darkened area 2. Reduced ¼ 3. Faintly visible	1. Deep stain 3x original 2. Reduced ¼ 3. Reduced 3/4	1. Deep black stain 2. No change 3. No change
Waxed	1. Unsightly dark stain 2½x original area 2. No change 3. Barely visible - whitened area	1. Same as unwaxed	1. Unsightly dark stain 2. Reduced ¼ 3. Barely visible - whitened area	1. Same as unwaxed
Cork - High Density	1. No stain	1. No stain	1. Darkened area barely visible 2. Removed	1. Darkened area 2. No change 3. Removed

Table III (Cont.)

RECORD OF THE RESISTANCE OF FLOORINGS TO STAINING

Flooring	Blackberry		Ink	
	24 hours	7 days	24 hours	7 days
Rubber Tile Waxed	1.Faint dark stain 2.No change 3.Removed	1.Faint dark stain 2.No change 3.Finish removed Surface roughened Color removed	1.Medium dark st'n 2.Reduced 1/8 3.Faint stain Surface roughened Color removed	1.Faint dark stain 2.No change 3.Removed Also finish Surface roughened Color removed

	Iron	
	24 hours	7 days
Magnesite Waxed	1.No stain	1. Medium dark stain 2. No change 3. Removed - whitened area
Maple Wood Waxed	1.No stain. White area due to wax removal	1.Deep black stain 2.No change 3.Reduced $\frac{1}{2}$. Finish removed. Surface roughened
Beech Wood Waxed	1.No stain. Water marked	1.Same as maple
Tan Cork-Plain Unwaxed	1.No stain from iron Water marks	1.Dark brown stain 2.Removed
Tan Cork-Plain Waxed	1.No stain from iron Wax removed	1.Same as unwaxed
Cork - High Density	1.No stain	1.No stain
Rubber Tile Waxed	1.Faint stain 2.Removed	1.Medium deep brown stain 2.No change 3.Removed. Color affected

Table III (Cont.)

RECORD OF THE RESISTANCE OF FLOORINGS TO STAINING

Flooring	French Dressing		Butter	
	24 hours	7 days	24 hours	7 days
Mastipave	1.Softened Markedly no stain	1.Very soft	1.Softened markedly	1.Softened area
Linoleum Unwaxed	1.No stain	1.Faint whitened area	1.No stain	1.No stain
Waxed	1.No stain	1.Whitened area	1.No stain	1.No stain
Linotile Unwaxed	1.No stain	1.No stain	1.No stain	1.No stain
Asphalt-Light Colors	1.White spot No softning 2.No change 3.No change	1.Slight softening of surface Area faint-ly defined	1.White spot.No softening 2.No change 3.No change	1.Slight softening area,fair-ly visible
Medium Colors	1.Softened Color runs 2.No change 3.No change	1.Very soft Color runs	1.Softened 2.No change 3.No change	1.Decided softening
Dark Colors	1.Color runs Very soft 2.No change 3.No change	1.Extremely soft.Area clearly defined Color rubs off	1.Very soft 2.No change 3.No change	1.Marked softening Area clear-ly defined Color rubs off
Asphalt - "Red Grease Proof)	1.No evidence of stain or softening	1.No soften-ing Faint light ring	1.No evi-dence of stain	1.No evidence of soften-ing

	Blackberry		Ink	
	24 hours	7 days	24 hours	7 days
Mastipave	1.No stain	1.No evidence	1.No stain	1.No evidence
Linoleum Unwaxed	1.No stain	1.No stain	1.Faint stain 2.Removed	1.Faint stain 2.Removed
Waxed	1.No stain	1.No stain	1.No stain	1.No stain

Table III (Cont.)

RECORD OF THE RESISTANCE OF FLOORINGS TO STAINING

Flooring	Blackberry		Ink	
	24 hours	7 days	24 hours	7 days
Linotile Unwaxed	1.No stain	1.No stain	1.Faint dark st'n 2.No effect 3.Faint stain	1.Faint stain 2.No change 3.Removed
Asphalt - Light Colors	1.Faint stain 2.No change 3.Removed	1.Faint dark stain 2.No change 3.Removed	1.Faint stain 2.Decreased ½ 3.Removed Finish not effected	1.Medium black stain 2.No change 3.Reduced 3/4 Color fades
Medium Colors	1.No stain	1.No stain	1.Very faint stain 2.Removed	1.Medium black stain 2.No change 3.Removed Color fades
Dark Colors	1.No stain	1.No stain	1.No stain	1.Medium black stain 2.Reduced 1/8 3.Removed Color runs Surface white
Asphalt - "Red Grease Proof"	1.Faint stain 2.Decreased ½ 3.Removed	1.Faint dark stain 2.No change 3.Removed Color runs	1.Dark stain 2.Decreased 3.Removed Color removed	1.Deep black stain 2.Reduced ½ 3.Reduced 3/4 Color runs
	Iron			
	24 hours		7 days	
Mastipave	1.No stain		1.No evidence	

Table III (Cont.)

RECORD OF THE RESISTANCE OF FLOORINGS TO STAINING

Flooring	Iron	
	24 hours	7 days
Linoleum Unwaxed	1.Faint stain 2.Removed	1.No stain
Waxed	1.Faint stain 2.Removed. Water mark	1.No stain
Linotile Unwaxed	1.No stain	1.Medium dark stain 2.No change 3.Removed
Asphalt - Light Colors	1.No stain	1.Medium average brown stain 2.Reduced 1/3 3.Removed. Color fades
Medium Colors	1.No stain	1.Medium brown stain 2.Reduced 1/2 3.Removed. Color fades
Dark Colors	1.No stain	1.No stain
Asphalt - "Red Grease Proof"	1.No stain.	1.Medium brown stain 2.Reduced 3/4 3.Removed. Color runs

Approximate judgement of stain reduction.
1. Clear water at 140°F.
2. Clear water plus 1 tablespoon sodium metasilicate.
3. Abrasive powder.

Chapter IV

EQUIPMENT AND ITS CARE

Selection: There are many varied types of lunchroom equipment. The most one can know about these types is basic principles of selection and sources for reliable information about specific pieces. For detailed information a buyer should write public utility companies and trade associations for advice in selecting the right equipment for a particular set-up. Selection of equipment for a school lunchroom or cafeteria must take into consideration:

Cooking and serving requirements: These will be governed by the type of menu to be prepared, the number to be served, the length of serving time, the space available and the budget.

