DOCUMENT RESUME

ED 031 062 EF 003 539

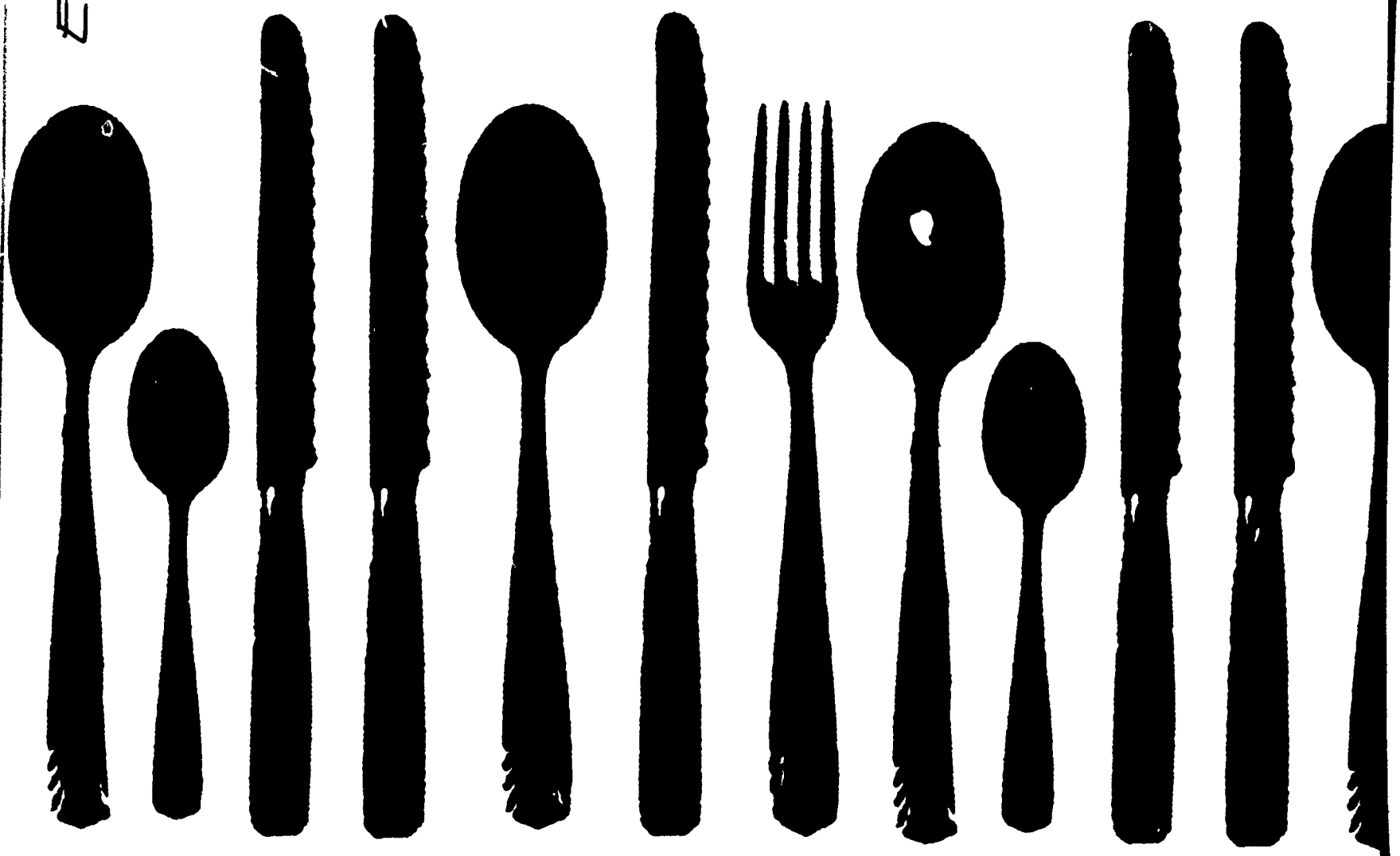
By-Miller, William O'Donnell

20 Million for Lunch.

Report No-TR-NO-3
Pub Date Mar 68
Note-63p.
EDRS Price MF-$0.50 HC-$3.25
Descriptors-*Bibliographies, *Cost Effectiveness, Design Needs, Dining Facilities, *Facility Guidelines, Federal Aid, Food Handling Facilities, *Food Service, *Lunch Programs, Vending Machines

A comprehensive treatment of school lunch programs and facilities designed to aid school administrators in the planning and evaluation of their food service facilities. An historical perspective of school food service programs is followed by descriptions of the important considerations in planning and evaluating a school food service program. Among the items discussed are meal types and menu planning, serving facilities, preparation systems, facilities design, operating methods, contract feeding costs and guidelines, and vocational education programs. The appendix contains information concerning government subsidy programs, sample menus, food standards, food purchasing guidelines, and a bibliography of pamphlets, books and periodicals. This document previously announced as ED 023282. (NI)

20 million for lunch



a report from educational facilities laboratories

Educational Facilities Laboratories, Inc. is a nonprofit corporation established by the Ford Foundation to help schools and colleges in the United States and Canada with their physical problems by the encouragement of research and experimentation and the dissemination of knowledge regarding educational facilities.

20 million for lunch!

Prepared for EFL by Dechert ■ Hampe & Co. William O'Donnell Miller, Project Manager

acknowledgements

We would like to thank Herbert Jackson, Public Information Specialist, USDA, Midwest Area Office, Chicago, Illinois and Russell Circo, Administrative Assistant, National School Lunch Program, USDA, Midwest District Office, Chicago, Illinois for unraveling the linguistic mysteries of federal officialdom; Canteen Corporation for making available not only their personnel but the books on their contract feeding operations, and especially Patrick Stein, FFES, of Canteen who was always available to answer one more question; Kay Fulton of the National Restaurant Association for her help in gathering much of the necessary background information; and finally Mildred Vieweg who not only typed the manuscript but demanded that it make sense.

We are particularly appreciative of the careful reading the book received from Marion Cronan, President, American School Food Service Association, and Louise Frolich, Field Coordinator, American School Food Service Association, whose suggestions were always helpful even when not in complete agreement with the author's.

We would also like to thank the many school districts who gave our consultants so much time and so much candid information on their food service programs to help us in the preparation of this report.

Educational Facilities Laboratories

Library of Congress Catalog No. 68-25328

First Printing: March 1968
Second Printing: March 1969

Additional copies are available from
Educational Facilities Laboratories
477 Madison Avenue
New York, N.Y. 10022

table of contents

Foreword	6
Introduction	7
School Food Service Programs—An Historical Perspective	9
Planning and Evaluating a School Food Service Program	11
Essential Considerations	11
Meal Types and Menu Planning	12
Serving Facilities	18
Food Preparation Systems	22
Facilities Design	29
Operating Methods	34
Vocational Education Programs	36
Summary	39
Appendices	40
Government Subsidy Programs	40
Sample Menus	44
Sample Specifications for Manual Bid Contract Food Service Management	48
Sample Specifications for Vending Operators	53
Sample Contract Appointment of Agent for Food Service Management	57
Suggested References	59

foreword

The largest chain of restaurants in America is operated by our public schools. They represent not only an impressive capital outlay but the operational cost required to serve some $7 million worth of lunches every school day makes them an important element of the total cost of education.

This report was prepared to help school administrators and their professional advisors make the most intelligent use of those funds which, directly or indirectly, go into the school lunch program. As in so many aspects of education, change is playing an important role in the lunch programs in schools across the country. New options are available to school boards which should be intelligently considered in planning lunch programs and the occasional breakfast programs which are cropping up in some school districts where a significant proportion of the population is disadvantaged. There are new opportunities for efficiency which have been opened up by the increasing size of administrative units produced by the consolidation of school districts in the last decade. During this period the number of school districts in the United States was reduced from 47,600 to 23,500.

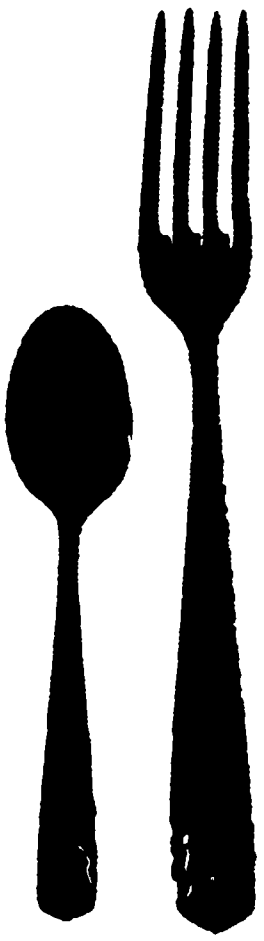
New developments in food processing and handling have become increasingly important in the development of school lunch programs. Frozen and other preprocessed foods are finding their way into the schoolhouse in ever increasing quantities. Not all school administrators faced with so many other pressing problems have been able to consider these new developments with the care they might have wished. In addition, many school districts are venturing into new kinds of administrative arrangements involving contract catering and bringing the ubiquitous vending machine into the schoolhouse as a major factor in the facilities for the lunch program.

This report offers no panaceas, but it does attempt to bring together valid and unbiased information on all these changes in the food service industry for the benefit of school administrators.

This report was prepared by Dechert•Hampe & Co. of Chicago, who have had a great deal of experience in various aspects of the food service industry. William O'Donnell Miller of Dechert•Hampe was the author.

Educational Facilities Laboratories

introduction



This report is designed to aid school administrators in the planning and evaluation of their food service facilities, and it has as its foundation two specific bases:

1 All school food service problems can be solved, and those most competent to solve them are the local administrators.

2 School food service administrators are dealing from a position of commercial strength of which they are usually unaware.

These are worth further explanation.

First, if one reads the myriad of literature available on school food service programs, it becomes quickly obvious that all approaches, all systems, all potential solutions do not and cannot apply to all schools and the problems they face. Each administrator is interested in, most knowledgeable about, and responsible for his own program. For any material to be meaningful, it must be tailored to the specific problems each administrator faces. We have attempted to supply detailed information on the many aspects of planning, administering, and evaluating school food service programs along with a means of applying that information to the variable circumstances each administrator faces. Since each food service administrator knows his local problems best, he is best qualified to apply general information to those problems to develop a food service plan to achieve his objectives.

Second, from every conceivable economic point of view, school food service programs represent an extremely lucrative market for goods and services and as such put the food service administrator in a position to demand the best quality at the lowest possible price.

A report, prepared March 6, 1967, by Marketing & Advertising Associates for Ojibway Press, publishers of *School & College Food Management,* details the scope of the market for food alone.

In 1966, 76,744 elementary and secondary schools had food service programs. (Schools with only milk programs are not included in these figures.)

Public and private primary and secondary schools used $1,088,278,022 worth of food during 1966:

$888,778,022 in local food purchases;

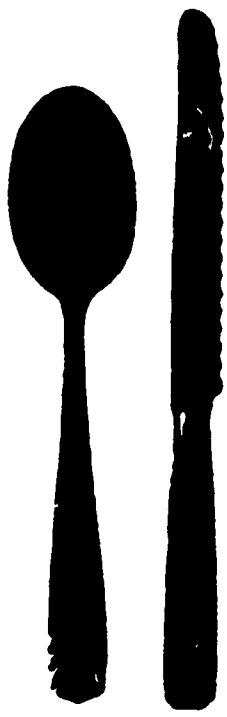
$58,500,000 purchased by the federal government on bid;

$141,000,000 donated by the federal government.

In addition to food itself, kitchen equipment, dining facilities, serving and eating utensils, and construction costs add a considerable amount to the total school food service market. Food processors are eager to sell products to schools, not only as a means of current income, but to develop taste preferences among students which will lead to future adult sales. The school administrator is an important sales prospect, and, with an effectively planned program, he can work advantageously with all suppliers.

This report does not presume that schools should have food service programs. This is a question which must be decided locally. It is a planning guide which will permit the administrator to apply the facts he faces to a number of alternative courses of action in order to determine how he can best serve the needs of his school. Through a step-by-step planning process, the administrator will be able to develop comprehensive plans for effective school food service programs. Hopefully, a more complete understanding will result and contribute to a higher level of communication among those who are so directly involved in feeding lunch to 20 million.

school food service programs an historical perspective



Historical information often serves to illuminate where we've been and how we got where we are. And, on occasion, it may give some indication of where we're going. But, while history tells us the "why" of the past, it rarely provides us with the "how" of the future. In the case of school food service programs, historical perspective can give us some insight into the social and educational implications of the programs, and it is particularly these historical implications that are of concern to the school administrator.

All school food service programs appear to be founded on two basic historical considerations:

1 The continuous evolution of social consciousness which demands that all children be developed physically and mentally so that they have the opportunity to make a contribution to society rather than become a burden on it.
2 The economic necessity of controlling the market for agricultural products.

Traditionally school food service programs have been lunch programs. But currently programs are expanding beyond lunch alone—into breakfast programs, and supper programs for night schools, as well as programs to utilize food service facilities for vocational educational programs.

In the early 1800's, the reforms of the industrial revolution freed a large number of children from the labor force in the United States and other western nations. The same public concern brought about the development of low-cost school lunches to promote attendance and health.

As early as 1849, France instituted Cantines Ecoliers to feed secondary school children. In 1853, the Children's Aid Society of New York opened an industrial school and, in an effort to promote attendance, offered food to all students.

World War I brought into focus the need for improved nutrition for young people. Far too many were rejected from military service for reasons directly related to faulty nutrition. As a result, many communities began to develop school lunch programs. These programs were minimal in their scope and were a financially risky adjunct to the educational system. In addition, these efforts were primarily motivated by charity and were concentrated in the economically depressed areas.

The depression brought additional pressure for the development of school lunch programs. A great number of school age children were noticeably hungry and undernourished. At the same time, there was a substantial volume of foodstuffs which could not be moved to consumers through normal distribution channels. There began an effort to move the abundant agricultural surplus into the schools.

World War II brought to light some startling facts about the physical condition of the nation's youth. A direct result of the awareness of the necessity of good nutrition among the country's schoolchildren was the National School Lunch Act of 1946 which established the National School Lunch Program. This act was specifically designed to provide assistance to the states "in the establishment, maintenance, operation and expansion of school lunch programs," and the Congress declared that its basic policy in this act was ". . . as a measure of national security to safeguard the health and well being of the nation's children and to encourage the

domestic consumption of nutritious agricultural commodities and other food . . . in providing an adequate supply of foods and other facilities for the establishment, maintenance, operation and expansion of nonprofit school lunch programs."

Nearly 71,000 elementary and secondary schools in the United States operated under the National School Lunch Program during the 1966-67 school year, and these schools served over 18 million children.

Other schools operate school lunch programs outside the provisions of the National School Lunch Act, and the total number of children being fed daily in public and private primary and secondary schools in the United States is in excess of 20 million.

In addition to the National School Lunch Act of 1946, on October 11, 1966, the 89th Congress passed the Child Nutrition Act of 1966. This act combined in its purpose the dual historical considerations mentioned earlier. The declaration of purpose of the act states: "In recognition of the demonstrated relationship between food and good nutrition and the capacity of children to develop and learn, based on the years of cumulative successful experience under the National School Lunch Program . . . it is hereby declared to be the policy of Congress that these efforts shall be extended, expanded, and strengthened . . . to safeguard the health and well being of the nation's children and to encourage the domestic consumption of agricultural and other foods . . . to meet more effectively the nutritional needs of our children."

As part of this program, the Congress made a special appropriation to provide milk to the nonprofit schools, high school grades and under, and nonprofit nursery schools, child care centers, settlement houses, summer camps, and similar nonprofit institutions devoted to the care and training of children. In addition, this act authorized the Secretary of Agriculture to "formulate and carry out a program to assist the states to supply schools drawing attendance from areas in which poor economic conditions exist with equipment, other than land or buildings, for the storage, preparation, transportation, and serving of food to enable such schools to establish, maintain and expand school food service programs."

There is little argument that the American educational system is designed to serve the public interest and, as such, should make a contribution to the public good. However, since food service programs are a considerable financial factor in school costs (the kitchen equipment cost alone in a school serving 5,000 meals a day can exceed $750,000), food service often becomes a point of debate among those who must support school systems financially. Among the basic factors to be considered are:

What contribution can a food service program make to the objectives of the educational system or the community?

Are the costs of the food service program, as they relate to the total costs of education and facilities, a justifiable expenditure?

Do the nutritional demands of the student body require supplemental in-school food service programs?

The answers to these questions will vary from school district to school district and even from school to school within a single district. To answer these questions, each school administrator must weigh the circumstances he faces against the goals of the educational system.

School food service programs are big business. They are also an accepted vital part of most educational systems. Many educators feel that school food service programs have ceased being merely "feeding programs." The objectives have been broadened to include:

1 The promotion of health and nutrition education.
2 Promotion of good food habits.
3 The development of good habits of social behavior.

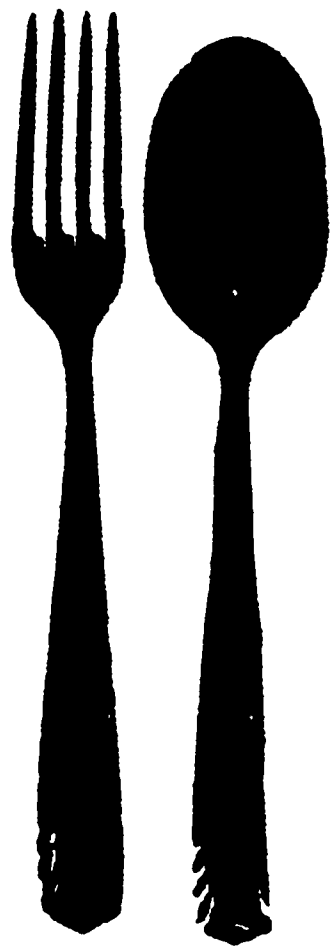
School food service programs have developed into large-scale operations and will continue to develop in the future. The total number of schools and school children involved is truly staggering. For the 1966 fiscal year, the United States Department of Agriculture published the following figures:

75% of the total American primary and secondary *schoolchildren* attend schools participating in the National School Lunch Program; an additional 9.4% attend schools with food service programs not operated under the program;

75% of all primary and secondary *schools* participate in the National School Lunch Program; an additional 5% of the schools have food service programs operating outside the National School Lunch Program.