Distance from marketing facilities: The amount of food to be stored affects the size of the refrigerator and any storage equipment that will be needed.

Efficiency: Equipment should be of high quality construction, economical and simple in operation, easy to clean, dependable and convenient. The ease of preparation depends largely upon the tools used. Lack

of equipment can and does limit menu variations.[1] Selection and placing of equipment will determine its effectiveness. There are several ways of collecting useful information in determining what is needed in kitchen equipment such as setting up machine operation charts. This is done by watching each piece of equipment for a definite period and recording the time required to prepare various types of foods. A record kept of the starting and stopping times, the name of the employee using the equipment and the product processed ascertains the usefulness and capacity of each piece of equipment.

A second type of information useful in planning the arrangement and operation of equipment is the sequence of routing which a product follows. Routes used most frequently may be shortened. A study of the time required for various operations will help in determining the types and sizes of necessary equipment.[2] Principles

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1. "For Lunchroom and Food Centers", Practical Home Economics, April 1947, p. 229.

2. Thomas, Orpha May, "Ways to Simplify the Work," The Nation's Schools, April 1947.

to follow in the selection of cafeteria equipment:[1]

1. Buy the equipment that gives the most for your money considering:

   a. Material value
   b. Efficiency
   c. Saving food, time, fuel and energy
   d. Ease of cleaning
   e. Low cost maintenance
   f. Speed up of service
   g. Less fatigue for workers

2. Make serving line straightest and shortest possible:

   a. No back-tracking
   b. No criss-crossing

3. Determine when, where and how each piece is to be used

4. Know where food comes from, where finished product goes and what is done with waste products

5. Do buying for long periods of service as new or radical changes in equipment come slowly

Essential Equipment: An electric dishwasher which every school cafeteria serving one hundred or more pupils should have does a tremendous amount of work in a minimum of time and will cut expenses.

A dry hot-food storage table thermostatically controlled may be used instead of a steam table. There is no steam to burn the worker, food can be kept at

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1. Farnham, Mary, "Buy the Equipment That Best Fits Your Needs," School Management, January, 1947, p. 32.

proper temperatures until served and no unnecessary attendents are required. Gas or electricity is needed for operation.

A movable table on rollers is useful when food is to be moved to another room or building. Such a table may be filled in the kitchen and wheeled to the serving area. This eliminates carrying heavy loads to the service counter and returning empty containers.

Electric food peelers can be used for root vegetables in order to save labor and food. The size peeler required depends upon the number to be served.

Vegetable cutters, food mixers, slicers and culinary articles are easy to operate and are food savers.

Ranges for specific types of cooking can generally be utilized though an all-purpose range is best in a small cafeteria. One should select additional ranges when demand calls for them. Nickel alloy tops do not warp and keep work at high efficiency. Bake and roast ovens should be equipped with individual decks and separate heat controls. The thermostat on the range is indispensible as it enables one to follow definite time and temperature schedules.

Stainless steel vegetable steamers are highly recommended and can be heated with gas or electricity.

The steam cooker furnishes a superior method of cooking as it is economical in the use of fuel and it retains the nutritive value of foods.

Equipment for School Kitchens and Cafeterias:[1]

Ranges: chosen from the best models, designed for heavy duty, devoid of unnecessary trimmings, equipped with heat controls, interiors of enameled steel, installed on masonry platforms away from walls.

Refrigerators: pre-fabricated, of masonry and cork construction, or sectional wood or metal construction, must be well insulated. The refrigerator may be of any size or shape to suit the area or space available.

Dishwashers: made of non-corrosive metal, furnished with required controls for timing washing period, thermometers indicating temperatures of rinse water.

Stock kettles: fabricated, con-corrosive metal with seamless interiors furnished with safety controls, installed on masonry platforms, set into a depressed area, provided with proper drains.

Steamers: steam generating type fitted with safety controls, fabricated of non-corrosive metal.

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1. Amendola, A. J., "Planning the School Cafeteria," School Management, November 1945, p. 134.

Meat slicer: plain design, equipped with safety features.

Parers: plain design furnished with attachment hubs.

Food cutters: plain design fitted with safety features.

Glass washers: non-corrosive metal, furnished with required controls for timing washing period, fitted with a sterilizing compartment. The brush type is considered best.

Fabricated Equipment: Fabricated equipment is usually designed to render a particular service and is built to detailed specifications. Items with recommended features:

Hoods: designed with rounded corners, provided with drain gutters around bottom edge, made of non-corrosive metal.

Grease filters: installed over ovens, ranges, boilers and griddles.

Sinks and drainboards: of heavy construction, with rounded corners and rolled rims.

Tables: of heavy construction with tops of metal or sectional hardwood with framework below the top of angle construction fitted with legs and feet of adjustable type.

Drawers: of metal construction with roller slides, stops and locking devices.

Bins: of metal construction with rounded bottoms, designed for easy removal and counter balanced for easy operation.

Dish tables: of heavy metal construction with rolled rims and rounded corners.

Warming cabinets: of metal construction with no unnecessary trimming and automatic heating controls.

Doors: of the overhead hung type with guide rail at the bottom designed for easy removal.

Counters: designed to harmonize with other equipment and constructed of heavy metal.

Undershelves: constructed of metal designed for easy removal.

Steam tables: of non-corrosive material with a top arrangement designed to suit specific requirements. Individual electrically controlled inserts are available to fit removable non-corrosive pans and insets.

Cold pans: for desserts and salads well insulated and made of non-corrosive metal to be used with cracked ice or mechanical refrigeration.

Display cases: of glass with framework and standards of non-corrosive materials.

Tray dispensers: are a great convenience. An automatic dispensing type is available and designed to receive about one hundred trays in one vertical stack and are so constructed that about three or four trays are visible at all times regardless of the number of trays in the unit. There are also automatic plate and cup dispensers similar to tray dispensers. An eastern company[1] puts out a dispenser system which works on a calibrated spring action which automatically raises dishes to counter level.

Salad dispensers: protect china and glassware from personal contact and promote sanitary practices.

Water coolers: mechanically refrigerated and constructed of materials to match the surroundings.

Miscellaneous: items of standard types of equipment include meat saws, bread slicers, toasters, griddles, drink mixers, juice dispensers, water coolers, hot plates, meat grinders, pre-wash unit, garbage disposal and can washer.

Considerable information is available on each kind of equipment. A potential buyer should read professional

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1. American Machine and Foundry Lowerator Dispensers, address may be obtained from Practical Home Economics, Lakeside Publishing Company, 468 Fourth Ave., New York.

and food magazines. The most reliable equipment dealer known should be consulted for one's particular needs. The size and quantity of equipment is determined by the set-up and number to be served. The right size or capacity of any piece of equipment purchased is important.[1]

A well designed ventilating system with hoods placed over appropriate equipment should be installed to remove cooking odors.

Heavy Duty Equipment: Modern heavy duty equipment is built to take heavy work loads and will stand abuse but its efficiency and use is prolonged by proper care which should be a part of the routine of a well managed cafeteria. An organized maintenance schedule and periodic check-ups followed by necessary replacements and adjustments are wise and bring about greater economy practices and more efficient cafeteria operation in various ways:

1. Improve kitchen production
2. Cut food costs
3. Increase operating efficiency
4. Save time and energy for employees
5. Cut down repair bills
6. Avoid breakdowns or work stoppages
7. Increase the life of the equipment
8. Save fuel and power
9. Improve appearance and sanitary conditions[2]

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1. Farnham, Mary, op. cit., p. 40-41

2. Farnham, Mary, "The Proper Kind of Equipment Pays Many Dividends," School Management, April 1947, p. 34.

Heavy duty equipment requires careful supervision. One should start with the manufacturer's instructions and follow them faithfully.

Care and Cleaning:

Ranges: Wash open top range grids with water and a grease solvent. Rub closed top range plates vigorously with a heavy absorbent material. Remove grease and dirt under the flanges, lids, rings and plates. Boil open grids in a solution of sal soda weekly. Rinse well and dry. The sides and bottoms of ovens should be scraped clean of any incrusted material and wiped with damp cloths. Spilled foods should be removed promptly. Oven doors should never be slammed as hinges might be broken or the door thrown out of alignment. All thermostat adjustments should be made by qualified experts to assure correct control and satisfactory service. Grease and dirt should be removed from exposed parts daily. Regular inspection of electrical equipment is essential.

Deep fat fryers: Rinse and dry thoroughly after each use. Weekly cleaning should include boiling a solution of mild (not caustic) washing compound in the deep fat fryer. Let stand several hours. Refill with cold water to which has been added white vinegar to

neutralize any trace of alkaline remaining from the compound.

Grease-pan in broilers: Empty daily and wash with a mild solvent solution. Wash drip shields and grids. Scrub the whole broiler chamber and body front after each time used. Clean the burners monthly.

Hot food storage table: Make daily application of a good non-abrasive metal polish to stainless steel and plated parts. Galvanized parts should be painted occasionally. Wash, scald and dry all receptacles after use.

Dishwashing machines: Rinse washer heads daily. Clean drains with a good solvent. Remove refuse from strainer basket. Clean and dry curtains after each use. Clean silver and dish racks. Stand them on edge to dry. Scrub the inside of the machine daily. Leave it open to dry. Regular lubrication is necessary. Maintenance charts posted in a convenient spot may guide and remind in this care.

Mixing machines: Carefully follow the manufacturer's instruction book. Handle all attachments with care and keep the machines properly lubricated. Keep control switches in good repair and all attachments scrupulously clean. Never try to scrape down a bowl or

stir mixtures while the beater is in motion.

Food slicers: Clean after each use with hot water and mild soap. Very hot water or steam is likely to reduce lubricants in friction points. Sharpen the knife often. Fasten all guards securely.

Food peeler: Clean after each use. Flush the inside to remove peelings, empty and clean traps. Clean the outside of the peeler with a damp cloth, dry, oil, inspect and adjust regularly.

Summary: The manufacturer is the first and best source of information about the care and cleaning of a particular piece of equipment. However some general rules may apply to all materials.

1. Avoid needless rough handling or treatment
2. Clean each utensil thoroughly and properly after each use
3. Avoid allowing food to scorch or burn
4. Never let a utensil boil dry
5. Avoid abrupt changes of temperature as it causes warping, breakage or surface injury
6. Daily inspection by the manager or supervisor to see that the scheduled cleaning has been done properly and at the right time
7. Clean hot water tanks at least twice a year
8. Flush flue connections at regular intervals
9. Check burners and controls periodically
10. Steam gauges and throttle valves need expert attention at all times
11. Keep work tables spotless at all times
12. Wash, scald, air and dry garbage cans thoroughly

Rubber equipment needs special care as it absorbs oil and grease. Warm water and mild soap are best for

cleaning. Dry thoroughly.

Following is an equipment directory which is not complete but forms a representative group of manufacturers of lunchroom equipment. These and other such manufacturers are willing to give information concerning equipment and help in any purchasing plans:

Ranges and heating units:

American Stove Company, 4301 Perkins Avenue, Cleveland 3, Ohio

G. S. Blodgett Company, Incorporated, 50 Lakeside Avenue, Burlington, Vermont

The Cleveland Range Company, 3333 Lakeside Avenue, Cleveland 14, Ohio

Malleable Iron Range Company, Beaverdam, Wisconsin

Market Forge Company, Everett Station, Boston 49, Massachusetts

The Tappan Stove Company, Mansfield, Ohio

Refrigerators and heating units:

Admiral Corporation, 3800 West Courtland, Chicago, Illinois

The Crosley Corporation, Cincinnatti 25, Ohio

Frigidaire Division
General Motors Corporation, Dayton 1, Ohio

General Electric Company, Bridgeport, Connecticutt

Gibson Refrigerator Company, Greenville, Michigan

Hotpoint, Incorporated, 5600 West Taylor Street,
Chicago 44, Illinois

McCray Refrigerator Company,
Kendalville, Indiana

Nash Kelvinator Corporation,
14250 Plymouth Road, Detroit, Michigan

Servel Corporation,
Evansville 20, Illinois

Westinghouse Electric Corporation,
Electric Appliance Division, Mansfield, Ohio

Dishwashing Machines:

Champion Dishwashing Machine Company,
Erie, Pennsylvania

The Hobart Manufacturing Company, Troy, Ohio

Colts Patent Fire Arms Manufacturing Company,
Hartford 15, Connecticut

Jackson Dishwasher Company,
3703 East 93rd Street, Clevelend 5, Ohio

The Lofstrand Company, 959 Selim Road,
Silver Springs, Maryland

The Salvajor Company, 118 Southwest Boulevard,
Kansas City 8, Missouri

Universal Washing Machinery Company,
Nutley 10, New Jersey

Food service equipment:

Anstice Company, Incorporated,
Rochester 9, New York

American Machinery & Foundry Company,
511 Fifth Avenue, New York 17, N. Y.