As these programs continue to grow, the challenge to operate successful food service operations will have to be faced by each school administrator.

planning and evaluating a school food service program



essential considerations

Operating a food service facility is a complex and challenging job. In effect, a food service facility is a business established within the educational system, and as a business it must be managed carefully.

Special attention is needed for the basic questions. The first decision to be made is whether or not the school should have a food service program. In large measure, this decision is made by the taxpayers and their approval of school bond issues, and, as a result, the school administrator must not only plan his food service program for maximum efficiency, but also for ultimate approval by the taxpayers.

There is no argument that schools are intended to educate. There is a great deal of disagreement about the role that food service programs play in the educational system. Since cost is one of the major objections to a food service program, the administrator must plan his total operation and determine costs before deciding whether or not to have such a program.

Most school food service programs lose money. For example, in one district, the total cost per lunch for 10 elementary schools varied from approximately 39¢ to 47¢ and the total cost per lunch for 5 secondary schools varied from approximately 62¢ to 66¢ for a four-week period. The charge to the students for these lunches was 35¢.

The administrator must determine whether the value of the program to the education system justifies the additional cost to the community. In this process a number of essential considerations need to be taken into account.

There follows a list of those considerations. The subsequent sections of this report are designed to aid the administrator in considering these factors and developing from them a food service program tailored to the needs of his school.

Meal Types and Menu

Free meals for economically deprived children

Main meals with nutritional supplements for children from low-income families

Nutritional meals for children who get satisfactory meals at home

Supplementary food for children who bring their lunches from home

Meals for adults; faculty, staff, and other employees
Food service for special events

Required Facilities and Services

Space
Facilities design
Food preparation equipment
Serving equipment
Furniture

Financial Considerations

Federal, state, and local subsidy
Deficit financing from school funds

Food Service Systems

Total on-premise preparation by school employees
On-premise contractor-prepared meals
Off-premise contractor-prepared meals
Meals prepared and delivered from a central kitchen to a number of cooperating schools
Prepared convenience foods reconstituted in a limited kitchen
Vended meals
On-premise prepared meals supplemented by vending

Operating Methods

Personnel requirements
Contracts
Purchasing arrangements
Sanitation
Accident prevention
Accounting
Cost control

meal types and menu planning

The first step in planning or evaluating a food service program is consideration of what is to be sold and who will buy it. The dual consideration of product and market has a major bearing on the food preparation system, and the serving method, the layout and design of the total facility, the types of kitchen equipment, the labor employed, the cost of the meals, and, as a result, the over-all cost of the operation. The planning of any food service operation must begin with an analysis of the market and then move to the development of a meal which the market will accept, both financially and nutritionally.

This points directly to the problem of "participation"—the percentage of students and faculty who will utilize the food service operation. It should be noted that participation in school food service programs varies widely and that a sudden change in participation levels can be financially disastrous to a school's food service operation.

One of the first questions that needs to be answered is whether or not the school is to operate under the National School Lunch Program. This program, authorized by the National School Lunch Act of 1946, gives cash and food subsidies to the states, which in turn distribute money and food to individual schools or school districts. The cash reimbursement ranges from 1/8¢ to 15¢ per "Type A" meal served, with an average reimbursement of 4-4½¢. The food subsidies are in the form of available surplus commodities purchased by the Department of Agriculture. The availability of certain commodities will vary widely from region to region within the country and from year to year.

To qualify for the National School Lunch Program, a school must serve a "Type A Lunch." A Type A lunch must meet the following specifications:

1 One-half pint of fluid whole milk as a beverage.

2 Two ounces (edible portion, each serving) of lean meat, poultry, or fish; or 2 ounces of cheese; or 1 egg; or ½ cup of cooked dry beans or peas; or 4 tablespoons of peanut butter; or an equivalent quantity of any combination of the above listed foods. To be counted in meeting this requirement, these foods must be served in a main dish or in a main dish and one other menu item.

3 A ¾ cup serving consisting of two or more vegetables or fruits or both. Full strength vegetable or fruit juices may be counted to meet not more than ¼ cup of this requirement.

4 One slice of whole-grain or enriched bread, or a serving of cornbread, biscuits, rolls, muffins. etc. made of whole-grain or enriched meal or flour.

5 Two teaspoons butter or fortified margarine.

The Type A lunch leaves a great deal of leeway in menu planning, but is usually met by the serving of a plate lunch.

What is most important is for each school administrator to determine whether his food service objectives are best served within or outside the National School Lunch Program. Thought should be given to a number of points:

The National School Lunch Program is financed by the federal government but is administered locally by the state. The amounts of surplus commodities and cash available for individual schools vary widely, and thorough inquiries to the state board of education are necessary in order to determine the specific amount of aid that can be expected and to gain an idea of the commodities available for the school district from year to year. It should be noted that the staggering reserves of surplus commodities available a few years ago have been nearly depleted.

Commodities from three sources are available to participants in the National School Lunch Program. Under section 6 of the National School Lunch Act, the Department of Agriculture buys commodities on the open market for use in the school lunch program. Sections 32 and 416 make commodities from the price support and surplus removal programs of the Department of Agriculture available to schools.

Since cash subsidies are based on participation, the variation of a small percentage in participation can greatly reduce the dollars received. Therefore, when planning food service programs, it is dangerous to rely on federal cash subsidies as a means of fixed income.

Since, with a few exceptions, Type A lunches are plate lunches, the school administrator must determine if his school either needs or can afford this type of meal. Once again, it is necessary to study the market carefully. Plate lunches tend to run counter to the soup and sandwich eating habits of most primary and secondary school students. On the other hand, more attractive a la carte lunch programs, operating without federal subsidy, may achieve high participation, but food costs must be carefully controlled to meet the profit objectives of the program.

Since the prime consideration of any food service program must be the nutritional needs of the children involved, the school administrator must tailor his menu to meet those needs.

There is no magic solution to the problems of menu planning that can apply to all schools. Individualized programs must be planned for each school district, and often for single schools within a school district, based on the predetermined goals of that school district or school.

Localized Planning

The school lunch must necessarily be planned for the best combination of nutrition, bulk, popularity, and cost. Nutrition and bulk can be engineered into the menu in many different ways and at many different prices.

Since cost is of basic concern, it is best to consider cost limitations first so that planning can be done to achieve a break-even point or to hold losses to a predetermined subsidized budget.

The first cost factors which must be calculated are those determined by the types of customers (students and adults) to be served. This requires a preliminary analysis of the market for meals.

I MARKET ANALYSIS

A simplified market analysis can be done with the information that each school administrator has in his files or in his permanent records. This simple survey will serve to determine the numerical market for meals in a school lunch program.

A Student population ———

B Adult population (teachers, staff, employees) ———

C Total potential market ———

D Estimated % participation (It is not necessary to have precise figures. These figures can be based on a school survey, which could be a simple questionnaire sent to all students or parents, or using the Department of Agriculture's estimate of 50% of the total school population.) ——%

E Total potential participation ———

F Number of school days ———

G Total number of meals per school year ———

II ABILITY TO PAY

While it is impossible to pinpoint specifically the amount of money that students can pay for meals, an educated guess based upon the neighborhood from which the school draws its students can lead to meaningful estimates. For reference it should be noted that the average charge for a Type A meal across the nation is 35¢.

	No	¢/meal	$ total /meal
A Students from underprivileged or low-income families — who need a main meal supplying the bulk of their nutritional intake.	____	____	____
B Students from moderate-income families — who need a healthful supplement to their nutritional intake.	____	____	____
C Students from high-income families — who need a healthful supplement to their nutritional intake.	____	____	____
D Faculty, staff, employees	____	____	____
E Total per meal period (a)____		(b)____	
F Average payment per meal		(b÷a) ____	____
G Total yearly income (II-F X I-G)			____

III SUBSIDY AVAILABLE

In order to determine the subsidies available to an individual school or school district, the school food service administrator should contact his state board of education. Once again, these statistics will not be of pinpoint accuracy but will serve as a general guide to the administrator in evaluating or planning his food service program.

A Cash subsidy available from participation in National School Lunch Program—determined by state board of education _____

B $ value of surplus commodities available through National School Lunch Program—estimate in consultation with state board of education _____

C Total subsidies from NSLP _____

D Subsidies from other sources _____

E Total all subsidies _____

IV TOTAL INCOME POTENTIAL

A Within NSLP (III-C + II-G) _____

B Outside NSLP (III-D + II-G) _____

With these basic considerations defined, it is possible to make some preliminary decisions about participation in the National School Lunch Program. It is also possible to estimate the fixed and operating costs. From this, prices can be set, and it is possible to determine the amount that can be spent on food.

The analysis form on page 15 may be used to compute costs, allocate them properly, and then determine prices and food budgets.

After the food budget has been determined, the job of determining meal types becomes much easier. Once you have determined the types of meals to be served it is necessary to develop menus. It should be noted that for a school food service program to be successful, the product must be sold to the students. Consequently, it is necessary to develop a menu system which will present a wide variety of food to the students.

One of the best ways to develop menus is to call on other schools or school districts of a similar size and request copies of their menus and information about their methods of menu development.

The method used by the Detroit Public Schools serves as a good example. The menu is planned by four committees of managers, each committee being responsible for planning a 4-week space. After one round of 16 weeks, each committee reviews and makes any necessary revisions in the menu. All menus submitted by the committees are adjusted by a supervisor to assure maximum utilization of surplus commodities received under the National School Lunch Program.

Working within 6 weeks lead time, they use the following schedule for frequency of main dish for each 8 weeks.

Meat loaf, Salisbury steak, or meatballs	7 times
Hamburger or barbecued beef on bun	8 times
Baked fish	7 times
Solid meat (ham, chicken, roast beef)	4 times
Frankfurters	4 times
Stew or diced meat	4 times
Cheese and meat (spaghetti, pizza)	4 times
Tuna fish	1 time
Cheese	1 time

determination of food service budgets

	overhead factors		estimated annual overhead
	no. of servings per year	1	
	no. of serving days per year	2	
	manager compensation	3	
	employee compensation	4	
	extra help for special occasions or services	5	
	payroll taxes and insurance	6	
	other insurance	7	
	reimbursed auto expenses	8	
	dues, subscriptions, donations	9	
	professional services	10	
	stationery, office supplies, postage, etc.	11	
	utilities	12	
	maintenance supplies	13	
	sanitation supplies	14	
	expendable serving materials	15	
	expendable kitchen supplies	16	
	minor ingredients and cooking materials	17	
	depreciation of office equipment	18	
	depreciation of operating equipment	19	
	equipment maintenance	20	
	fund for new equipment purchases	21	
	replacement of broken serving materials	22	
	signs, decoration, etc.	23	
	waste disposal service	24	
	reserve for contingencies	25	
		26	
		27	
add items 3 thru 27	total overhead	28	
	prices to be charged per meal	29	
1x29	probable income from meals.	30	
	federal subsidies not including donated food	31	
	state subsidies	32	
	local subsidies	33	
	other income	34	
add items 30 thru 34	total income	35	
35—28	amount available for food purchases	36	
36 ÷ 2	av. daily food purchasing budget	37	
(100) x 36 ÷ 35	markup on food	38	

Other schools use committees made up of parents, students, managers, chefs, faculty members, and dietitians to suggest possible menus. This tends to increase the level of interest in the food service program, but the ideas must be applied in a practical manner to the money available.

In addition, there are published sources of school lunch menus. Among those in widest use are:

Beatrice Donaldson and Virginia Kroener Johnson, *Standardized Quantity Recipes* (Madison, Wisconsin, College Printing and Typing Company, Inc., 1962).

S. F. Fowler, B. B. West, G. S. Shugart, *Food For Fifty* (New York, John Wiley & Sons, Inc., 1961—4th Edition).

Francis Lowe Smith, *Recipes and Menus For Fifty* (New York, M. Barrows and Company, 1941).

Margaret Terrell, *Large Quantity Recipes* (Philadelphia, J. P. Lippincott, 1951).

Nora Treat and Lenore Richards, *Quantity Cookery* (Boston, Little, Brown & Company, 1967).

Since a meal consists of food combinations and courses, the preparation of menus is made most manageable when separated into such units. These units are:

Meat dishes	Potato dishes
Fish dishes	Salads
Poultry dishes	Soups
Meat alternates	Juices
Sandwiches	Desserts
Vegetable dishes	Breads
	Beverages

Now it becomes possible to plan a wide variety of combinations and cater to the most popular taste preferences of any particular group.

Items for the menu can then be selected and combined to provide:

nutritional balance

program specifications (Type A, for instance)

within-budget cost

student and faculty popularity

freedom from conflicting labor and equipment requirements

serving at the desired rate per minute

These considerations can be programmed into a recipe system so that when a main dish is selected, other items can be quickly selected to complete the menu with all these factors in mind. A sample recipe sheet is shown on page 17.

This recipe system also provides preparation instructions on a countdown basis for all operations until serving time. This has proved helpful in kitchens with high personnel turnover. It also programs the utilization of kitchen equipment and labor to assure efficient use.

This system for defining recipes can be utilized following this procedure:

1 Select a main dish that is popular during the season according to the popularity index.

2 Check the nutritional content and select other items which will complement the main dish for a well-balanced meal.

3 Check the main dish contribution at the upper left toward a Type A lunch and select those nutritionally acceptable items which provide other Type A requirements (if Type A lunches are needed).

4 Check the portion size according to the listed portion control and select other items which will provide sufficient bulk for the entire menu.

5 Check the cost of all parts of the menu; make any needed changes to hold total costs within the budget.

6 Check the preparation countdown to make sure that all items can be prepared without causing a difficult workload and make alternative selections if necessary.

When the basic menu pattern has been established, a check of the menu sheets will give the administrator an inventory of the preparation equipment needed for the type of meal he is planning to serve in his food service facility.

When good menu combinations within budget are developed, they can be noted on the recipe for the main dish. Such menus should certainly be repeated at appropriate intervals.

Costing a recipe can be done quickly and easily if certain basic data is prepared and available. Commonly used foods can be listed and priced by container or purchasing quantities. These quantities can then be costed by portion size amounts. This simplifies the specification of buying quantities and cost estimates for each individual recipe.

Menu variety is necessary to encourage participation and to prevent students from considering lunch as a routine and uninteresting activity. Student menus should stay within the range of popular juvenile tastes. Weekly menu cycles are common; however, some attempt should be made to keep the students from knowing in advance what they can expect on a particular day. Professionals agree that a two-week cycle gives the minimum needed variety.

Meatloaf

Recipe for 66 servings using 3 ounces for portion control

Menu Portion 3 oz.

Qualifies for Type A Item No.	1	✓ 2	3	4	5

Portion of Daily Nutritional Requirements

Protein	Carbohydrates	Fats

Vitamins	A	B_1	F	B_2	G	B_6	H	C	D	E	K	P

Minerals	Calcium	Phosphates	Iron

Ingredients	Quantity needed	Usual cost
Ground beef	20 lb.	$10.40
Eggs, beaten	8	.27
Bread crumbs	1 lb.	.22
Onion, chp'd fine	8 oz.	.08
Salt	4 oz.	.02
Pepper, white	4 tsp.	.04
Worcestershire sc.	2 tbsp.	.05
Catsup	7 oz.	.10
Milk	1 qt.	.10
Parmesan cheese	8 oz.	.55
Parsley, chopped	1 cup	.25
Tomato sauce	1 gal. 4 oz.	1.49
Parsley sprigs	66	.25
		Total $13.82 @ $.21 per serving

Preparation countdown and instructions	Equipment and utensils needed
2 hrs. Combine all ingredients and mix lightly on low speed. DO NOT BEAT. Mix only to blend. Scale into Pullman loaf pans, 7 lb. 7 oz. each. WRAP IN FOIL.	Scale 25 lb. cap. Mixing bowl—20 qt. Mixing paddle Measuring spoons 1 c. graduated measure 1 qt. measure Pullman loaf pans
1¾ Bake in 350° oven for 1¼ hours.	
½ Remove from oven. Cool at room temperature for 15 min. Invert loaf pans on bun pan to remove meat loaves.	Bun pans
¼ Slice loaves—3 oz. each. Place slices in steam table pan. Serve on 9" plate. Cover with 2 oz. tomato sauce. Garnish as directed.	Slicing knife 1—12" x 20" x 2" steam table pan 9" plates Serving spatula 2 oz. ladle

Popularity Index

Date	Servings made vs. sold	Temperature	Weather

Holding requirements

Serving requirements

Suggested menu combinations

A _____

B _____

C _____

D _____

A good cycling formula was developed at Michigan State University, and it is reproduced below as a 5-day week schedule for a 14-week period.

wk.	Mon.	Tues.	Wed.	Thurs.	Fri.
1	L- 1	L- 2	L- 3	L- 4	L- 5
2	L- 6	L- 7	L- 8	L- 9	L-10
3	L-11	L-12	L-13	L-14	L- 1
4	L- 2	L- 3	L- 4	L- 5	L- 6
5	L- 7	L- 8	L- 9	L-10	L-11
6	L-12	L-13	L-14	L- 1	L- 2
7	L- 3	L- 4	L- 5	L- 6	L- 7
8	L- 8	L- 9	L-10	L-11	L-12
9	L-13	L-14	L- 1	L- 2	L- 3
10	L- 4	L- 5	L- 6	L- 7	L- 8
11	L- 9	L-10	L-11	L-12	L-13
12	L-14	L- 1	L- 2	L- 3	L- 4
13	L- 5	L- 6	L- 7	L- 8	L- 9
14	L-10	L-11	L-12	L-13	L-14

Some recycling may be necessary to honor religious dietary requirements. See appendix pg. 44 for sample menus.

A predetermined schedule based on a limited menu will permit compiling all food purchasing needs for all menus for the entire semester or year. Then canned and dry items suitable for storage can be purchased in advance for the best quantity discounts. Fresh item needs can be scheduled on a calendar so that they can be purchased on contract and delivered when they are needed.

The development of the menu is the important beginning in the planning of food service operations. It sets the stage for the planning of the total facility.

serving facilities

Once the market for meals has been established and a preliminary determination of the type of meal has been made, the next step is to plan the method of serving. To a large degree, the method of serving will depend on the meal type. For instance, if the school administrator decides that soup and sandwich lunches are best for his school, a complex steam table arrangement is not necessary. This cites the extreme, however. Most menu approaches can be served in a variety of ways, and study is necessary to determine the best and most efficient serving method for each school lunch program.

While the meal type is the paramount deciding factor, other factors are important. Specifically, the number of students and faculty to be served and the amount of time available for the lunch period have major bearing on the serving method.

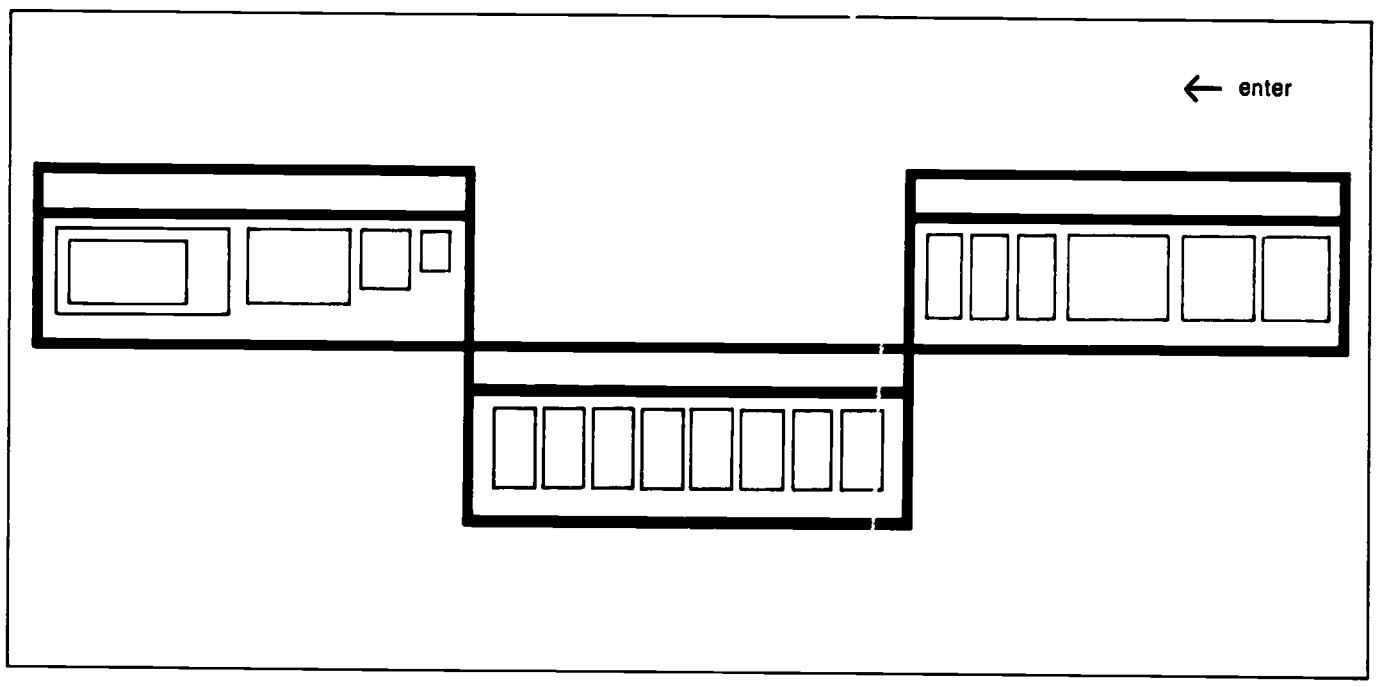
At this point in planning, it is best not to consider the cost ramifications of minor space variations. The layout, design, and cost of the total facility will be discussed in detail in the chapter on facilities design.

The method of serving is more than a means of getting the food from the kitchen to the plate of the student. A food service administrator must always remember that he is in the business of selling food, and, in order to keep participation high, he must present the products he sells in an attractive manner. While aesthetics are obviously not the *major* concern, they cannot be forgotten.

The following are a number of different serving methods currently in use.

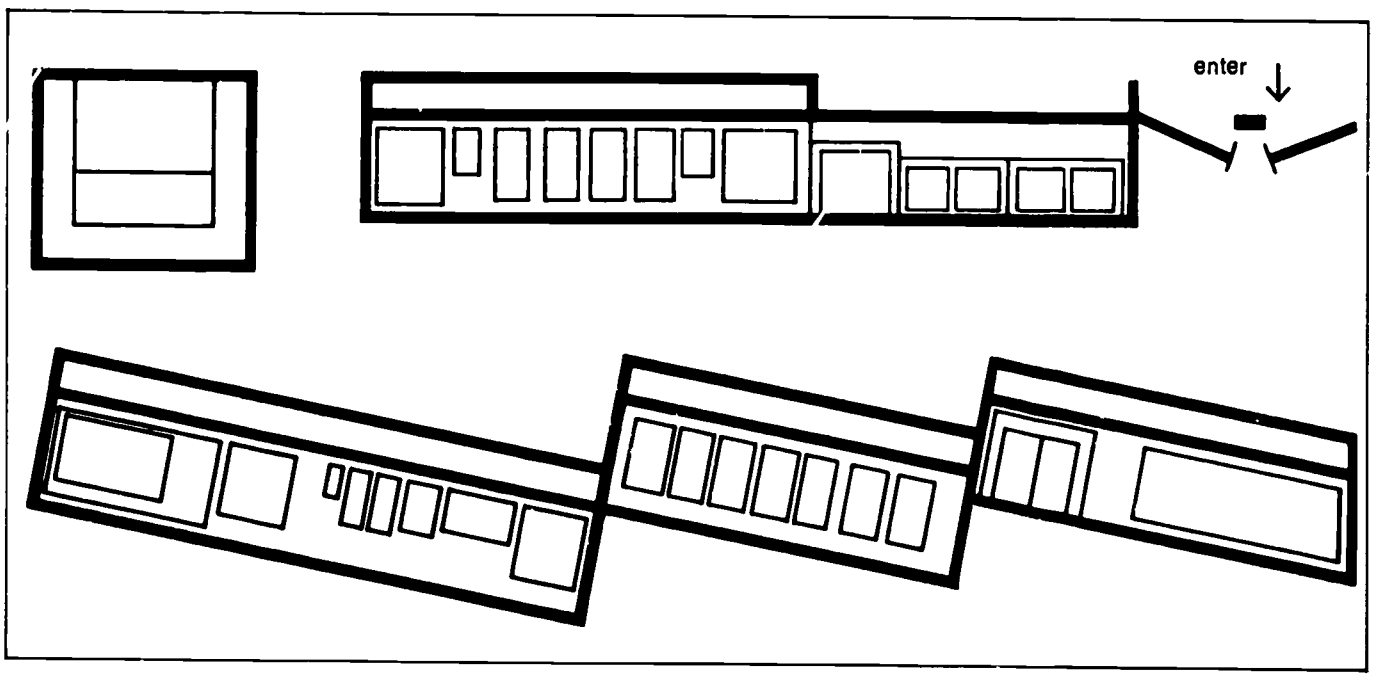
1 Bypass line

The serving counter in a bypass line arrangement is composed of three sections. The end sections are on the same plane and the center section is recessed, forming a pocket which can be bypassed by the student going through the line. The first section offers salads, cold sandwiches, and relishes. The center section is devoted to hot foods. The third section serves desserts and beverages and sometimes packaged items. If the end sections are circular in design, they can serve as lazy susans for ease in replenishment and the obvious advantage of display. Bypass lines are most efficient when a la carte meals are served and when large numbers of students need to supplement home-packaged lunches.



2 Sawtooth

One of the newest serving systems, a variation of the bypass line, is the sawtooth (sometimes called Skip-A-Step). It is a series of diagonally set counters, each serving a particular group of items with the cashiers' stands at the end of the line. This design permits a student to go directly to the counter serving the food of his choice. Where the designated serving area is long and narrow, this method proves most successful.



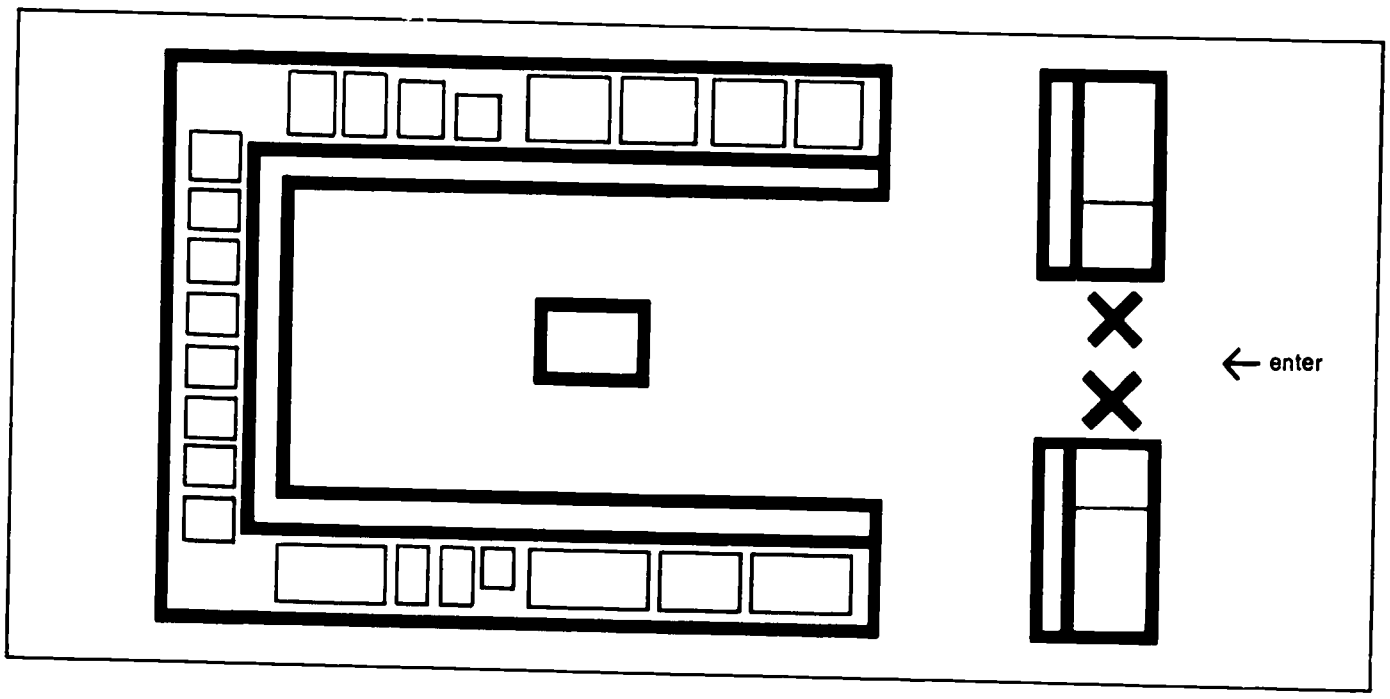
3 Scramble system

One of the best methods of increasing the speed of service in secondary schools where an a la carte menu is involved is the scramble system, which is often laid out in a hollow square.

Three sides of the square are devoted to serving counters: hot foods on one side, salads and desserts on another, and sandwiches and beverages on the third.

Students enter the serving area at a predetermined rate through turnstiles controlled by the cashiers. Trays are picked up near the turnstile. The student may go directly to any counter he wishes. Milk is picked up from a cabinet located in the center of the square. The student then proceeds to the cashier's stand at the fourth side of the area, picks up tableware and a napkin, pays, and enters the dining area In addition to the advantage of rapid service, a snack bar can be included as part of the scramble. The speed of service in a scramble system is determined by the number of cashiers.

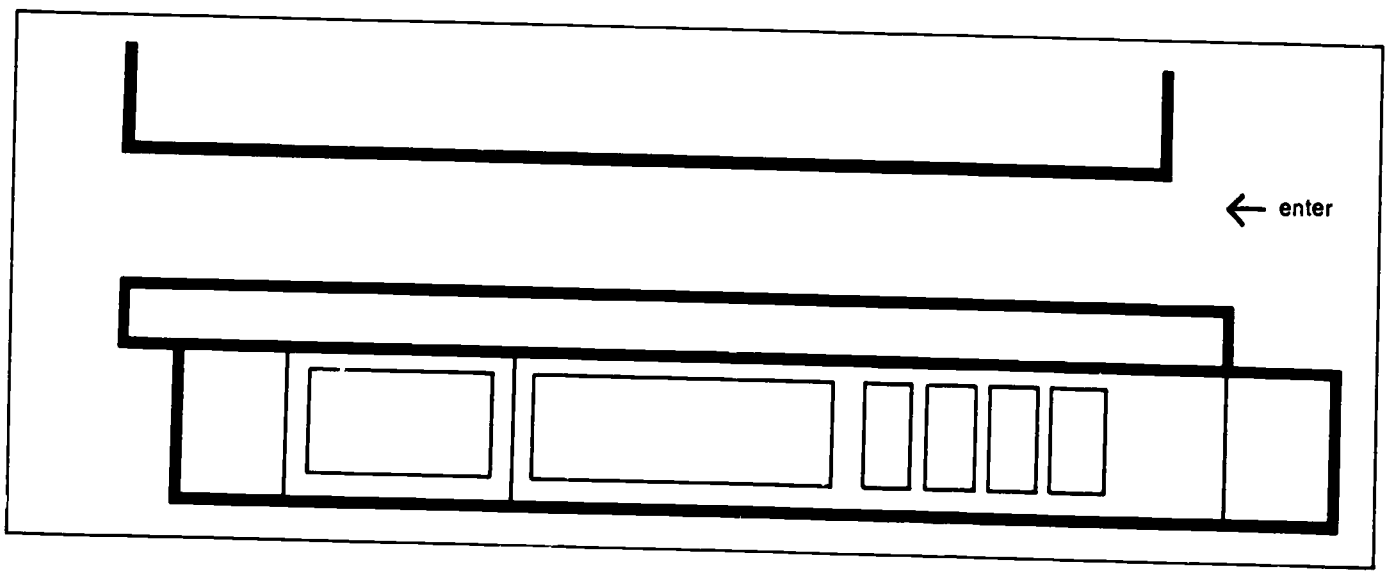
The over-all area of the scramble system is greater than that of other types of service. This, of course, adds to the total cost of the food service facility, but this cost may be justified if speed of service is a necessary requirement.



4 Straight line system

Utilizing the straight line method of service in school feeding may be considered when economy of space and equipment is necessary. With all serving systems, the cashier sets the pace, and in many instances it is possible to have two cashiers for one line. Where the enrollment is sufficiently small and the service period is sufficiently long, the simple straight line may be the most economical approach.

If straight line service is the preference of the administration regardless of the enrollment, it is possible to design multiple straight line counters.



5 Family style service

The term "family style" is applied when platters and bowls of food are placed on tables by attendants, and served by a host or hostess, or when children are served a completely assembled tray at a table.

This type of service allows a graciousness not otherwise possible, but, because of the expense in time and labor, it is not practical for the average school. However, it may prove advantageous in small, well-supervised units such as a private school where emphasis is placed upon acquisition of manners as well as nutritional requirements.

6 Walk-up system

In the walk-up system, traffic is directed by the placement of guide railings rather than serving fixtures. Students either walk up to a window to be handed a complete lunch or, for a la carte items, go to one or more windows for various items. When only the plate lunch is offered, service is fast.

This serving method offers no opportunity for the merchandising of food being served.

7 Straight line assembly table

When the menu offers no choice, a cafeteria counter as such is unnecessary. The straight line assembly table (or variations thereof) can be utilized.

Preassembled trays with tableware and cold foods are placed in mobile tray carts and positioned at one end of the assembly table. Bulk hot foods are placed on the table and dished onto the trays as they are manually passed. When the completely assembled tray reaches the end of the table, it is either handed to or picked up by the child.

An assembly line made up of food carts may be substituted for the table.

8 Assembly table with conveyor

A variation of the straight line assembly table, practical for use where a no-choice menu is offered to a large student body, is the assembly table with conveyor.

Basically, the equipment consists of a wide table with a conveyor belt or gravity rollers extending the length of the table. Hot and cold food stations are located at convenient intervals along each side. Food and tableware are portioned onto moving trays and, at the end of the conveyor, the completely assembled tray is picked up by the student.

9 Vending

The use of machines as a serving method is the subject of a great deal of debate among school administrators and vehement argument between some food service consultants. There is ample case study material to indicate that vending works successfully in some schools and not in others. A more complete discussion of the merits of vending is included in the section on kitchen systems.

The vending system includes the installation of a number of vending machines in a lunch area. Machines have been designed to vend every type of food—both hot and cold—including a Type A lunch. Vending tends to decrease the total amount of space required for the food service facility and in warm climates, such as southern California and Florida, vending permits outdoor serving as well as dining.

Some objection has been raised that vending machines are impersonal and that some schoolchildren will not choose nutritionally balanced meals. This appears to be subjective judgment. The conditions in each individual school, the objectives of the school food service program, and the quality of the local vendor will determine whether or not vending can work in a specific school.

Localized Planning

In order to arrive at some preliminary decisions concerning the serving method to be used, it is necessary to realize that the speed of service is a major consideration in most schools. The administrator must determine his servings per minute requirements. To determine these requirements, it is first necessary to determine the length of the total lunch period, the number of shifts necessary, the number of students to be served in each shift, and how much time should be allotted to serving each shift. From this, the number of students to be served per minute can be calculated. Two additional factors should be considered.