S. Buchman Incorporated, Weehawken, New Jersey

Leitner Equipment Company, 2326 S. Canal Street,
Chicago 16, Illinois

Patented Appliances Incorporated,
Saybrook, Connecticut

Southern Equipment Company, 5017 South 38th Street,
St. Louis 16, Missouri

Straus - Duparquet, Incorporated,
New York 11, New York

John Van Range Company, Cincinnatti 20, Ohio

Cooking and serving utensils:

Aluminum Cooking Utensil Company,
New Kessington, Pennsylvania

Aluminum Goods Manufacturing Company,
Manitowoc, Wisconsin

American Cycanamid Company,
30 Rockefeller Plaza, New York

The Bolta Company, Lawrence, Massachusetts

Carrollton Manufacturing Company,
Carrollton, Ohio

Club Aluminum Products Company,
1250 Fullerton Avenue, Chicago 14, Illinois

Corning Glass Works, Corning, New York

Edlund Company, Burlington, Vermont

Foley Manufacturing Company,
Minneapolis 13, Minnesota

Griswold Manufacturing Company, Erie, Pennsylvania

Hamilton Beach Company, Division of Scovill
Manufacturing Company, Racine, Wisconsin

Hazel-Atlas, Wheeling, West Virginia

Kromex Company, 3634 Euclid Avenue,
Cleveland, Ohio

Libbey Glass Company, Toledo 1, Ohio

Metropolican Sire Good Corporation,
70 Washington Street, Brooklyn 1, New York

Mealpack Corporation of America, 152 W. 42nd Street,
New York 18, New York

National Pressure Cooker Company,
Eau Claire, Wisconsin

Oneida Ltd., Oneida, New York

Onondga Pottery Company, 1858 West Fayette,
Syracuse 4, New York

Reynolds Metal Company - Utensil Division,
Louisville 1, Kentucky

Savory Equipment Incorporated, 120 Pacific Street,
Newark 5, New Jersey

E. H. Sheldon Company, 716 Nimius,
Muskegon, Michigan

Shenango Pottery Company, New Castle, Pennsylvania

John E. Smith's Sons Company, Buffalo, New York

U. S. Slicing Machine Company, La Porte, Indiana

On pages 75 to 91 may be found tables indicating equipment needs and space considerations for school lunch programs of different sizes.

Table IV

SCHOOLS SERVING 75 TO 150 PERSONS[1]

Item	Description and Size: Minimum Requirements	Additions which may be desirable under certain conditions
EQUIPMENT NEEDS		
Ranges ovens, etc.		
Range	A 1-section heavy-duty range with oven; or a 4 to 6-burner institutional stove with 1 or 2 ovens.	
Ovens		A small 2-deck oven.
Steam cooker		A 1-compartment steam cooker; or 1 or 2 steam pressure cookers, 20-quart size.
Sinks, etc.		
Sinks	A 3-compartment sink, each compartment 18" x 18" x 14" deep, with metal dish tables attached (see sizes given below).	
Hand basin . . .	One 15"x12"	
Mop sink	One 24"x20"x14" (provided there is no janitor's sink near.)	
Dish machine		Single tank size with racks 16"x16". If machine is used, the 3-compartment sink may be replaced by a 2-compartment sink with drain board for vegetable preparation and pot washing.
Refrigerators		
Refrigerator . .	20 cubic feet (48"x 30"x70")	Up to 45 cubic feet.

1. Godfrey, Rosalie and Short, Gladys, op. cit., p. 35.

Table IV (Cont.)

SCHOOLS SERVING 75 TO 150 PERSONS

Item	Description and Size	
	Minimum Requirements	Attitions which may be desirable under certain conditions
Refrigerators (Cont.)		
Ice Cream cabinet		5 to 10-gallon capacity.
Frizen food cabinet		And/or as needed.
Tables		
Receiving table[1]	3'x18",28" high	
Cook's table	5'x30",36" high	Up to 6' and salad table or bakery table up to 6'
Soiled dish table	10 square feet 5'x 24")	Up to 15 square feet.
Clean dish table	8 square feet(4'x24")	Up to 10 square feet.
Counter, etc.[2]		
Counter	6' long x 24" wide	Up to 12' long x30" wide which will make room for hot and cold units. May need a separate table for trays and silver and one for cashier's use.
Tray rail	6'long x 12" wide (if trays are used)	
Truck		As needed--30"x22"x28", with two shelves.
Kitchen Machines		
Mixer		12 quart size.
Mixer table with storage cabinet underneath		18"x24",28" high.
Storage		
Dish cabinets	Under counter, preferably closed with sliding doors.	

See notes at end of table.

Table IV (Cont.)

SCHOOLS SERVING 75 TO 150 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions
Storage (Cont.)		
Pots and pans	Shelves under and over cook's table. Pot hooks.	
Small equipment	Table drawers, two-20" x 20"x4".	Up to 4 drawers.
Dish baskets	Shelf under clean dish table.	
Paper goods	Shelf or cabinet space, 3 square feet.	
Soaps and cleaners	Separate space, 3 square feet.	
Staple food supplies	Separate storage room, 40 to 50 square feet with shelves, wire mesh bin and cans on portable platform.[3]	Up to 80 square feet.
Small equipment and tableware	See list available from your State Department of Education; and School Lunch Management (Nutrition Education Series, Pamphlet No. 3, U. S. Office of Education. For sale by Superintendent of Documents, Washington 25, D. C., 10 cents).	
Manager's desk, etc.		
Desk	27"x20", with at least 1 file drawer.	

See notes at end of table.

Table IV (Cont.)

SCHOOLS SERVING 75 TO 150 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions
Manager's desk (cont.)		
Chair 1		
Stool 1		
HOT-WATER FACILITIES	See statement in general suggestions and plan space as needed.	
REST ROOMS	Lavatory, toilet, and locker facilities to accommodate workers. (Provide if no rest room is near.)	
SPACE CONSIDERATIONS	Minimum space for serving 150 based on the minimum facilities will require about 243 square feet; or a room 22'x9', plus 45 feet storage. This makes 1.62 square feet per person served. Ample space for including additional facilities that would be desirable or necessary under certain conditions will raise this space to 572 square feet; or a room at least 22' by 26'. This makes 3.96 square feet per person served, based on 150 persons. In addition (see 500 level). Dining room (see 500 level).	

Table V[1]

SCHOOLS SERVING 150 TO 250 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions
EQUIPMENT NEEDS		
Range, ovens, etc.		
Range	A 2-section heavy-duty range, with ovens; or tow 4 to 6-burner institutional stoves with ovens.	
Ovens		A small 3-deck oven.
Other		A 2-compartment steam cooker; or a 15 to 20-gallon steam-jacketed kettle
Sinks, etc.		
Vegetable preparation	A 2-compartment sink each compartment 18" x 18"x12".	
Dishwashing sink	A 3-compartment sink, each compartment 20"x 20"x14".	See dish machine.
Hand basin	One 15"x12".	
Mop sink	One 24"x20"x14"(provided there is no janitor's sink near).	
Cook's sink		A small sink in cook's table 15"x15"x9".
Hose connection		Near platform.
Dish machine, etc.		Single tank size with racks 20"x20" with pre-rinsing facilities. This would replace the dishwashing sinks above.

1. Godfrey, Rosalie and Short, Gladys, op. cit., p. 35.

Table V (Cont.)

SCHOOLS SERVING 150 TO 250 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions
Refrigerators		
Refrigerator	45 cubic feet (56"x 35"x74"), plus milk storage; or 60 cubic feet.	Replace reach-in refrigerator with walk-in box 6'x6'.
Ice cream cabinet		10 to 15 gallon capacity.
Frozen food cabinet		And/or as needed.
Tables		
Receiving table[1]	4'x24",28" high	Up to 5'.
Cook's table	6'x30",26" high	Up to 8'.
Salad and sandwich table	4' to 6'x30",36" high	Up to 6', and add a bakery table 4'.
Soiled dish table	13½ square feet (6' x27")	Up to 20 square feet.
Clean dish table	8 square feet (4'x 24")	Up to 14 square feet.
Truck	One 30"x22",28" high with 2 shelves	Up to 2.
Counter, etc.[4]		
Counter	8' to 10' long by 27" to 30" wide	Up to 14' (Which will make room for hot and cold units). May need a separate table for trays and silver and one for cashier's use.
Tray rail	8' to 10' long x 12" wide (if trays are used.)	Length of counter.
Kitchen machines		
Mixer	12-quart size	Up to 20-quart size.
Peeler		8 to 10 pounds.

See notes at end of tables.

Table V (Cont.)

SCHOOLS SERVING 150 TO 250 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions
Kitchen machines (cont.)		
Meat slicer		Small size.
Food cutter		Table model.
Cabinet base for mixer	Cabinet table 18"x24", with storage for attachments.	
Storage		
Dish cabinets . .	Under counter, preferably closed with sliding doors.	Up to 18 square feet shelf space.
Pots and pans . .	Shelves under and over tables. Pot hooks.	Portable pan rack.
Small equipment	Four table drawers 20"x20"x4".	Up to 6 table drawers.
Dish baskets or racks	Shelf under clean dish table.	
Paper goods . .	Shelf or cabinet, 3 square feet.	
Soaps and cleaners	Separate cabinet, 6 square feet.	
Staple food supplies . . .	Separate storage room, 50 to 60 square feet, with shelves, wire mesh bins and cans on portable platforms.	Up to 100 square feet.
Small equipment and tableware.	See list available from your State Department of Education,	

See notes at end of tables.

Table V (Cont.)

SCHOOLS SERVING 150 TO 250 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions
Small equipment and tableware (cont.)	and School Lunch Management (Nutrition Education Series, Pamphlet No. 3, U.S. Office of Education. For sale by Superintendent of Documents, Washington 25, D.C., 10 cents).	
Manager's desk, etc.		
Desk	30"x24", with at least 1 file drawer.	
Chair	1	
Stools	1 or 2	
HOT-WATER FACILITIES:	See statement in general suggestions, and plan space as needed.	
REST ROOMS	Lavatory, toilet, and locker facilities to accommodate workers. (Provide if no rest room is near.)	
SPACE CONSIDERATIONS	Minimum space for serving 250 to include all the minimum facilities will require about 529 square feet; or a room 23'x23'. This is equal to 2.12 square feet per person served. Ample space for including additional facilities that might be desirable or necessary under certain conditions will raise this space to 690 square feet; or a room 23'x30', which makes 2.76 square feet per person served, based on 250 persons. In addition (see 500 level). Dining room (see 500 level).	

Table VI[1]

SCHOOLS SERVING 250 TO 350 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions.
EQUIPMENT NEEDS		
Ranges, ovens, etc.		
Range	A 2-section heavy-duty range with oven.	
Oven	A small 2 to 3-deck oven.	Large deck oven (if much baking is to be done.)
Steam cooker		A small size, 2 compartments; or
Steam-jacketed kettle		a 20 to 25-gallon size.
Sinks, etc.		
Vegetable preparation sink	Two compartments, each 24"x20"x12", with at least 1 drain board 30"x20".	Another drain board (may be portable.)
Cook's sink		One sink in cook's table 15"x15"x9".
Pot sink		a 3-compartment sink for pot washing, 24" x20"x14" with drain board.
Hand basin	One 15"x12"	
Mop sink	One 24"x20"x14"	
Hose connection	Near platform	
Dish machine	Single tank size with racks 20"x20" and with pre-rinsing facilities (may be sink with force attachment).	A timing device attached to the machine.