The cash collection method is the major speed determinant. Discussions with manufacturers of cash registers will give the administrator a better indication of the possibilities available to him. Presale of meal tickets should also be considered where no meal choice is offered.

In almost all cases, more than one of the serving methods discussed will meet the speed requirement of the program. It is important, then, to consider the sales services—training programs, maintenance agreement, and other services—offered by a number of equipment manufacturers before coming to a decision.

Discussions with manufacturers of cash registers and serving equipment and full information on the additional services offered by the respective companies will aid the administrator in determining the best possible value he can receive for the dollars invested in serving facilities.

food preparation systems

Food preparation systems have undergone dramatic changes during the past 20 years. The development and use of prepared and semi-prepared foods has simplified many preparation methods. Cake mixes, frozen prepared foods, and dehydrated food products are only a few examples of these changes. In addition, equipment manufacturers have made a major contribution to better food preparation through the design and manufacture of more efficient kitchen equipment.

At the heart of a food service system is the type of kitchen and the food preparation methods.

The objectives of good food preparation are to:

1 Conserve the nutritional value of the food.
2 Improve the digestibility of the food.
3 Develop and enhance flavor and attractiveness.
4 Free the food from harmful organisms and substances.

There are two basic approaches in developing an inventory of food preparation: (A) a food service system operated by the individual school, school district, or local department of education; or (B) a contracted food service system operated by a professional contract feeder.

In order to arrive at a decision, the school administration must evaluate the relative merits and costs of the choices to be faced if the school is to operate its own food service program and then weigh that preliminary choice against the merits of a contracted feeding program. The first consideration must be the type of kitchen that should be used.

Types of Kitchens

There are four major types of kitchens, only three of which are actually used for the preparation of food.

1 **Central Kitchen**
In a central kitchen operation, food is prepared in a centralized kitchen building and distributed to a number of schools for service.

2 **Independent/Individual Kitchen**
This is the most common type of school kitchen where food is prepared and served in a single building.

3 **Manufacturing Kitchen**
In a manufacturing kitchen, bulk food products are processed and dispatched to individual kitchens for final preparation.

4 **Satellite Kitchen**
The satellite kitchen is primarily an area that receives food from a central kitchen and holds it until it is ready for serving.

The Central Kitchen

The use of a central kitchen is particularly practical in districts where no food service facilities presently exist and in those new districts where building programs are contemplated.

The concept of a conveniently located central kitchen applies not only to a large school district, but to any number of schools—even as few as two. There are successful operations where a kitchen in an elementary school serves only one other school, and there are others where the central kitchen in a secondary school prepares food for as many as eight outlying locations.

The existence of individual school kitchens does not preclude consideration of a central program. It is sometimes economical to remodel the kitchens, utilizing much of the existing equipment.

In order to determine whether or not a central kitchen is practical in a particular situation, the following factors should be carefully considered.

1 The over-all size of the school district.
2 The number and types (elementary and secondary) of schools involved.
3 Estimated percentage of participation in each school.
4 Existing food service facilities.

5 Whether or not the existing (if any) school kitchens are operating efficiently.
6 The type of menu desired.
7 The possible location of a central kitchen.
8 The possible transportation problems between the central kitchen and the participating schools.

In some instances, a central kitchen can be impractical. If the district is in a region having severe weather, transportation of the foods can be unreliable. The terrain of an area may present transportation problems. If the grades on any route between the schools exceed 7½ percent, delivery of bulk food is impractical because of spillage. Heavy traffic and distance must be given consideration in any centralized program, although it should be noted that both Detroit and New York City utilize the central kitchen concept for a large portion of their food service programs.

Also important is the physical access to the premises at both the central and receiving kitchens. Adequate driveways, backing and turning space, docking facilities, and noninterference with playgrounds or pedestrian areas are necessities.

How the food is to be transported from the central kitchen to receiving schools should be determined in the initial planning.

There are four basic methods:

1 **Vacuum cans:** Food is taken directly from the ranges, ovens, and refrigerators and is placed in pans that fit into vacuum containers. Upon delivery at the receiving school, the food is transferred to hot and cold sections of the serving tables.

The advantage of this system is maintenance of desired food temperatures without the use of food carts. However, the second handling of the food increases total labor cost and can be a disadvantage.

2 **Containers with tight-fitting lids:** Food is placed in boxes, pans, or pots. The containers then are placed on the serving table at the receiving school. This method works when the satellite schools are located close to one another, but in many instances the food must be reheated.

3 **Hot and cold compartment carts:** One section of the cart holds approximately 20 compartmented trays upon which cold food is placed in the central kitchen; the temperature is maintained by a eutectic plate. The second section, an insulated compartment, contains pans of hot food. At the receiving school, the trays are removed and readied for serving. This method is costly because of the large number of carts required.

4 **Electrically heated and refrigerated carts:** Pans containing hot and cold foods are placed in separate sections of the electrically preheated and refrigerated cart, transported to the receiving school, rolled off the truck and wheeled into position at the serving counter where electric connections are reestablished and the food served directly from the cart. There is very little temperature change during the transportation period. Everything is included in the cart except milk, which is usually delivered directly to the school. This is the most commonly used method.

Accessibility of the receiving kitchen will determine whether or not the use of carts is possible. If the kitchen is in the basement of the school, it may be impossible to get carts into the kitchen.

Trucks with hydraulic tail gates are required for the transportation of carts.

There are many advantages to be realized from an efficiently designed and managed central kitchen:

1 One director is responsible for the entire food service program.
2 Large quantities of food can be more economically purchased.
3 Food prepared in large quantities requires less labor.
4 Quality and uniformity of products can be obtained more easily.
5 One staff is more easily organized and trained.
6 Better facilities and more time are available to test products and recipes.
7 Minimum space and equipment are required in the receiving schools.

Objections voiced by educators are:

1 All food is the same, with no choice possible.
2 Receiving schools frequently over-order, and leftover food is wasted.
3 There is usually no separate menu for the faculty.
4 Poor temperature control may lead to spoilage of either hot or cold food.

Individual/Independent Kitchens

An individual/independent kitchen which is capable of producing a plate lunch efficiently must be a complete kitchen that includes receiving, refrigerated and dry storage, production, serving, and dishwashing areas.

The kitchen should be arranged in a logical operational sequence from the time food is received until the last dish is washed and placed in storage. Beginning

with the delivery entrance, physical organization should be in a line progressing from the entrance to receiving, dry and refrigerated storage, scaling, rough preparation (any food preparation prior to cooking), cooking, finishing, portioning, and serving.

Manufacturing Kitchens

In the manufacturing kitchen, bulk food products are purchased, processed, manufactured, and stored in one location for distribution to satellite kitchens where final preparation takes place.

This type of kitchen is utilized in the Los Angeles City School District. Here, less than 20 employees prepare all meat products (beef patties, meat loaf, Salisbury steak, etc.), meat sauces, dry mixes, cookie and pie doughs, and many other bulk food items for use in over 490 cafeterias. Assembly line production methods and specialized equipment have saved the school district over 800 man-hours per day. Some food service consultants feel that a manufacturing kitchen for fewer than 20 schools is uneconomical.

Satellite Kitchens

There are various methods of satellite school feeding:

1 Where there is no kitchen facility in a school, serving may take place in a corridor. Loaded hot and cold food carts from the central kitchen are wheeled into the corridor and electrical connections established to maintain food temperatures. Accompanying the food carts are eating utensils and a cart containing compartmented trays.

   At the time of service, the server removes a compartmented tray from the cart, dishes the foods from the hot and cold cart, adds the tableware, and hands the assembled lunch tray to the child. From a milk cabinet stationed in the corridor, the child then picks up milk and proceeds to an adjacent area designated as a lunch room.

   Following the serving period, the tray cart and a garbage receptacle are placed at the exit of the lunch room. After eating, the children scrape their trays into the garbage receptacle and place the soiled tray and tableware in the tray cart. The food and tray carts are then returned to the central kitchen for washing and subsequent reuse.

2 Another approach can be taken in which only the hot and cold food carts are sent from the central kitchen. The tray carts and tableware are maintained in the receiving schools. The carts are arranged and the lunch is served in the same manner as described above.

   Following the lunch period, the food carts are returned to the central kitchen, but all other sanitizing is done in the receiving schools. Each satellite is equipped with a garbage disposal, a dishwashing machine, and a small storage area for the tray carts.

3 A third method is to have part of the menu (generally hot foods) sent from the central kitchen and part prepared in the satellite kitchen. Here, too, just the carts are returned to the central kitchen for sanitizing.

4 A fourth method permits a la carte service. Various carts containing hot foods, salads, sandwiches, desserts, etc. are sent from the central kitchen. The food selections are removed from the carts and arranged on a scramble service line in the satellite kitchen. All sanitizing, except the carts, takes place in the satellite.

These methods can be combined to meet the particular requirements of individual school districts.

It should be stated that the type of kitchen selected does not limit the school administrator to a specific meal type or food preparation method. All four of these basic kitchen types can be used to prepare meals from basic commodities or tailored to use the latest in frozen prepared foods.

Efficiency Foods Systems

As mentioned at the beginning of this chapter, food preparation systems have undergone dramatic changes during the past 20 years. The most dramatic change has been the development of efficiency foods. Simply defined, efficiency foods are those foods which are partially or completely prepared by a food processor to reduce or eliminate labor in the kitchen. By this definition any processed food is an efficiency food. Canned, heat processed foods, mixes of all sorts, and frozen prepared foods are all efficiency foods. Their value to food service administrators is that they tend to reduce labor costs or at least reduce the rate of rise in labor costs.

From a practical point of view, all school food service programs now utilize efficiency foods. Most cakes are made from prepared mixes, and ordinarily soups are not premise-made. Recently a great deal of publicity has been given to the use of

frozen prepared foods for use in school food service programs. Food processors have developed the products, and some administrators are attempting to apply them in school programs.

Specifically, processors now market frozen prepared foods, including vegetables and entrees packed in bulk in disposable containers. These products are usually pouch packed, but recently three processors have developed and are marketing frozen prepared entrees in a disposable aluminum pan. These products can be reconstituted and served in a minimum amount of time utilizing the least expensive labor available.

For all the romance given to the use of frozen prepared foods, their use alone will not decrease the cost of a school food service operation. Efficiency foods, including frozen prepared foods, must be used within the framework of an efficiency foods system if potential savings are to be made. And it must be stated frankly that an efficiency foods system is no guarantee of a school food service operation's financial stability.

Food processors who sell efficiency foods tend to be full line processors who market nearly all the food products needed for a wide variety of full meals. The "system" they sell is an operating plan tailored to each customer which suggests the management concepts needed for maximum utilization of existing facilities and the current labor force. In selling their products, they practice a marketing philosophy based on the fact that if the food service operator can reduce his costs and offer his customers a wide variety of attractive meals, both the food service operator and the processor will benefit from savings achieved.

The application of efficiency foods systems to school feeding programs has been slow to develop, but a dramatic example of the potential for an efficiency foods system is the experiment conducted in the New York City school system. Starting with 2 schools in the 1965-66 school year, it was expanded to 60 schools for the 1967-68 school year.

The New York school system operates under the National School Lunch Program and its 1,200 schools serve 375,000 Type A lunches daily. Of these, 130,000 are prepared in a central kitchen and sent by truck to schools without kitchen facilities. The traffic chaos in the New York metropolitan area has resulted in severe delays and even delivery failure. In addition, the system has been losing money on every meal sold. Charging 35¢, with an additional cash subsidy of 9¢, the lunch program is taking in 44¢ for each meal which has a total cost of 46¢.

In the experimental program, New York has developed an efficiency foods system with major emphasis on frozen foods. The use of frozen foods without the system would be neither dramatically new nor financially sound.

The heart of the New York program is to take the school system out of the food preparation business. They buy frozen products and other efficiency foods from major food processors. The food is bought to specification to assure that it meets the requirements of the National School Lunch Program. In addition, a number of the processors use government commodities allocated to the New York school system in the processing of some of the foods. When allocation of certain products is in sufficient volume, in some instances, the commodities are shipped directly from a government warehouse to the processor's plant facility.

The New York efficiency foods system includes a number of elements:

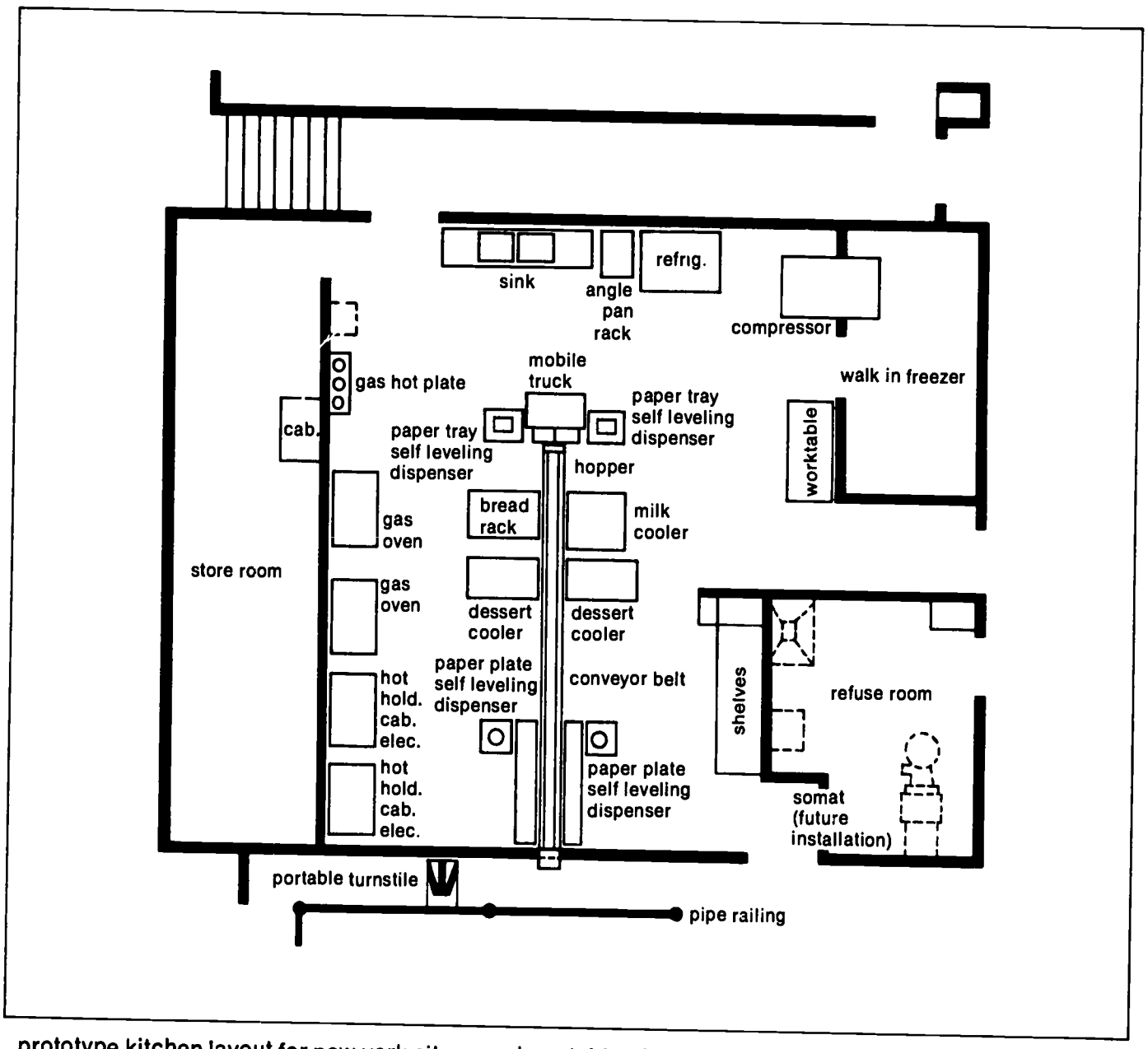
1 Frozen prepared food processed by major food processors—some of whom utilize commodities received by the New York City school system under the National School Lunch Program.
2 A large and efficient commissary which has the capacity to repackage the products for use in the individual school kitchens.
3 Complete disposable service including molded paper trays, paper plates, and plastic knives, forks, and spoons.
4 Freezer capacity for a week's supply of food in each school.
5 A conveyor belt "production line" for assembling the meal.
6 A school food service operation of sufficient size to purchase foods in carload or truckload lots.

From a facilities point of view, the New York system requires a major investment in freezer space and conveyor equipment. In addition, their system uses convection ovens, though conventional ovens could be used without too great a loss in the speed of service. (It is interesting to note that the New York Bureau of Lunches estimates 20 servings per minute utilizing meal tickets and a walk-up serving system. This compares to 8 to 10 per minute where cash registers are used.) And while no specific figures are available, in the initial experimental installation, the New York Bureau of School Lunches states that

the efficiency kitchen capable of serving 920 meals utilized the space formerly occupied by a 300-meal conventional kitchen at an equipment cost identical to the conventional kitchen. Professional food management firms who have made estimates on conventional versus efficiency foods kitchens dispute this great difference in number of meals served and equipment cost, holding that conversion to efficiency foods systems will lead to more modest increases in capacity and somewhat higher equipment cost.

New York is a solution to many of the problems faced by the New York school system and presumably by other similarly beleaguered cities. By virtue of weekly deliveries, the headaches of daily deliveries from the central kitchen are solved. Constant quality of the finished meal, and the attractiveness of food that has not been held for too long a time have helped increase participation.

Efficiency foods systems appear to offer the solution to some of the problems faced by many school food service administra-

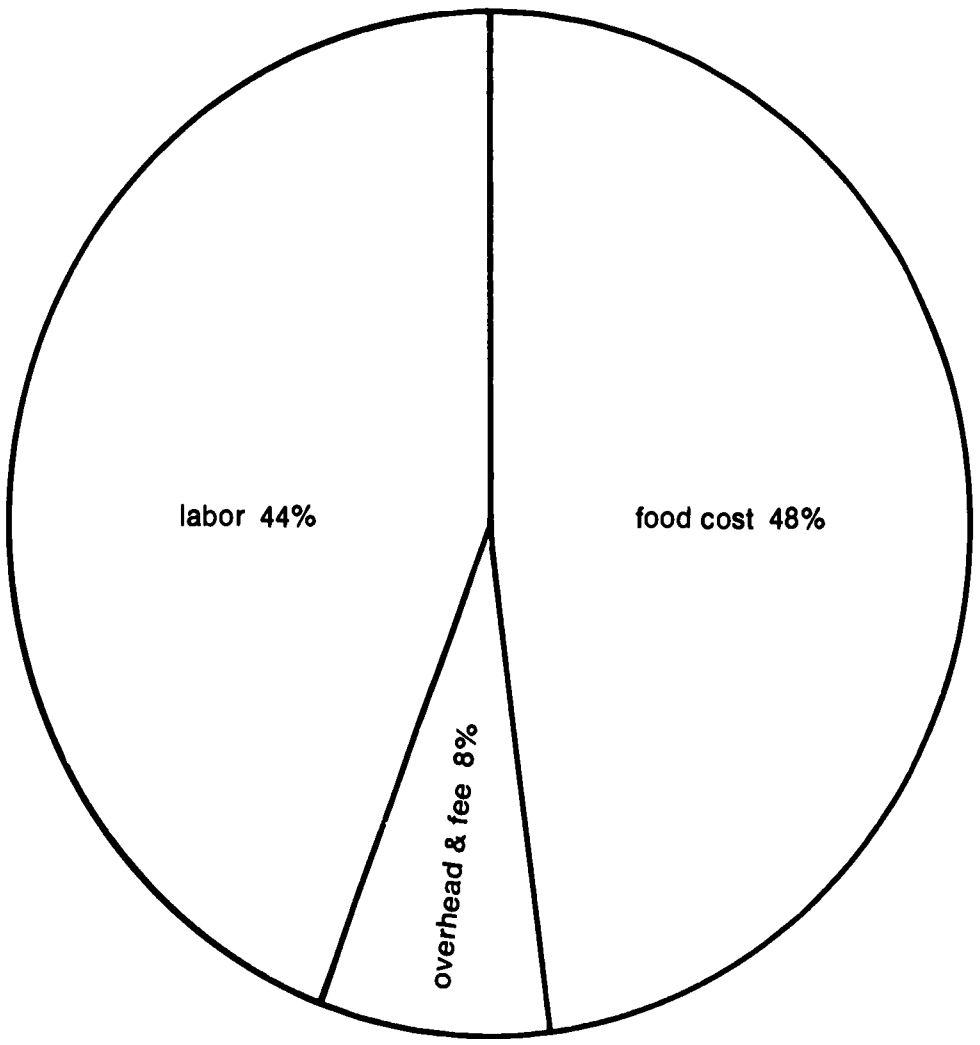


prototype kitchen layout for new york city experimental food program.

New York City school officials state that the efficiency foods system cuts labor cost by 40 percent while holding food cost at the same level as before. Most commercial food service operators who have converted to efficiency food systems have had a dramatic drop—up to 40 percent—in labor cost *but* a higher food cost. The increase in food cost, however, has been less than the decrease in labor cost.

There is ample reason to believe that the efficiency foods system instituted in tors. These systems have as their basis the reduction of labor costs. Whether or not equipment costs and the cost of the food itself will offset this labor savings will depend on the ability of the individual school or school district to purchase in adequate volume to assure the lowest possible price. When a full reporting of the experience of the New York experiment is made available, school administrators will have more valid information on which to base their decisions.

contract feeder,
manual service,
allocations of funds received



Contract Feeding

During the past 20 years, many institutions have turned to a professional food service company for the management of their food service operation. Hospitals, manufacturing plants, colleges, and universities have found that there are advantages to utilizing a professional operator for this necessary adjunct to running a business or an educational institution.

Recently, contract feeding has begun to appear in secondary schools. In planning a school food service program, school administrators should give careful consideration to contract feeding.

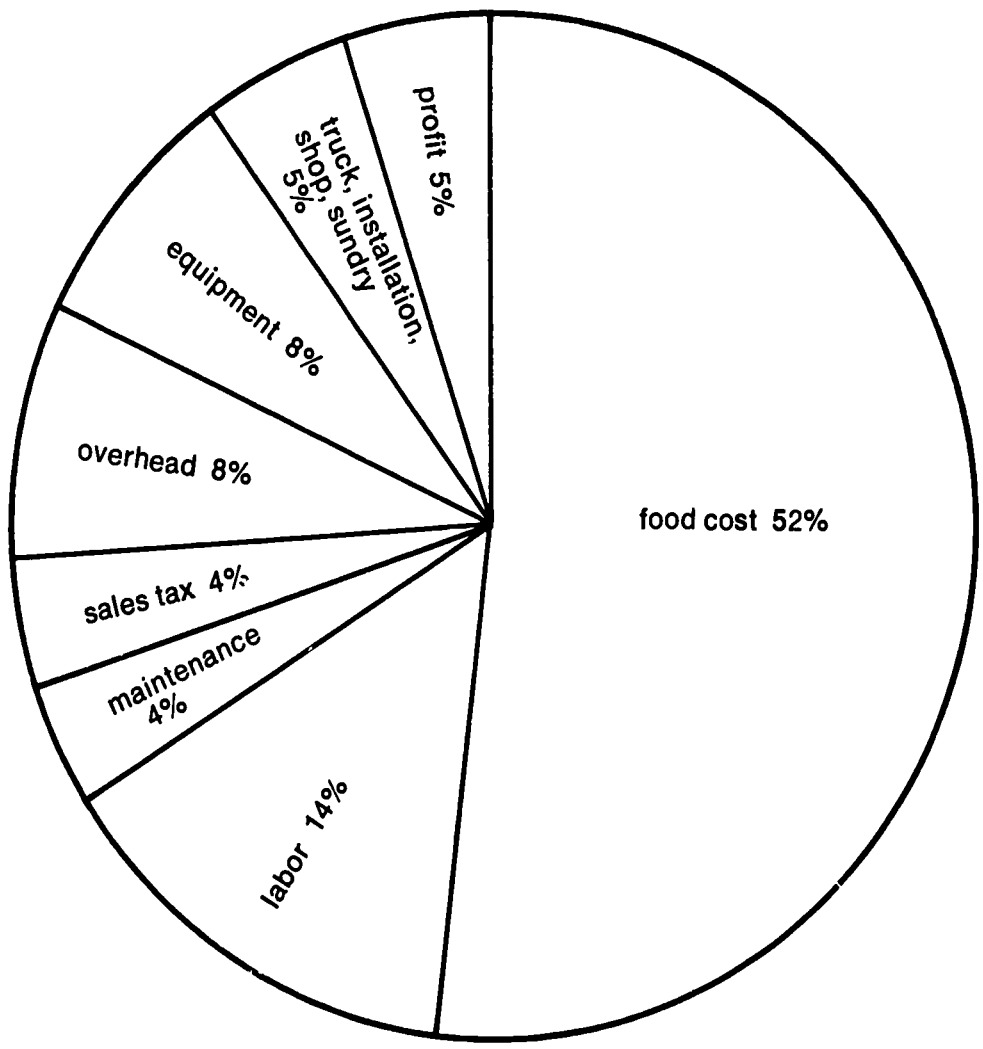
Contract feeders supply more than food preparation and management of the food service facility. They are, in effect, designers and operators of *food service systems*. In fact, many of them refer to themselves as food service consultants. They vary in size from the corporate giants like ARA Slater and Canteen Corporation to local vending operators.

Profit is the objective of a contract feeder. Minimal cost is one of the objectives of most school food service programs. On the surface, it would appear that these two objectives run counter to one another. However, in many instances they are totally compatible.

Accurate cost accounting is necessary to determine costs, and few school food service programs are charged with all the overhead factors which actually apply to their operation.

These "hidden costs" were the major motivation for the Paramus (New Jersey) Public School system to turn to a contract feeding operation. The food service program was managed by the business manager of the school system. It was difficult for him to accurately allot the pro rata cost of maintenance, salaries, and trucking facilities to the food service program. In 1964, a contract feeder was selected to operate the manual cafeterias in one high

contract feeder,
vending service,
allocations of funds received



school and two junior high schools. The contract feeder provides the equivalent of a Type A lunch in the cafeterias for 45¢ (40¢ prior to 1967).

In spite of the fact that the schools are no longer eligible for subsidies under the National School Lunch Program, the Paramus School Board feels it has benefited from the contractual arrangement. With the contract feeder, the school system has realistic financial figures with which to work. On this page and page 27 are charts showing how a contract feeder expends the money he receives. The business manager is no longer required to keep the books on the operation, and the contractor handles all the overhead expenses, except for space and utilities.

The schools get the benefits of the contractor's purchasing power and cost control systems. Personnel is no longer a problem; for the contractor, one of the largest contract feeders in the country, can always shift competent personnel from another operation in the area in case of absence. In addition, the schools receive full advantage of the contractor's counseling dietitians and are kept up to date in new concepts in food service systems. Participation is higher than it has ever been before.

Total sales in these three schools for the 1966-1967 school year were $140,950. The contractor received $450 per four-week period as a management fee plus 2 percent of the gross income for overhead, and was reimbursed for any loss. The loss was $9,350 in 1966-67.

Contract feeders offer two basic approaches to school food service programs:

A Manual service utilizing one of the serving methods discussed earlier; or

B Vending service utilizing a series of vending machines.

Often a combination of these approaches is used.

Schools contracting for manual service tend to use the services of one of the large

industrial contract feeders, while schools contracting for vended service tend to use local vending operators.

What are the advantages and disadvantages of contract feeding? With either manual or vended service, the school is suddenly out of the food service business, and the administrator can devote his time to the business of education. Many administrators feel that this is the major benefit, and some feel it to be the only one. There are strong feelings that a contract feeder has the nutritional and technical know-how to make the school's program superior in every respect. It should be noted that some schools are able to report a profit from a contract feeding arrangement, but most schools are merely able to reduce the deficit rate.

Vending is certainly the subject of a great deal of controversy. Once again, the only way to determine if vended food service is good or bad is to apply the circumstances facing the school to a proposal of a vending operator and to make a careful analysis of all the cost factors.

Vending machines have been designed to sell every type of food, including the equivalent of a Type A lunch. Vending installations tend to drastically decrease the size of the kitchen space required, and in those instances where the vendor does all food preparation, the kitchen may be eliminated entirely. Since construction and equipment costs are a major expense, vending deserves consideration. There are, however, objections to vending. Among them are:

1 The machines are difficult to supervise.
2 The machines may malfunction, and instant service is not available.
3 Sanitation may be a problem.
4 Uncontrolled student access may result in constant and undisciplined use of the machines.

On the other hand, many school administrators are in favor of vended service and cite the following as the advantages:

1 The machines replace kitchen staffs, thus reducing costs considerably.
2 Floor space normally taken up by kitchen equipment and storage facilities is saved.
3 Capital expenditure for equipment is eliminated.
4 Administrative and supervisory costs are reduced.
5 The machines are available for evening activities.
6 The vendor supplies the machines and food. The school provides only the caretaking service.

In the process of analyzing vending operations, the following questions should be considered:

1 Do the students need a hot lunch at school?
2 Should school lunch costs be accepted as a basic educational cost, or are they intrusions into the school budget?
3 Does manual cafeteria service really contribute to the students' education?

If the answers to these questions are "no," vending should be investigated as a possible food service program.

If contract feeding, either manual service or vending, is under consideration, a set of bidding specifications should be prepared for the contractor to use in developing his proposal. These specifications should ask for specific information about the contractor and spell out in detail the requirements of the school. A set of sample bid specifications for manual and vended service along with a sample contract are included in the Appendix pages 48 to 58.

facilities design

Adequate facilities are essential to the operation of an efficient school food service program. Proper planning and equipping of the facilities are not only the concern of the school architect but of the food service administrator.

Consideration should be given to long-range planning. As a school district evolves with the population, the food service facility should be able to expand or contract to meet only those needs that the school has. In many schools it is quite evident that the kitchen facility has been designed to accommodate the sales desires of equipment manufacturers' representatives, or the school architect, given inadequate direction and information concerning the objectives of the program, has taken a stock design and fitted it to the space available.

This section is designed to give the school administrator some basic planning information so that he might communicate better with the professionals who must design and equip his food service facility.

This does not preclude the use of professional help, for there is no do-it-yourself method for building a food service facility. However, a great deal of time and money can be saved if the administrator

can present the architect, equipment suppliers, and consultant, if any, with sound limitations and direction for the facility.

The combined efforts of architects, consulting engineers, equipment specialists, sanitarians, the state and local school lunch advisory staff, and professional food service consultants can assure that a school food service facility will be useful for many years, but only if they are thoroughly familiar with the predetermined goals of the food service program.

Among the variables to be considered are:

1 **Space Requirements:** The projected percentage of school lunch participation and expected expansion of the school building determine the amount of space necessary. If the lunchroom is to be used for adult group meetings and other school community activities, space should be planned to accommodate accessory items that may be needed.

2 **Classification of School:** Furnishings will be affected by the age groups being served: elementary, junior high, senior high, or a combination of two or all classes of schoolchildren. The children must be able to use the equipment. Chairs, tables, and serving equipment must be of the proper design and height.

3 **Integration with the School Plant:** The pattern of the entire school building determines the best location and best arrangement of the school lunchroom.

4 **School's Administrative Policy:** The capacity of the dining room depends upon the length of the serving period.

If school policy limits the lunch period to a short time, more dining space and serving equipment are required than if the lunch is served to groups coming at different times, thus permitting the reuse of seating space.

5 **Availability of Utilities and Services:** The availability and capacity of public utilities—gas, electricity, water, and sewers—must be determined in advance. The location of the school, and whether the school gets quick, frequent deliveries of supplies and services, should be taken into account.

6 **Durability of Materials:** To get maximum returns for money expended, the school food service facility should be planned to be useful without major remodeling for many years. It should be functional and durable, and should not require major repairs or frequent replacement expenses.

7 **Environment:** Cleanliness, good lighting, cheerful colors, good ventilation, and noise control should be kept in mind. All these lend attractiveness to the school lunchroom and develop pride of the employees, students, and community in their school food service program.

The various areas of a food service facility should be considered separately.

Receiving Area

An outside loading platform and an inside receiving area are necessary to expedite the handling of deliveries. The inside area serves as temporary storage space until the deliveries can be checked against specifications (weight, count, etc.). The outside platform should be near the storeroom and kitchen and away from any form of student traffic. This platform should be at least 6 feet deep, and a roof should extend over the entire platform. The roof must be high enough for door openings on delivery trucks—a maximum of 13 feet.

Dry Food Storage Area

An area for the storage and security of food not requiring refrigeration. This area should be designed to protect foodstuffs against spoilage and contamination and should be located adjacent to the kitchen and receiving areas.

Non-Food Storage Area

An area for the storage of soaps, detergents, etc., separated from food storage to prevent the absorption of odors by the food. It should be located adjacent to the receiving area and convenient to the kitchen, dishwashing, and maintenance areas. In small kitchen operations, this separate room could be closet space in the receiving area. Even for large schools serving up to 2,000 meals per day, 15 square feet should be sufficient. This area should have a sink with hot and cold water and adequate ventilation.

Kitchen Area

For the purposes of this report, it is necessary to consider the kitchen area as a series of variables depending on the type of food service offered.

It is of prime importance that the kitchen be an efficient operating unit, but it is of equal importance that the investment in kitchen equipment be kept as economically sound as possible.

Working from the inventory of equipment required to prepare the planned

meal type and menu, the administrator can work with equipment suppliers and the school architect to determine the types and number of units of kitchen equipment needed and the amount of space that equipment will require. The form on page 32 can be used as a guide for the administrator's use in working with equipment manufacturers' representatives.

Once the equipment needed has been established, the architect can design a kitchen facility for maximum efficiency of operation. The actual layout and design of a kitchen facility is the job of a competent architect or food service consultant who has been given proper direction and information concerning the objectives and limitations of the food service program. School administrators without experience who attempt to design their own kitchens will most often create operating problems for the program.

Refrigeration Facilities

For optimum efficiency walk-in refrigeration equipment is very desirable. However, walk-in refrigerators with less than an 8 x 10 feet inside dimension will not be large enough for workers to turn around when stocking shelves. In addition, walk-in refrigeration units should have a floor level which will allow the entry and use of carts for stocking.

Freezer Facilities

The proper size of walk-in frozen food storage space depends on the location of the school, food purchasing practices, and frequency of delivery. For these reasons it is difficult to give an accurate indication of the size of operation necessary to supplement or replace reach-in freezers. The minimum practical size of walk-in freezers is 8 x 10 feet.

Serving Area

As discussed in the section on serving methods, a variety of approaches can be taken. This area may be within the kitchen area, in a separate room, or in the dining area. The equipment necessary and the actual amount of space utilized will depend on the specific design of the serving method. Food service administrators should work closely with equipment manufacturers and the school architect to determine the exact space and equipment requirements for the serving facility.

Dishwashing Area

This area should be adjacent to the dining area but near both an exit from the dining area and corridors leading outdoors. It should be designed to sanitize dinnerware, effectively dispose of garbage and trash, and reduce breakage losses. The floor area necessary is determined by the type and size of dishwashing equipment installed, the table space required for peak load periods, and the traffic patterns in and out of the area.

Careful compliance with local and state sanitation codes is an absolute requirement in this area. The school architect or an equipment manufacturer can supply the school administrator with the necessary code information. This information should be checked against all equipment and design specifications.

Maintenance Area

This area is used for the temporary storage of trash, garbage, and housekeeping equipment. It should be located near the service entrance, with the garbage and trash sections near the loading platform. It is desirable to have separate sections of this area for each function.