1. Godfrey, Rosalie and Short, Gladys, op. cit., p. 36

Table VI (Cont.)

SCHOOLS SERVING 250 TO 350 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions
Refrigerators		
Refrigerator . .	60 cubic foot (82"x 33" to 35"x74") plus milk storage; or walk -in box 6'x6'.	
Ice cream cabinet		15 to 20-gallon capacity.
Frozen food cabinet		And/or as needed.
Tables		
Receiving table[5]	5'x24",28" high . . .	Up to 6'.
Pre-prepatation of vegetables table	4'x24",28" high, if worker sits to prepare vegetables; 36" high if worker stands.	Up to 6'.
Cook's table . .	6'x30", 36" high . . .	Up to 8'.
Bakery table . .	3½'x30", 36" high . .	Up to 5'.
Salad and sandwich table . .	6'x30", 36" high . . .	Up to 7'.
Soiled dish table	20 sq.ft.(8'x30") . .	Up to 25 sq. ft.
Clean dish table	15 sq. ft. (6'x30") .	Up to 18 sq. ft.
Truck	One 30"x22",28" high, with 2 shelves.	Up to 2 or 3.
Counter, etc.[4]		
Counter	10' long x 27" to 30" wide.	Up to 15', which will make room for hot and cold units. May need a separate table for trays and silver and one for cashier's use.
Tray rail	10' long x12" wide (if trays are used).	

See notes at end of tables.

Table VI (Cont.)

SCHOOLS SERVING 250 TO 350 PERSONS

	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions
Counter (Cont.)		
Tray and silver		Table or portable truck (if space is not provided on counter).
Kitchen machines, etc.		
Mixer	Table model, 20 quarts.	
Peeler	15 pounds	
Meat slicer		Small table model (electric).
Food cutter		Table model, 14" bowl.
Cabinet base for mixer	Cabinet table 18"x24", with storage for attachments.	Additional table space if needed to hold machines.
Storage		
Dish cabinets	Under counter, preferably closed with sliding doors.	Separate closed cabinet. Up to 27 sq.ft.
Pots and pans	Shelves under and above tables. Pot hooks	Portable utensil and pan racks.
Small equipment	Six table drawers	Up to 8 table drawers.
Dish racks	Shelf under dish table.	
Paper goods	Enclosed space apart from food, 4 sq. ft.	Separate cabinet.
Soaps and cleaners	Enclosed separate space apart from food 10 sq. ft. (if soap is bought in barrels).	
Staple food supplies	Separate storage room, 60 to 70 sq.ft. fitted with bins,	Up to 120 square feet.

See notes at end of tables.

Table VI (Cont.)

SCHOOLS SERVING 250 TO 350 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions
Storage (Cont.)		
Staple food supplies (cont.)	shelves, cans on portable platforms. At least 1 wire mesh bin for root vegetables.[3]	
Small equipment and tableware.	See list available from your State Department of Education; and School Lunch Management (Nutrition Education Series, Pamphlet No. 3, U.S. Office of Education. For sale by Superintendent of Documents, Washington 25, D.C., 10 cents).	
Manager's desk, etc.		
Desk	30"x27", with at least 1 file drawer.	
Chair	2	
Stool	2	Up to 4.
HOT WATER FACILITIES.	See statement in general suggestions and plan space as needed.	
REST ROOMS	Lavatory, toilet, and locker facilities to accommodate workers. (Provide if no rest room is near.)	
SPACE CONSIDERATIONS.	Minimum space for including all the minimum facilities for serving 350 will	

See notes at end of tables.

Table VI (Cont.)

SCHOOLS SERVING 250 TO 350 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions
SPACE CONSIDERATIONS (Cont.)	require about 600 square feet; or a room 23'x 26' which amounts to 1.71 square feet per person served. Ample space for including the additional facilities that might be desirable or necessary under certain conditions will raise this space to 1,080 square feet; or a room 30'x36' which makes 3.1 square feet per person served, based on 350 persons. In addition (see 500 level). Dining room (see 500 level).	

Table VII[1]

SCHOOLS SERVING 350 TO 500 PERSONS

Item	Description and Size: Minimum Requirements	Additions which may be desirable under certain conditions
EQUIPMENT NEEDS		
Ranges, ovens, etc.		
Range	A 2-section heavy-duty range with ovens.	A full-size spreader-plate between range sections.
Oven	A small 3-deck oven.	A large 3-deck oven
Steam cooker	A 2-compartment small steam cooker; or	Same.
Steam-jacketed kettle	A full-jacketed kettle of 25-gallon capacity, 30" diameter.	Same.
Sinks, etc.		
Vegetable preparation sink	A 2-compartment sink, with each compartment 20"x20"x14", with 1 drain board 30"x20".	Another drain board (may be portable.)
Cook's sink		One cook's table, 15"x 15"x9"; or in bakery if there is no sink near.
Pot sink	A 2-compartment sink, each compartment 24"x 20"x14",with 1 drain board 30"x20".	Another compartment and drain board.
Hand basin	One 15"x12"	
Mop sink	One 24"x20"x14"	
Hose connection	Near platform	
Dish machine	Single tank machine with racks 20"x20".	Or an automatic machine.
Refrigerators		
Refrigerator	Two 45-cubic foot boxes, plus milk storage; or 1 walk-in	Up to a walk-in size 8'x10', plus 30 cubic foot reach-in box.

1. Godfrey, Rosalie and Short, Gladys, op. cit., p. 37.

Table VII (Cont.)

SCHOOLS SERVING 350 TO 500 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions
Refrigerators (Cont.)		
Refrigerator (cont.)	box 6'x8'.	
Ice cream cabinet		Up to 20 gallons.
Frozen food cabinet		As needed.
Tables		
Receiving table[5]	6'x24", 28" high	Up to 8'.
Table for preparation of vegetables	5'x30", 28" high	Up to 7'.
Cook's table	7'x30", 36" high	Up to 9'.
Bakery table	4'6"x30", 36" high	Up to 6'.
Salad and sandwich table	6'x30", 36" high	Up to 7'.
Soiled dish table	25 sq. ft.(10'x30").	Up to 30 sq. ft.
Clean dish table	15 sq. ft.(6'x30").	Up to 20 sq. ft.
Truck	One 30"x22", 28" high with 2 shelves.	Up to 3.
Counter, etc.[4]		
Counter	15' long x 27" to 30" wide.	Up to 20', with hot and cold units.
Tray rail	15' long x 12" wide (if trays are used).	Length of counter.
Cashier's table	Modify end of counter or provide table 30" x20".	
Trays and silver	Table or portable truck (if not room on counter).	
Kitchen machines, etc.		
Mixer	20 to 30-quart pedestal type.	