Office Area

Ample office space for the head cook or administrator should be designed into the facility. This area should be enclosed and used for menu planning, work scheduling, and the other management functions. In addition, for supervisory purposes, the office should have a view of the kitchen area and, if possible, the serving area.

At least 40 square feet of floor space should be allotted for the office. If the jobs of head cook and administrator are filled by different persons, office space for both should be provided.

Locker and Toilet Area

School lunch workers should have a toilet and locker area separated from the other school facilities. This will help promote more rigid enforcement of state and local health regulations.

Dining Area

In planning the dining area, the school administrator must take into account a number of factors.

equipment and space requirement

equipment items	space for	supplier A	supplier B	supplier C	supplier D
	meals sq. ft.	total dollars	total dollars	total dollars	total dollars
automatic liquid dispensers					
beverage coolers					
broilers					
butcher blocks					
can & bottle crushers					
can openers					
carts					
chef tables					
coin changers					
conveyors					
coolers & walk-ins					
cutters & choppers					
cream & milk dispensers					
dishwashers					
display cabinets(refrigerated)					
dryers (ldry)					
food shaping machines					
food warmers					
freezers					
fryers					
glass washers					
griddles and grills					
hot plates					
ice cream machines					
ice crushers					
ice makers					
incinerators					
infra red equipment					
insecticide sprayers					
ironers (laundry)					
meat tenderizers					
milk dispensers					
mixers and beaters					
ovens					
peelers					
pot and pan washers					
power saws					
pressure steamers					
ranges					
refrigeration equipment					
rotisseries					
scales					
silver washers and dryers					
sinks					
slicing machines					
steam cleaners					
steam jacketed kettles					
toasters					
turnstiles					
ventilators					
waffle irons					
water conditioners					
waste disposers					

_____ meals served in _____ periods of _____ minutes.

These include:

1 Total space available.
2 Seating arrangements.
3 Environmental factors — sound, light, heat, ventilation.
4 Decor
5 Other uses for the space.

The bare minimum space requirement for a dining area is 10 square feet per person. A more reasonable amount of space would be 12 square feet, and for more comfortable dining, 15 square feet would be adequate. As a rule of thumb, food service facilities' designers estimate the dining area to be one-half the area of the total facility.

Unless the dining area can be used for other school functions, the cost considerations are of major importance, and the space allocated should be kept to a comfortable minimum. That of course will vary from school to school and in large part depends on the dual uncertainty of what the students will accept as comfortable and what the taxpayers are willing to invest in the dining area.

With many schools serving a Type A lunch, a standard 14 inch x 18 inch tray is used. To a large degree, this dictates the type of seating arrangement.

If 12 square feet per student is available, 30 inch by 48 inch tables can accommodate four students. If only 10 square feet is available, 8 or 10 feet banquet tables are the only possible solution. It should be noted that the cost of equipping a dining area is high. The price of a chair and one student's portion of a table is a minimum of $25.

The environment of a dining area is important. The acoustics of the dining area should minimize the sound level, and the area should be brightly and cheerfully lighted. In addition, ample ventilation should be provided so that the area does not become stale.

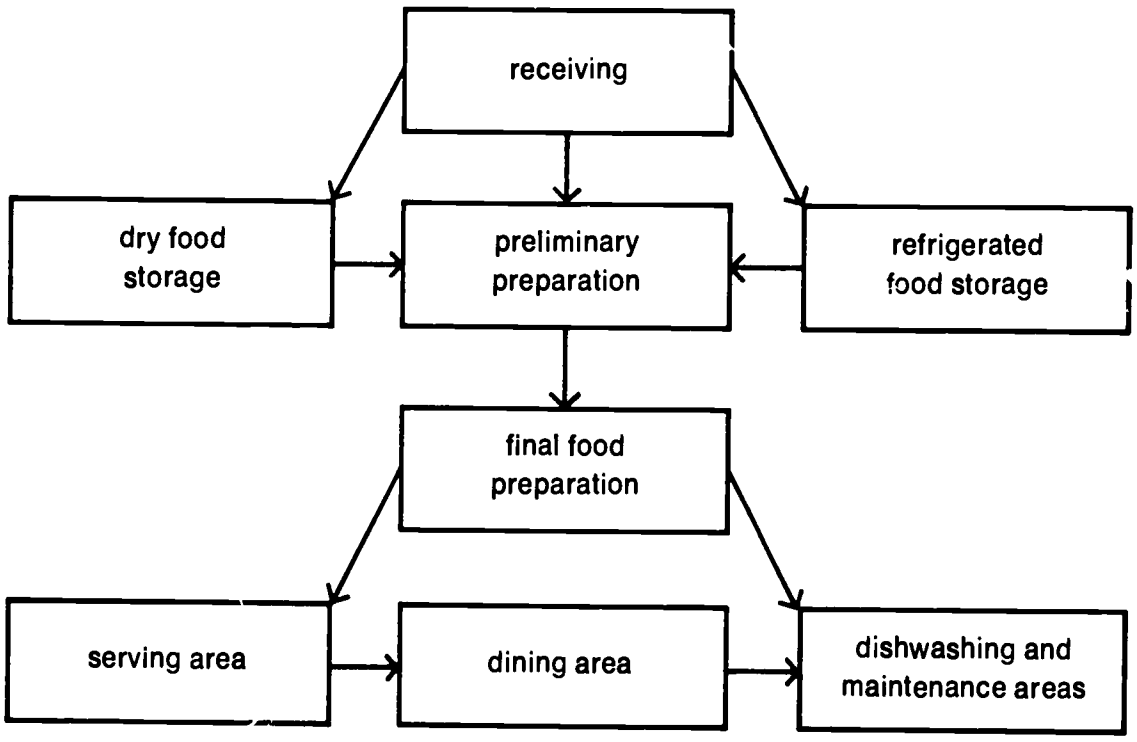
Finally, within the cost structure of the total facility, some attempt should be made to decorate the dining area to make it a cheerful part of the school, a place where the student can relax before returning to his studies.

space requirements

The following table illustrates the number of square feet of floor space necessary for each area of a food service facility. These space estimates are based on the straight line serving of a Type A lunch. The estimate for 200 meals is based on a single shift. All others are based on three shifts.

meals per day	200	600	1000	1400	1800
	square feet necessary				
receiving	80	120	160	180	200
dry storage	80	280	480	640	840
non-food storage	15	15	15	15	15
kitchen	475	840	960	1320	1400
refrigerated storage	160	160	180	320	320
serving area	300	600	600	900	1200
dishwashing area	120	120	240	240	240
office-locker area	40	120	180	240	320
dining area	2400	2400	3996	5592	7200
total	3670	4655	6811	9447	11735

Summary



A well-planned arrangement of functions and equipment provides the shortest, most direct route for supplies and work functions. The resulting efficiency is shown in a saving in labor cost, the most expensive single item in a food service operation.

The intricacies of design are best left to the competence of a professional architect with experience in food service installations or to the building architect and a food service consultant. The material reviewed in this section should aid the school administrator in giving the professional designers direction.

operating methods

The methods for operating a successful school food service program are many and varied. They are the methods of operating any successful business. Most operating procedures must be developed for a specific food service operation; however, there are four areas which are general in nature and worth discussion. These are:

1 Purchasing
2 Personnel
3 Sanitation and safety
4 Accounting and cost control

Purchasing

The procedures for buying large quantities of food vary a great deal, and the observed fact is that most schools use a particular purchasing method because they have always used it. The method that procures the right quantities of the right products at the right price at the right time is the method that should be used.

There are three basic methods of purchasing which are employed by school food service administrators.

1 **Bid Purchases:** With this method, specifications are given to competing suppliers and bids solicited. The supplier submitting the lowest bid on products meeting the specifications is awarded the order.
2 **Contract Purchases:** With this method, suppliers bid on specification and guarantee their price for a specific period of time, usually the school year. A contract is made designating the amount to be purchased, the price paid, and the sequence of delivery.
3 **Individual Vendor Purchases:** In some areas, schools purchase from local vendors. This method is usually employed when local vendors can offer better service, such as quick delivery, than could another source. In almost all areas, milk is purchased from local vendors.

There are two basic ways that school districts use these methods.

First, the school district may purchase for all food service operations in the district and arrange for drop shipments to the individual school. With this arrangement, it is not necessary for the school to maintain warehousing or trucking facilities. The products are delivered direct from the source of supply to each school.

Second, in many school districts, products are bought and stored in a central warehouse. Then, the managers of individual food service units order products when they need them.

The most important aspect of purchasing is knowing what you want to buy, not only what specific products, but the grades of those products. This means that every school food service administrator should develop a series of specifications for those products he buys. If the school operates under the National School Lunch Program, it is admonished to buy only products which have been inspected and graded by the United States Department of Agriculture. This applies to meat, poultry, and canned goods that move in interstate commerce. Inspection has not been required in the past for those suppliers operating in a single state, but under the Wholesome Meat Act passed in 1967, the states have been given two years to develop meat inspection programs at least equal to the federal inspection program. The federal system will be applied if the states fail to comply within the two years.

The specifications should include the can size or weight, the number of units per case, and the grade. In addition, some descriptive detail should be given to assure that the supplier bids on only the products that are acceptable.

An excellent example of bid specifications has been developed by the Board of Education, Bureau of Purchases, in Chicago. As an example of the detail into which these specifications go, reproduced below is their specification for strained cranberry sauce.

Cranberry Sauce (Strained) 6/#10 can/ case U.S. Grade A

Shall be a jellied or semi-jellied product prepared from clean, sound matured or fairly well matured cranberries; a sweetening ingredient or sweetening ingredients and water. Pectin may be added but only in a quantity which reasonably compensates for deficiency, if any, of the natural pectin content of the cranberries. The mixture is concentrated and sufficiently processed by heat to assure preservation of the product in hermetically sealed containers. The soluble solids of the finished product is not less than 35 percent and not more tha.. 45 percent.

With specifications of this type, the burden of proof is on the supplier, and he must prove that his products are worthy of consideration, not only from a price point of view, but from the point of view of value.

In addition to these specifications, some general rules for suppliers should be established. These rules should include the demand that all products considered for use in the school food service program are made and processed under adequate sanitary conditions and in strict accordance with city, state, or national pure food laws and health regulations. It is also important to have inspection access to the processing facility at any time.

Schools are an important market for food products, and the school food service administrator should receive the maximum number of services from his suppliers. Food processors have developed a number of important services for their customers which run from training programs for employees to systems for the maintenance of kitchen equipment. When dealing with suppliers, the administrator should inquire about the services that may be available.

The purchase of large quantities of food requires professional skill. Unfortunately, there is no academic road to professional purchasing. Experience and the exercise of extreme care are necessary for an efficient purchasing program.

Personnel

One essential need for a successful food service operation is good personnel to run the operation. Well-trained and experienced food service employees are scarce in today's labor market. More important, the cost of labor and food are the major cost factors, outside of the initial capital investment.

Labor can account for as much as one-half the food cost or 30 to 37 percent of the total operating costs of the food service facility. These figures alone spell the importance of hiring, training, and keeping good employees.

Since February of 1967, the workers in a food service operation must be paid a minimum wage of $1.00 per hour.

This minimum wage will be increased in the following increments:

$1.15 per hour, beginning February 1, 1968
$1.30 per hour, beginning February 1, 1969
$1.45 per hour, beginning February 1, 1970
$1.60 per hour, beginning February 1, 1971

Skilled labor will, of course, still be able to demand a premium for its work.

The number of employees necessary for the operation of a school food service facility has been estimated by Sylvia Hartt in *Institutions Magazine* in the following way. One worker can prepare 75 meals; two workers—165; three workers—265; and for each additional worker—an additional 100 meals.

School food service employees need to be trained to do their jobs with maximum efficiency. Any loss in efficiency will result in greater labor costs and deficiency in the program. Furthermore, labor costs have been rising much faster than food costs, and this trend can be expected to continue.

Sanitation and Safety

High standards of sanitation and safety must be maintained in any food service operation. Both are necessary for the protection of students and staff. Sanitation and safety standards have been established and are enforced by city, state, and federal legislation.

Sanitation in a school food service program must extend to every part of the operation—to the food purchased, the way in which it is stored, the equipment in which it is prepared, the people who prepare and serve it, the dishes it is served on, and the utensils with which it is eaten.

It is necessary to check with local health authorities to assure that the physical facility and the operation of the facility comply with all sanitation standards.

Fire, electrical shock, and falls are hazards which can be avoided only if all equipment in the facility is correctly installed and maintained and if the students and personnel are thoroughly trained in the elements of safety. Prototype safety programs can be obtained from the National Safety Council or the company which insures the school.

Accounting and Cost Control

Accurate and systematic systems of accounting and cost control should be established to prevent major financial loss from the food service operation.

If a school participates in the National School Lunch Program, the records of accounting are supplied by the Department of Agriculture. Other schools consult with local accountants to set up or evaluate their present accounting and cost control procedures to assure that the program is being operated on a sound basis.

vocational education programs

Since the installation of a food service facility is an expensive adjunct to an educational facility, maximum educational advantage should be taken of the space and equipment. While it has been shown that eating space can be utilized for other activities, the equipment can also be used to educational advantage through the development of vocational educational programs. In today's labor market there is a great need for skilled workers, and in the restaurant industry there is a special need for trained workers in the following employment classifications:

- Baker's Helper
- Beverage Worker
- Bus Boy
- Cafeteria Server
- Cake Decorator
- Cook
- Dish Machine Operator
- Food Checker
- Fountain Worker
- Kitchen Helper
- Meat Cutter
- Pantry Worker
- Pastry Cook
- Sandwich Maker
- Sanitation and Maintenance Worker
- Short Order Cook
- Steward
- Storeroom Clerk
- Waiter or Waitress

The equipment in an average school food service operation can be used as the training facilities for all of the job classifications listed above.

The National Restaurant Association estimates that the market for skilled restaurant workers will increase 40 percent during the 1960's. This indicates a real educational opportunity for schools with food service facilities, and it also offers a school the means to gain additional federal aid to offset the cost of its food service investment.

Under a series of federal acts, dating from the Smith-Hughes Act of 1917 to the Vocational Education Act of 1965, the federal government provides financing for vocational training programs. By contacting the state educational agency or the Office of Education of the Department of Health, Education and Welfare, a school administrator can determine the amount

of federal aid his school can receive if it develops a vocational education program in the restaurant trade.

The National Restaurant Association, which represents the bulk of restaurant operators in the country, is extremely active in promoting the development of vocational education programs. The National Restaurant Association's Food Service Educational Institute has developed a number of case studies which illustrate the steps in planning a vocational education program. These case studies may be obtained free of charge from Food Service Educational Institute, National Restaurant Association, 1530 North Lake Shore Drive, Chicago, Illinois 60610.

When establishing a vocational education program in food service, the following steps should be taken:

1 The state legislature should have passed an act to permit the use of federal funds wherever needed for research and equipment. Most states have passed such acts and appointed a special official in the state education agency to help with all proposals.
2 An industry and education committee truly devoted to developing a food trades course for secondary schools should be appointed. In many states such committees have been appointed and can be contacted through the state educational agency or the local restaurant association.
3 The public and the school counselors should be supplied with information on the opportunities existing in the restaurant field for the students, and visual aids and guidance for use in the school systems should be prepared.
4 Existing school and apprentice programs should be studied. Population, industry studies, job opportunities (part-time and full-time), should be analyzed.
5 Careful attention should be given to the recruitment of students for this type of work. In addition to interest and enough academic background to carry the work, a good physical examination, to determine eye and hand coordination, is essential.
6 The director of the food trades program should interview the applicants and choose the students and, if possible, he should be assigned the training of the students and the direction of the cafeteria for the school.
7 The dining hall should be one of the "Hubs" of the school. Invite industry, school, and town officials to use the dining hall for meetings. Make your program and food known to the community.
8 Special training in the care and upkeep of expensive food service equipment should be given. Give the students the quality foods they need in the preparation of fine meals for the faculty dining hall, so that they can develop a sense of taste and flavor. These meals can be sold at cost to staff and visitors.
9 A director and instructors who have served apprenticeships in the trade and have enough formal education to take the necessary steps for certification as vocational teachers in the state systems should be secured.

The following should be considered by school administrators in developing a food trades vocational education program.

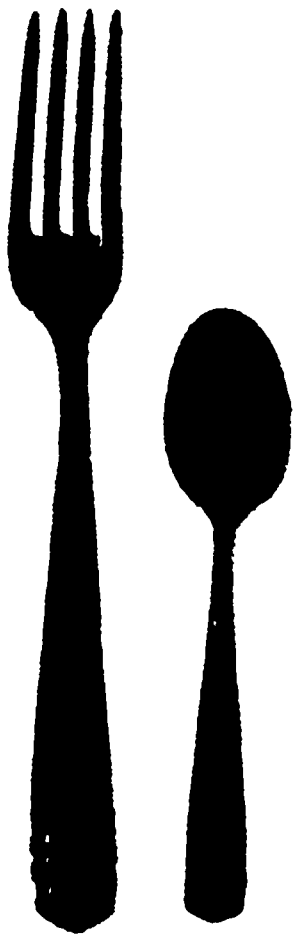
1 A full-day program is required to successfully meet the objectives of these guidelines, because the unique function of food service requires instructional activity both before and after the food period.
2 This program should be related to food service within the school for practical instruction in preparation and service, insofar as possible.
3 Where practical, the food technology instructor should also be responsible for the school's food service operation.
4 In all cases, where students are involved in food service within the school, the food technology instructor should have complete responsibility for the students.
5 In schools where the school food service operation is used for instructional purposes, sufficient adult help should be employed to assure adequate operation of the food service facility.
6 The program should be of sufficient length to permit the student to develop skills which will enable him to enter the industry in a productive capacity.
7 The program should permit the student to continue to develop food service technology skills to the limit of his capacity.
8 These programs can more effectively produce educated and trained people by blending the applicable knowledge of as broad a group of educational disciplines as possible.
9 These programs should include the facilities and necessary staff to provide as broad an educational opportunity for its potential students as the area requires.
10 It is recommended that the school administrators and/or the architect obtain professional counsel in the development of these facilities.

Units of Instruction

As a means of future planning, the following outline of the major units of instruction is suggested for a food trades vocational education program.

	Estimated % of Time Available
A Introduction to Food Service Technology	3%
B Preparation and Use of Foods, Using Various Methods: 1 Meats 2 Poultry 3 Seafood 4 Eggs 5 Dairy Products 6 Vegetables 7 Fruits 8 Condiments 9 Sauces 10 Soups 11 Salads 12 Dressings 13 Canapes & Hors D'Oeuvres 14 Sandwiches 15 Pastries 16 Beverages	35%
C Specialty Preparations: 1 Food Presentations 2 Buffet Displays 3 Ice Carvings 4 Decorating	3%
D Following and Adapting Recipes	2%
E Service Functions	25%
F Sanitation: 1 Hygiene 2 Food 3 Tools & Equipment 4 Facilities	10%
G Safety: 1 Personal 2 Tools & Equipment	7%
H Housekeeping	5%
I Aspects of Management: 1 Planning 2 Purchasing 3 Receiving 4 Storage 5 Records 6 Merchandising 7 Scheduling 8 Controlling—Costs, Quality, Standards	10%
	100%

summary



School food service programs, like the food service industry as a whole, are rapidly evolving to meet the challenges of the future. Suppliers constantly bombard administrators with new ideas and concepts and plans for the practical application of these ideas and concepts. School food service administrators, faced with constantly rising costs and the business complexities of larger food service operations, are constantly searching for new and better ways to run their programs. Local, state, and federal agencies experiment with new, and hopefully more efficient, methods of operation.

The aim of all these efforts is to reduce costs, and usually the one cost that can be effectively reduced is labor. More often than not, the original capital investment in space and equipment is soon forgotten, and food costs cannot be controlled except through careful purchasing, preparation, and planning. The one flexible cost factor is labor, and every administrator should carefully evaluate any ideas or proposals from suppliers which may lessen the labor cost burden on his program.

Unfortunately, there are no tried and true methods for overcoming the problems each administrator faces. There are only methods that have worked for individual schools and groups of schools.

This report does not represent the final answer to the challenging and complex problems facing those who plan and administer school food service programs. It is hoped that the information contained in the report will lead to a more thorough understanding of the problems, and that as a result, the many people directly involved can communicate more effectively with one another. In addition, we have attempted to provide the administrator with the basic planning tools so that he might save time and money in developing his food service plans.

A successful school food service program is the result of the coordinated efforts of many people. Taxpayers must be willing to support the program. Adequate, efficient facilities must be designed and constructed. Food service systems must be installed, personnel hired and trained, menus planned, food purchased, meals prepared, and children fed.

The food service administrator is responsible for all these operations, and through increasing knowledge and the application of that knowledge to experience, the food service administrator can effectively meet the challenge of feeding 20 million for lunch.

appendices

government subsidy programs

As mentioned earlier, the federal government plays a major role in school food service programs. The National School Lunch Act of 1946 and the Child Nutrition Act of 1966 are the major acts of legislation with a direct bearing on all school food service programs. To a somewhat lesser degree, the Vocational Education Act of 1965 can also contribute to a school food service program.

In most instances, individual schools or school districts must work through the state education agency in order to receive federal moneys. However, it is important for each school food service administrator to understand the complexity of these programs in order to achieve the maximum benefit possible.

The National School Lunch Act of 1946

This act established the National School Lunch Program to help provide wholesome, appetizing lunches to the entire nation's schoolchildren.

The program is administered by the United States Department of Agriculture's Agricultural Marketing Service in cooperation with state education agencies. Federal specialists provide technical and administrative assistance to state personnel who in turn advise local administrators operating the individual school programs.

The state education agencies enter into agreements with the schools for the operation of the program. In nearly half the states, the laws do not permit the state educational agency to administer the program for nonprofit private schools. In those states, such schools can enter into an agreement directly with the United States Department of Agriculture. This program gives participating schools a cash subsidy which may range from a fraction of a cent to 15¢ per lunch in addition to available surplus commodities.

In addition to the requirements set forth on pages 12-13 for the Type A lunch, the agreement between the school and the Department of Agriculture outlines the school's further responsibility in the following areas.

Equipment

The school is expected to provide basic facilities needed for storing, preparing, and serving foods.

While particular items of equipment are not specified, adequate facilities must be provided to enable compliance with all sanitation and food service regulations issued by state and local health authorities.

Personnel

The salaries paid to school lunch personnel are left entirely up to the school. In general, these salaries should not be more than the prevailing wage scale paid for similar work in the locality. (As of February 1, 1967, school lunch employees are covered by the minimum wage laws.)

If a school plans to use student helpers, it is suggested that the administrator contact the State Department of Labor in his state for regulations which will govern such employment.

Records

The school must keep full and accurate records of the lunch program to serve as a basis for the claim for reimbursement and for audit and review purposes.

To simplify the record-keeping, the Department of Agriculture has devised a daily record form which contains the information needed to prepare the Monthly Claim for Reimbursement.

The records to be kept for a period of three years include the following:

1 Daily count of lunches served

This responsibility should be a regular assignment delegated to the principal, teacher, high school student, or lunchroom worker.

Any of the following methods may be used to take the count providing that proper breakdown is maintained:

A Tally at the end of the serving line.

B Ticket or token count.

C Plate count.

D Cash register tapes.

E A combination of any of the above.

The count must show a breakdown of the number of lunches as follows:

A Lunches served to children with milk.

B Lunches served to children without milk.

C Daily number of lunches served free or at reduced price to children with or without milk (actual count).

D Daily number of meals served to adults.

Under no circumstances should program sponsors claim federal reimbursement for lunches or milk served to adults or enrollees above the twelfth grade.

If the information relating to free and reduced price lunches is available to the person responsible for the lunch count, the above breakdown should also include the number of paid and free lunches served to children with or without milk. In most instances, the school administrator must be consulted each day to arrive at the number of free or reduced price lunches served daily. Individual school officials determine who is "needy"—there being no set definition.

No discrimination may be made against any child because of his inability to pay the full asking price of the lunch.

2 Program income (receipts)

Records must reflect the source from which all income is derived as follows:

A Federal reimbursement.

B Children's payments for lunches and "extra" milk.

C Adult payments for lunches and milk.

D Loans or advances to program.

E Income from all other sources.

3 Program expenditures

Records must show all amounts paid out.

A Expenditures for food.

All deliveries must be checked against invoices and the invoice computations verified.

B Expenditures for labor.

All labor costs, including tax withheld and social security payments, must be recorded.

C Expenditures for loan repayments.

Complete information on all loans and loan repayments must be kept.

D Other expenditures.

This should include all expenditures for nonfood items, such as paper towels, paper cups, detergents, sanitizers, etc.

4 Program income

An itemized record must be kept of:

A Donated food exclusive of foods donated by the Department of Agriculture.

B Donated services.

C All donations other than food and services. Itemized record should consist of date, name of donor, and name of item or type of service contributed.

The program must be operated on a nonprofit basis. All funds accruing from the operation must be used solely for school lunch purposes. However, such income c[illegible]ot be used to purchase land, acqui[illegible] construct buildings, or make alterations of existing buildings. Out-of-state travel of school lunch personnel or the purchase of automotive equipment must be financed from other funds—not from children's payments or from the federal government's reimbursement.

Program Accounting

The schools must maintain a running account of all income and all expenditures in connection with the program.

In addition to the actual cash transactions which occur during the month, the schools also are requested to report on the Claim Form the funds still due the program and the amount of bills owing at the end of the month. The amount still due the Program would include, as a minimum, the amount of the current month's claim.

By reporting in this manner, the records will show the exact amount of cash taken in each month and the exact amount of cash paid out each month, as well as the cash still due the program and the bills still owing. This will enable the schools to determine the financial status of their program from month to month.

Claims for Reimbursement

To receive indemnity payments, schools approved for participation must comply with the terms of the standard form of Agreement and must file a monthly Claim for Reimbursement based on required records. Each Claim must cover operations in only one calendar month.

The number of lunches for which reimbursement can be claimed is limited by the following:

1 The school must designate a lunch period and claim only for those lunches served during this period which meet Type A requirements. The purpose of this regulation is to preclude Claims for breakfast and dinner meals served in boarding schools, or other schools serving three meals a day.

2 The number of meals reported must represent meals served only to children of high school grade or under. No reimbursement can be claimed for adult lunches or for students above the twelfth grade.

3 The number of lunches reported on the Claim Form must be based on actual daily count of lunches served with milk and lunches served without milk (with special permission) to children.

4 The lunches must be priced as a unit. However, this does not prohibit a choice of protein or fruit and vegetable items so long as the complete Type A lunch is offered at a unit price.
Lunches selected from a variety of individually priced food items (a la carte items) are not reimbursable even though foods selected may meet Type A requirements.

Commodity Distribution

Upon approval of a school's application, the United States Department of Agriculture will certify the school as eligible to receive certain United States Department of Agriculture donated commodities which are made available from time to time in each state. The state distributing agency will furnish the school with the necessary application for participation in the Commodity Distribution Program.

The schools must provide adequate storage facilities for these commodities. Each commodity must be stored in the manner designated and proper inventory records maintained.

Under no circumstances can these donated foods be sold, traded, or used for purposes other than for school lunches. Some commodities ordinarily received for regular use in the school lunch program may be used for training students in Home Economics classes.

Field Contracts

Periodic visits will be made by United States Department of Agriculture representatives to determine that schools are operating the program in accordance with regulations and to offer suggestions and recommendations for improvement when necessary. Program accounts and records are also audited from time to time.

Child Nutrition Act of 1966

The Child Nutrition Act of 1966 extended the purpose and action of the National School Lunch Act of 1946. From a practical point of view, this act gives assistance to schools in three specific programs:

The Special Milk Program
The Breakfast Program
Non-Food Assistance Program

The Special Milk Program

The Special Milk Program began in 1954 and was expanded by the Child Nutrition Act of 1966. All public and nonprofit schools of high school grade and under are eligible. This program has as its objective the creation of good milk drinking habits among children and the resulting increase in their nutritional well-being.

This program is administered by the School Lunch Division, Consumer and Marketing Service of the Department of Agriculture. Locally, the program is administered by the state educational agency.

As with the National School Lunch Program, in nearly half the states, the program in nonprofit private schools is administered directly by the United States Department of Agriculture.

This program encourages the consumption of fluid milk through a system of reimbursement payments to participating schools. These payments make it possible for the school to inaugurate a milk service, expand their current service by offering milk at reduced prices, or establish additional or expanded milk service.

Schools which charge separately for milk served must make maximum use of the reimbursement payments to reduce the price of milk to the children. The authorized maximum rates of reimbursement are 4 cents per half-pint for schools which also participate in the National School Lunch Program (with no reimbursement paid on the first half-pint of milk served with the Type A lunch) and 3 cents per half-pint in those remaining schools where milk is sold as a separately priced item.

With these maximum rates, the amount of reimbursement paid will depend on the cost of milk, the proposed selling price to the child, and the maximum margin of 1¢ allowed to defray the cost of distribution within the school.

Schools located in economically depressed areas may be eligible to receive additional assistance under the Special Milk Program if they have no facilities for preparing or serving food, or if they participate in the National School Lunch Program and receive cash subsidies in excess of 9¢ per Type A lunch.

Children who attend these schools and who can afford to pay the nominal price charged for milk are expected to do so. However, those who are unable to pay may receive milk free of charge. If a child is unable to pay, the school will be reimbursed by the federal government at a rate equal to the cost of the milk.

In those schools where meals are part of the total tuition, the schools may submit a plan showing the specific methods they will follow to encourage the children to drink more milk.

Approval of these plans will permit the school to receive reimbursement at the rate of 2 cents for each half-pint of milk which is served.

The Breakfast Program

This program was established as a pilot program in some schools during early 1967. In many respects, this portion of the Child Nutrition Act was an extension of private breakfast programs that have been in existence for a number of years. Its basis is the recognition that far too many school children do not eat breakfast at home and as a result are not as receptive to teaching in the morning hours.

Under this program, the federal government will reimburse schools serving breakfast 15 cents per breakfast or the cost of the food served, whichever is lower.

The breakfast served must meet the following requirements:

1 One-half pint of fluid whole milk as a beverage or on cereal or used in part for both.
2 One-half cup serving of fruit or full strength fruit or vegetable juice.
3 One slice of whole-grain or enriched bread; or a serving of cornbread, biscuits, rolls, muffins, etc. made of whole-grain or enriched meal or flour; or three-fourths cup of whole-grain cereal or enriched or fortified cereal or an equivalent quantity of any combination of these foods.

The breakfasts should also include, whenever possible, protein-rich foods such as meat, eggs, cheese, or peanut butter. Commodities are available for the Breakfast Program and can be requested through the state educational agency.

The bookkeeping process for the breakfast program is nearly identical to that of the lunch program.

Non-Food Assistance Program

This program is restricted to economically depressed areas and is designed to aid schools in the purchase of kitchen and serving equipment.

Under this program, the federal government will supply up to 75 percent of the cost of all necessary equipment and the school the remaining 25 percent. For major investments, such as stoves, refrigeration equipment, etc., the United States Department of Agriculture holds title to the equipment for five years and then turns it over to the school. For less expensive equipment, the United States Department of Agriculture holds title for three years.

This program is specifically aimed at helping those schools which are without adequate funding to get a food service program started.

The Vocational Education Act of 1963

This act is a comprehensive and flexible piece of educational legislation which shuts out no group, no occupation, except those generally requiring a baccalaureate or higher degree. It is designed to apply to workers of all ages, in both rural and urban areas, and those both employed and unemployed. Most importantly, this act requires each state and each community to plan its vocational education programs with maximum consideration of the changes taking place in the economy and the labor market.

This act, administered by the Department of Health, Education and Welfare, gives the individual states a great deal of leeway in developing more extensive vocational education programs. In each state it is necessary to contact the state education agency to determine the extent of the local program and the funds available. Full utilization of the act would give schools funds for the following activities:

Vocational guidance and counseling given in connection with vocational training.

Instruction that in itself is not vocational education but may be needed to correct educational deficiencies or handicaps that prevent the student from benefiting from vocational education. Such instruction must be provided in courses which are an integral part of the vocational education program in which the student is enrolled.

The training of persons engaged as vocational education teachers, teacher-trainers, supervisors, and directors of such training, and of persons preparing to become vocational education teachers, etc.

Travel of students and of persons engaged in vocational education.

The acquisition, maintenance, and repair of instructional supplies, teaching aids, and equipment.

In addition, in certain circumstances the act authorizes federal funds for the construction of school facilities, specifically to construct new buildings, to expand, remodel, and alter old buildings, to grade and improve sites, and to pay architects' fees. The term, school facilities, is defined to mean not only classrooms and related facilities but it also includes the initial equipment and the land on which the facilities are constructed.

sample menus
Detroit Public Schools
december, 1966
first week

elementary	secondary
monday	
Hamburg Pattie	Split Pea Soup
Peas & Carrots	Sliced Cheese Sandwich
Applesauce	Pear with Cheese
Hamburg Bun	Orange Raisin Cake
Cookie	Coffee, Tea or Milk
½ Pint Whole Milk	
tuesday	
Spaghetti	Tomato Rice Soup
Green Beans	Tuna Sandwich
Cole Slaw	Jellied Fruit
Roll	Yellow Cake with Chocolate Icing
Raisin Spice Bar	Coffee, Tea or Milk
½ Pint Whole Milk	
wednesday	
Beef & Vegetable Stew	Navy Bean Soup
Mashed Potatoes	Minced Beef Sandwich
Jellied Fruit	Peach Cranberry
Roll	Applesauce Cake
Basic Cake	Coffee, Tea or Milk
½ Pint Whole Milk	
thursday	
Meat Loaf with	Vegetable Soup
Tomato Sauce	Sliced Ham Sandwich
Chopped Cabbage & Spinach	Orange & Pineapple
Roll	Spice Cake
Peach Half	Coffee, Tea or Milk
½ Pint Whole Milk	
friday	
Baked Fish	Cream of Tomato Soup
Hashed Brown Potatoes	Egg Salad Sandwich
Tossed Salad	Waldorf Salad
Roll	Basic Cake with Marble Icing
Chocolate Cake	Coffee, Tea or Milk
½ Pint Whole Milk	

second week

elementary	secondary
monday	
Barbecued Beef in Bun Mashed Potato with Gravy Cabbage Salad Hamburg Bun Fruit Cup (use Mandarin Orange & Pineapple) ½ Pint Whole Milk	Lima Bean & Tomato Soup Ham Salad Sandwich Pineapple with Grated Cheese Chocolate Cake Coffee, Tea or Milk
tuesday	
Chili Con Carne Tossed Salad Pineapple in Lime Jello Cornbread or Roll Brownie ½ Pint Whole Milk	Minestrone Soup Sliced Bologna Cut Fruit Basic Cake Coffee, Tea or Milk
wednesday	
Turkey with Gravy Mashed Potato Parsley Carrots Cranberry Sauce Roll Christmas Cake ½ Pint Whole Milk	Savory Potato Soup Tuna Sandwich Jellied Fruit Gingerbread, Whipped Cream, Lemon Sauce Coffee, Tea or Milk
thursday	
Baked Fish Parsley Potato Vegetable Medley Roll Christmas Cookie ½ Pint Whole Milk	Turkey Vegetable Rice Soup Sliced Cheese Sandwich Peach with Cottage Cheese White Cake, Lemon Topping Coffee, Tea or Milk
friday	
Holiday	

sample menus
Chicago Public Schools
may, 1967
first week

Dietician's choice from column 1 or column 2

monday

Italian Ravioli Casserole
(Vitamin A-C)
Buttered Green Beans
Italian Bread, Butter
Apple Raisin Crisp
½ Pint Whole Milk