See notes at end of tables.

Table VII (Cont.)

SCHOOLS SERVING 350 TO 500 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions
Kitchen machines, etc. (cont.)		
Peeler	15-pound	
Meat slicer		Large table model(elec.)
Food cutter		Table model, 14" bowl.
Cabinet base for machines		Additional table space if needed to hold machines.
Storage		
Dish cabinets	Under counter, preferably closed with sliding doors, plus separate cabinet.	
Pots and pans	Shelves under and above tables. Pot hooks.	Portable utensil and pot racks.
Small equipment	Six table drawers	Up to 8 table drawers.
Dish racks	Shelf under dish table.	
Paper goods	Enclosed space apart from food, 4 sq. ft.	Separate cabinet.
Soaps and cleaners	Enclosed separate space apart from food, 10 sq. ft.	
Staple food supplies	Separate storage room, 70 to 90 sq. ft. fitted with bins, shelves, cans on portable platforms. At least 1 wire mesh bin for root vegetables.[3]	Up to 140 sq. ft.

See notes at end of tables

Table VII (Cont.)

SCHOOLS SERVING 350 TO 500 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions.
Small equipment and tableware . .	See list available from your State Department of Education; and School Lunch Management (Nutrition Education Series, Pamphlet No. 3, U. S. Office of Education. For sale by Superintendent of Documents, Washington 25, D.C., 10 cents.)	
Manager's desk, etc.		
Desk	36"x30", with at least 1 file drawer.	
Chair	2	
Stool	3	Up to 6.
HOT WATER FACILITIES.	See statement in general suggestions, and plan space as needed.	
REST ROOMS	Lavatory, toilet, and locker facilities to accommodate workers. (Provide if no rest room is near.)	
SPACE CONSIDERATIONS.	Minimum space for including all the minimum facilities for serving 500 will require about 780 square feet of space; or a room 26'x30', which makes 1.56 square feet per person served.	Ample space for including the additional facilities that might be desirable or necessary under certain conditions will raise this space to 1,216 square feet; or a room 32'x38', which makes 2.43 square feet per person served, based

Table VII (Cont.)

SCHOOLS SERVING 350 TO 500 PERSONS

Item	Description and Size	
	Minimum Requirements	Additions which may be desirable under certain conditions
SPACE CONSIDERATIONS (Cont.).	on 500. Note.--In addition, a platform at rear entrance and enclosed space for holding empty crates and containers and temporary storage of trash and garbage. Dining room space averages 9 to 12 square feet for each person to be seated at one time.	

Notes:

1. Should include space for scales and inspection. In rural areas this space might be enlarged to include a table and sink for rough preparation of vegetables.

2. A glass protector for counter is required by law in some States. When a plate lunch is served from a small window this is not necessary.

3. This amount of space will provide ample storage for a variety of foods purchased periodically. The minimum storage space is consistent with good purchase practices for a limited menu. The desirable increase in space allows for the purchase of food in greater variety. (It will not provide space for a year's supply of processed foods.)

4. A glass protector for counter is required by law in some States.

5. Should include space for scales and inspection.

Chapter V

SANITATION AND SAFETY

"Lunchroom directors, principals and school health officers should work together to see that sanitary measures are carried out.

"The school lunch serves an extremely important purpose from the standpoint of nutrition and practical health education. Such being the case, the Joint Committee on Health Problems in Education calls attention to certain protective sanitary measures, knowing that the carrying out of these measures will help avoid sickness resulting from contaminated food. The following recommendations concerning lunchroom personnel and equipment are made:[1]

1. "All persons employed in the lunchroom must be scrupulously clean in person and attire. They should be required to submit to health examinations or procedures which the health or school authorities may see fit to require.

2. The lunchroom and kitchen must be clean and as well equipped as it is possible to expect under the existing circumstances in the particular school,

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1. National Elementary Principal, The School Lunch Program, "Sanitary Requirements for School Lunches," Vol. 27, No. 3, December 1947, p. 21-22.

bearing in mind the fact that many schools which are poorly equipped are in very special need of school lunches from the standpoint of nutrition and education.

3. There must be present and in constant use the following equipment: a stove of such capacity as will furnish abundant heat for heating large amounts of water; a sufficient supply of soap or detergent; facilities for washing dishes in water sufficiently hot (115°F. to 120° F.) to scald them with water over 170°F. and to allow them to dry without wiping; a supply of dishes and utensils sufficient to permit good practice in the handling of food; a clean, tight cupboard for the storage of dishes and utensils used in cooking; a supply of kitchen linen or its paper substitute great enough to permit sanitary handling of the food; and an icebox or refrigerator. Where no refrigeration is provided, perishable food left over should be disposed of.

4. Food low in price is permissible, but it must not be fermented, decomposed, frostbitten, unclean or of unsanitary quality. Milk should be pasteurized. If unpasteurized, it should be boiled on the premises. If powdered milk is used, it must be mixed with safe water within an hour or two of the time it is to be used.
Home canned fruits are safe, but home canned meats and vegetables may be used only after being boiled for 15 minutes after removing from the can and without tasting. In the absence of satisfactory refrigeration, "leftovers" are never to be carried over to the next day; food prepared must be eaten, sent home with the children, or put in the garbage the same day it is prepared.
Day-old products are not to be used if there is any ingredient which is capable of spoilage or fermentation. This precaution is particularly needed with products containing cream fillings, meringues, custards or non-acid dressings, such as salads made with mayonnaise, Hollandaise cream or cooked dressing: for example, potatoes, chicken, leftover meat dishes, except cured or smoked meats.

5. The housekeeping of the lunchroom and the kitchen must be above criticism. Particular attention should

be given to the exclusion of flies, rats, mice, roaches and other vermin. Food must be kept in closed, dust-proof and vermin-proof containers. Similar containers must be provided for disposal of garbage. Garbage should be wrapped if local ordinances so provide.

6. The personnel and equipment must be under the daily supervision of some responsible person trained for such work--school physician or school nurse, principal or home economics teacher, or representative of the health department--who will have authority to order the abatement of a condition which may be dangerous. This responsible person shall decide whether a lunchroom worker is or is not fit to work on any given day. He shall take into consideration the following points and such others as seem pertinent or necessary to insure safety to the persons eating the school lunch.

   (a) Is the worker clean in person and clothing? Are hands clean and nails well trimmed and clean? Is the hair covered by an appropriate hair net or cap? Does the worker wash hands immediately before handling food and after use of the toilet?

   (b) Is there suspicion that the worker is suffering from some communicable disease? If so, he should be examined by a physician or health officer who, in turn, should inform the administrative head of the school regarding the possible transmission of disease. He should not be permitted to return to work after sickness or absence of undetermined cause until seen by a physician.

   (c) Is there any skin disease or discharging wound?

   (d) Is there any infectious disease, such as scarlet fever, in the home of the worker?

   (e) Does the worker cover the nose and mouth when coughing or sneezing and wash hands after using handkerchief?

(f) Does the worker exercise care in handling food, food utensils and containers?"

The close cooperation of lunchroom directors, principals and school health officers is required if school eating places are to be safe.

Cleanliness: Sanitation and hygiene are essential for good food service. The psychological effect of cleanliness upon pupils is an asset to the operation of a cafeteria. Furnishings and equipment should be selected for their attractiveness as well as for the ease with which they can be kept free of dirt. Sanitation, care of equipment and safety are vitally important in the successful operation of a school lunchroom.[1] All too often foods and drinks that are not carefully handled and prepared become sources of contamination. Most disease germs grow best at body or room temperatures so it is important that foods be refrigerated promptly.

A training course should be set up for every food handler including kitchen employees and student workers. A student council and school nurse should help in this training. Dirt and disease go hand in hand and must have no place in the school cafeteria. Standards are

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1. "Establishing and Operating a Restaurant," U. S. Department of Commerce, p. 166.

more easily maintained if there is pride and satisfaction among the employees.

Notes to be observed by all who handle food:[1]

1. Wash hands before handling any food
2. Wash hands after using the toilet
3. Be sure uniforms are clean and neat
4. Avoid touching hair, face or clothing while working with foods
5. No one should handle foods who has sores on hands, face or arms
6. Wash hands frequently, especially after coughing or sneezing or using a handkerchief
7. Be sure finger nails are clean
8. Handle cups and silver by handles, plates by edges and glasses by the lower half
9. Workers should wear clean, washable clothes

Handwashing facilities should be provided in all toilets, kitchens and locker rooms. These facilities should include a combination faucet for hot and cold water, a sanitary soap dispenser, (filled at all times) individual paper towels and a suitable receptacle for disposal of used ones.

Sanitation Requirements: Sanitation requirements recommended by the United States Public Health Service:[1]

The floors, walls and ceilings of all rooms in which food or drink are found shall be kept clean and in good repair. Walls and ceilings should be finished

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1. Public Health Bulletin No. 280, U. S. Public Health Service, Washington, D. C., p. 7.

in light color and have a smooth washable surface up to the level reached by splash or spray.

When flies or other insects are prevalent all windows and doors shall be well screened with self closing doors. All rooms in which foods are stored or prepared, or in which utensils are washed are to be well lighted and ventilated. Equipment shall be kept free from contaminating material. Cloths used by any employees shall be clean and used only once.

All multi-use utensils shall be thoroughly cleaned and subjected to an approved bactericidal process immediately following use. If drying cloths are used they shall be clean and used for no other purpose.

No article containing cyanide or other poisionous material shall be used for the cleansing or polishing of materials.

All garbage and trash shall be kept in suitable containers.

All readily perishable food and drink shall be kept at or below 50°F. except when being prepared or served. Waste water from refrigeration equipment shall be properly disposed of.

All employees shall wear clean outer garments and shall keep their hands clean at all times. The use of

hair nets, head bands or caps is recommended.

Education of food handlers is probably the most effective method of obtaining compliance with sanitary regulations. Manuals for instruction of food handlers are available from several sources.[1]

Softening Agents and Detergents: Soft water cleans more effectively than hard but hardness of water may be reduced by the use of a softening agent. Hot water cleans more effectively than cold. A temperature of 150°F. dissolves detergents readily and melts grease.

The properties of a good detergent:[2]

1. Wetting: The ability to readily wet the surface being cleaned
2. Emulsification: The ability to emulsify fats and oils
3. Dissolving: The ability to dissolve food materials
4. Deflocculation: The ability to break up dirt particles
5. Dispersion: The ability to function properly in hard or soft waters

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1. Public Health Service, "From Hand to Mouth", U. S. Government Printing Office, 1943.
   State Health Department, Austin, Texas.
   City Department of Public Health, Flint, Michigan

2. "Establishing and Operating a Restaurant," U. S. Department of Commerce, Series No. 39. p. 173.

6. Rinsing: The property of being easily rinsed off by clean water

No single chemical substance possesses all of these properties to the desired degree therefore many detergents are mixtures.

Abrasives: It is sometimes necessary to use abrasives to mechanically remove soil. These may be used alone or with soap powder, soap jelly, detergents or volatile oils such as kerosene. Common abrasives are silica, pumice, volcanic ash and precipitated chalk or whiting. Coarse abrasives injure the surface to be cleaned. Whiting is an abrasive which can be used safely for all scouring purposes including polishing silver.

Brochures showing proper cleaning procedures of silver, dishes and glassware are helpful in establishing and following correct procedures in cleaning methods. Copies of these charts are obtainable for posting in convenient locations in the school lunchroom.[1]

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1. These copies in large sizes may be obtained by writing The Hobart Manufacturing Company, Troy, Ohio.

Conclusions: School lunchroom workers have a major responsibility in preparing and serving clean, wholesome food in a sanitary and appealing manner. There is no part of the school's activities that can be more vital to the health and well being of each individual than a well guided lunch program.

A carefully planned, well built and adequately equipped school cafeteria is indispensible in the establishment and operation of the school lunch.

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