Grilled Ham Steak (3 oz.)
Potatoes Hashed in Cream
Orange Waldorf Salad
Rye Bread, Butter
Coffee, Tea or Milk

tuesday

Baked Luncheon Loaf
Whipped Potatoes, Gravy
Grapefruit Sections in
Lime Gelatin (Vitamin C)
Spice Cake, Lemon Icing
Hot Biscuit, Butter
½ Pint Whole Milk

Baked Salisbury Steak (4 oz.)
Mushroom Gravy
Hashed Brown Potatoes
Buttered Peas and Carrots
Poppyseed Roll, Butter
Coffee, Tea or Milk

wednesday

Baked Meat Balls, Tomato Sauce
(Vitamin A-C)
Parsley Whipped Potatoes
Buttered Whole Kernel Corn
Hot Roll, Butter
Peanut Butter Cookie
½ Pint Whole Milk

Roast Veal (3 oz.), Brown Gravy
Noodles with Buttered Crumbs
Mashed Rutabaga
Parkerhouse Roll, Butter
Coffee, Tea or Milk

thursday

Rich Beef Stew with Fresh Vegetables
Parsley Potatoes
Spring Salad with Tomato Garnish
(Vitamin A-C)
Diced Raspberry Gelatin
½ Pint Whole Milk

Golden Fried Young Chicken (¼)
Whipped Potatoes
Buttered Fresh Spinach with
Hard Cooked Egg Garnish
Hot Biscuit, Honey Butter
Coffee, Tea or Milk

friday

Hamburger, Gravy or
Oven Fried Fish
Parsley Whipped Potatoes
Hot Roll, Butter
Pineapple and Orange Cup
(Vitamin A-C)
½ Pint Whole Milk

Breaded Veal Cutlet (1),
Tomato Sauce or
Baked Halibut Steak, Lemon Wedge
Seasoned Spinach
Buttered Potato
Cloverleaf Roll, Butter
Coffee, Tea or Milk

second week

monday

Oven Grilled Hot Dog (8 per lb)
on a Buttered Bun
German Style Hot Potato Salad
Chilled Strawberries
(Vitamin A-C)
½ Pint Whole Milk

Roast Sirloin of Beef Au Jus (3 oz.)
Oven Browned Potatoes
Buttered Green Beans
Parkerhouse Roll, Butter
Coffee, Tea or Milk

tuesday

Baked Meat Loaf
Whipped Potatoes
Escalloped Corn and Tomatoes
(Vitamin A-C)
Hot Biscuit and Butter
Raisin Brownie
½ Pint Whole Milk

Thuringer Sausage (1)
Sauerkraut with Caraway Seeds
Parsley Boiled Potato
Rye Bread, Butter
Coffee, Tea or Milk

wednesday

Chinese Chop Suey on Fluffed Rice
Citrus Fruit Cup (Vitamin A-C)
Hot Pan Roll, Butter
Almond Cookie
½ Pint Whole Milk

Baked Swiss Steak (3 oz.)
Onion Gravy
Whipped Potatoes
Carrots Vichy
Twin Roll, Butter
Coffee, Tea or Milk

thursday

Spaghetti with Meat Balls
(Vitamin A-C)
Buttered Green Beans
French Bread, Butter
Chilled Apple Sauce
½ Pint Whole Milk

Roast Loin of Pork (3 oz.)
Candied Sweet Potatoes
Buttered Chopped Broccoli
Corn Muffin, Butter
Coffee, Tea or Milk

friday

Baked Salmon Loaf, Egg Sauce or
Baked Meat Patty, Fried Onions
Whipped Potato
Buttered Spinach (Vitamin A-C)
Hot Roll, Butter
Lemon Chiffon Pudding
½ Pint Whole Milk

(4) French Fried Shrimp,
Cocktail Sauce or
Boiled Smoked Pork Butt (3 oz.)
Parsley Potatoes
Pineapple Cole Slaw
French Bread, Butter
Coffee, Tea or Milk

sample specifications for manual bid contract food service management

Please Note:
We make reference to the bidder and the contractor throughout the specifications; however, they are one and the same.

I General

Contractors shall submit their proposal on form provided by (form enclosed).

II Preparation of proposal

After the proposal is prepared, it shall be placed in an envelope marked plainly to indicate its contents, but it shall bear no other marks tending to distinguish it from any other envelopes containing bids. Each envelope containing a proposal shall be sealed and shall be mailed by the bidder or by its authorized representative on or before (date).

Before submitting the proposal, the bidder shall make all investigations and examinations necessary to ascertain all conditions and requirements affecting the full performance of the proposed contract. This includes physical inspection of the premises.

IF THE BIDDER IS A CORPORATION, the proposal (and addenda, if any) shall be signed in the name of a duly authorized representative of the corporation with the designation of his official capacity. The proposal shall show the state in which the corporation is chartered.

IF THE BIDDER IS A FIRM OR CO-PARTNERSHIP, the proposal (and addenda, if any) shall be signed, in the name or style under which the organization is doing business, by a duly authorized representative of the firm. The name and address of the home office and the local office of the corporation, firm or co-partnership shall be shown on the proposal.

IF THE BIDDER IS AN INDIVIDUAL, he shall sign the proposal (and addenda, if any) in person or by a duly authorized representative, stating the name or style, if any, under which he is doing business.

III Evidence of ability

In submitting a proposal, each bidder shall provide a brochure including but not limited to the following:

A Name and address of the company or firm and its officers or operators.

B How long has the bidder been in the food service business?

C Does the bidder operate any mass feeding operations?

D If so, attach a list of all operations.

E How long has the bidder been engaged in mass feeding operations?

F May representatives of Company inspect the bidder's present food service operation?

G Describe all present and past operations in the area, including location, for whom operated, and those discontinued.

H A financial statement covering the bidder's present and past condition. Such statement shall cover at least five years immediately preceding (date).

IV Execution of contract

Within 10 days after receiving notice of the award, the successful bidder shall execute a contract with the Company providing for the operation of the facilities designated therein.

V Scope of operation

The contract to be awarded under these specifications shall grant the bidder the exclusive use of the kitchen and equipment in the existing cafeteria, located at

VI Inventory and Equipment

The successful bidder agrees to purchase all good and usable food inventories at the take-over date of the facility, and agrees to pay the current market price for these commodities within 15 days after take-over.

If the bidder agrees to replace all items of expendable equipment at his expense, this condition should be set forth in the proposal. If it is the intention of the bidder to request the to bear the expense of replacing these items of equipment, this should also be set forth in the proposal.

The bidder shall have the right to accrue into a fund an agreed-on percentage of gross sales, with moneys to be used for the purchase of such necessary items of equipment.

This practice can be exercised in either a Management Fee or P&L type of proposal, with the nature of the proposal to be decided on by the bidder. Contractor shall agree to exercise reasonable care and maintenance of all equipment provided for his use in the cafeteria of the

VII Cash registers and accounting procedures

Cash registers that are supplied by the to the contractor shall be operated in strict conformance of the . The contractor shall agree that reset keys for cash registers will remain in the custody of the at all times.

The bidder shall agree to keep all records of business on file in the operation. The system of accounting practiced by the contractor shall be available for inspection or study by a duly authorized representative of the . Contractor agrees to allow an audit of the records for business conducted in the cafeteria by a representative of the . This provision shall remain throughout the life of the agreement.

The bidder shall specify in his proposal the maximum charge for overhead, fee, or profit limitation. Mention should be made as to whether percentage of sales or a flat dollar charge is to be used to determine these amounts. The nature of the proposed contract will also determine this.

VIII Operating

A Bidder shall not use the food service facility of the for preparation of food to be served in any location other than those of the .

B A prospectus of anticipated annual sales and related costs shall accompany the proposal of bidders.

C Staffing chart showing job classifications, hours worked per day as related to the classification, and hourly, weekly, or monthly wage rates shall also be reflected in the proposal.

D Copy of operating agreement as related to type of bid submitted by the bidder shall accompany the proposal.

E Contractor shall agree to keep a current list of production costs on all foods prepared and served in the cafeteria of the . This information is to be made available to the authorized representative of the upon request.

F A schedule of portions (weights and measurements) of each item of food shall accompany the bid.

G Bidder shall agree to establish the menu price structure through mutual agreement with the . No change in menu prices should be made without consulting and substantiating the necessity of it. This provision will be decided by mutual agreement.

H Contractor shall notify the of any complaints on the food, portions, or service brought to his attention. Operator shall also agree to make cash refunds

to any customer for any food purchased that does not meet the satisfaction of the customer. The justification of any cash refunds would be determined by mutual agreement and thereafter will become part of the policy of the contractor.

I A menu plan for a six-month cycle during the months of July and August, and a similar menu planned for a six-month cycle during the months of January and February shall accompany the bid. Menus commemorating holidays such as Valentine's Day, St. Patrick's Day, Washington's Birthday, etc., shall also be submitted. Menus for special events, both table service and buffet service, shall also be included.

J Schedules of food service shall be established by the and shall become the responsibility of the contractor to abide by them. The contractor shall agree to provide food and service at any time requested by the .

IX Personnel

A If the employees of the contractor are organized by a labor union, the contractor shall agree to furnish the with copies of the bargaining agreement for its employees between the contractor and the union.

B Contractor shall also agree to keep the advised of all events and demands of the authorized bargaining unit during renegotiations of its agreements with the union. Contractor shall also agree to advise the of any concessions or grants to the union as related to the negotiations and the demands of the union.

C A list of any fringe benefits (insurance, profit sharing, etc.) provided by the contractor for its employees shall be thoroughly defined.

D Contractor shall also agree to remove any of its employees who in the judgment of the are not performing in a manner that is in keeping with the terms of the operating agreement between the contractor and the .

E The contractor shall also agree that his employees shall receive a physical examination before being hired and a doctor's certificate stating the physical fitness of the employees to perform any of the duties as a food handler. Succeeding periodic examinations of employees shall be made at intervals of not less than every six months.

X Purchasing—Food Specifications and Minimum Standards Meats

The Meat Buyers Guide (a publication of the National Association of Hotel and Restaurant Meat Purveyors) is to be used as a minimum specification for all primal and fabricated meat cuts. All meat and meat products, except sausage products, shall have been slaughtered, processed, and manufactured in plants operated under a USDA inspection program and bear the appropriate seal. All meat and meat products must be sound and sanitary on delivery. They must be free of objectionable odors or other signs of deterioration. No preservatives, tenderizers, or coloring agents may be added to any fresh meat or fresh meat products. Imported fresh or frozen meat products are prohibited for any purposes. Minimum grading requirements for all graded cuts are as follows:

Beef—USDA Prime and Choice

Lower grades of beef may be purchased as an exception to the above grade requirements and are as follows:

a) Front and Hind Shanks—USDA Good and Commercial
b) Short Ribs—USDA Good
c) Cubed or Swiss Steaks (where moist or braised cookery is used)
—USDA Good and Commercial
d) Ground Beef, may use meats from—USDA Good and Commercial
e) Diced Beef, may use meats from—USDA Good and Commercial
f) Tenderloins—USDA Good and Commercial
g) Fresh Brisket—USDA Good

NOTE:

Shoulder and Shoulder Clods shall be used only for dicing and grinding.

Pork—

USDA Number "1" (as defined in S.R.A. Number 171, U.S. Standards for Grades of Pork Carcasses)

Veal–
USDA Prime and Choice
Lamb–
USDA Prime and Choice
Provision and Variety Meats–
Grade Number "1" from USDA Government inspected plants
Sausage Products–
Grade Number "1" from Federal, State, or City inspected plants

Poultry

USDA Grade "A" is to be used for all graded fresh or frozen poultry or poultry products as a minimum specification. USDA Grade "B" Turkeys may be used as an exception to the above.

Dairy products

The following is to be used as a minimum specification for all graded dairy products:
Butter–USDA Grade "A" (92) score
Milk and Milk Products–USDA Grade "A"
Eggs–Fresh USDA or State Graded "A"
Cheese–USDA Grade "A" for all graded cheese

Fish and seafood

If available, fresh fish and seafood are preferred. Frozen fish must be a nationally distributed brand, packed under continuous inspection of the U.S. Department of Interior.

Canned fruits and fruit juices

USDA Grade "A" (fancy) and Grade "B" (choice) are to be used for all graded fruits and fruit juices as a minimum specification. Grade "C" (standard) may be used for pie-production *only*.

Canned vegetables

USDA Grade "A" (fancy) is to be used for all graded vegetables as a minimum specification. Grade "B" (extra standard) tomatoes may be used when tomatoes are used as an ingredient item.

Other grocery items

All other grocery and condiment items are to be products that are acceptable through wide usage.

Fresh fruit

USDA Fancy to USDA Number "1" are to be used for all graded fresh fruit as a minimum specification.

Fresh vegetables

USDA Fancy or Number "1" are to be used for all graded fresh vegetables as a minimum specification.

Frozen fruits and vegetables

USDA rade "A" is to be used for all graded frozen fruits and vegetables as a minimum specification. A certificate of federal inspection and grading may be requested by authorized Corporate representatives at any time.
Bidder should indicate in proposal if it is his practice to annually conduct Drained Weight tests of canned vegetables, fruits, tomato products, etc. If so, copies of the tests related to the area which would supply the cafeteria must be submitted with the proposal.
If the purchasing procedures of the bidder provide for additional quality control

of products, a listing of the minimum standards are required above, or the specifications for any and all products, should also accompany the proposal.
Bidder should also indicate the policy of disbursement of trade discounts. This should be spelled out as to whether the company or the contractor receives credit for any and all discounts.
If the bidder is receiving a cash discount, which is usually over and above trade discounts, for payment of bills within a specified time limit after merchandise is received (10 days is the usual pattern that determines cash discounts), the bidder shall also indicate method of disbursement and mention whether the company or the contractor is credited with any of these amounts.

Vending

XI If the bidder is proposing on a basis of what is commonly referred to in the industry as a Package Deal, which provides for the contractor to furnish both the manual food service and vending, the bidder should indicate this along with the number of years of experience in the field of vending and his approximate gross sales derived from this phase of the business. If it is the intention of the bidder to subcontract the vending service and maintain control of the subcontractor, the name of the firm selected and its qualifications should also be outlined.

Rates of commissions for all sales of products sold through automatic vending must accompany the bid. Bidder shall agree to limit the number of test drinks from each beverage machine within a given period (period consists of four weeks). Bidder shall also agree to the right of the to take meter readings on all vending machines at any time it so desires. This also includes the right of the to audit the records of the vending sales and related costs.

Bidder shall indicate the type of equipment, name of manufacturer, stating whether equipment is new or reconditioned used items.

Bidder shall agree to make cash refunds to customer where through mechanical failure of the equipment such refunds become necessary. It is understood that this must be brought to the attention of the representative of the contractor at the time such incidents occur.

sample specifications for vending operators

All information requested in this questionnaire *MUST* be furnished by the proposer, and *MUST* be submitted with the proposal. Statements must be complete and accurate and in the form requested and must be sworn to and notarized. Omission, inaccuracy, or misstatement will be cause for the rejection of a proposal.

I Company information

A Name and address of operating company.

B Business to be operated as: (check one) Individual ( ), Partnership ( ), Corporation ( ), Other ( ), explain:

C If a partnership, list full name, address, and other occupation (if any) of each and every partner, whether he is a general or limited partner, his experience in the business, and the proportionate share of the business owned by each.

D If a corporation:

1 List full name, address, and title of each and every officer of the corporation, whether he is full or part time, his experience in the business.

2 List full name, address, and principal occupation of *all* members of the Board of Directors and the amount of stock held by each.

3 List the names and addresses of the principal stockholders and the amount and percentage to total of the stock held by each.
(ATTACH ANSWERS)

E What is the duration and extent of your experience in the operation of vending services? Explain in detail.
(ATTACH ANSWERS)

F Submit a list of similar locations and other locations which you operate vending services and give length of time for each operation.
(ATTACH ANSWERS)

G Do you propose to operate the concession as a part of your business or do you propose to use a subcontractor? Give full details.
(ATTACH ANSWERS)

H References: Give names and addresses of at least 10 references, including 5 references as to financial ability to carry on the business and 5 references as to technical ability to carry on the business. Reference letters from responsible persons may be submitted.
(ATTACH ANSWERS)

I Submit a complete balance sheet or annual report certified by a Certified Public Accountant as of your last fiscal year of operation.

II Equipment and facilities

All equipment and other facilities must be installed entirely by and at the expense of the contractor.

Equipment:

A Equipment both new and used, should be neat and in excellent operating condition.

B All equipment should be the same height so as to give more uniformity in appearance. If necessary adapter kits should be used to achieve such uniformity.

C All equipment should be equipped with coin mechanisms accepting any combination of nickels, dimes, and quarters.

D All equipment should conform to the following specifications (capacity should be specified according to local needs):

1 Candy—from 8 to 20 selections.

2 Freshly brewed coffee, hot chocolate, and soup.

3 Carbonated beverage with crushed ice—8 oz. drink in a 9 oz. cup or 9 oz. drink in a 10 oz. cup, 4-selections.

4 Canned hot foods and soups—7 selections.

5 Sandwiches, hot and/or cold.

6 Pastry, 5 to 15 selections.
7 Multi-Purpose Merchandiser (includes milk and ice cream).

E State terms or conditions pertaining to the furnishing of change facilities (dollar bill and/or coin changer).

F All equipment shall be uniform in color scheme so as to blend most effectively with the decor of the location.

G Any unusual details pertaining to the improvement of the vending equipment as to performance or appearance should be enumerated and explained.

H Pictures and detailed specifications of the equipment to be used should be included in the proposal.

I Pictures and detailed descriptions of other types of equipment or services offered by bidder as part of normal service operations.

J All vendors will have the approval of the local health department and will meet all specifications established by the U.S. Public Health Federation, the National Sanitation Foundation, and in addition, any local or governmental authority having applicable jurisdiction.

The premises and all equipment and facilities must be maintained throughout the life of the agreement in good condition satisfactory to the management, and free and clear of liens, mortgages, and encumbrances, unless otherwise agreed to by management.

Prior to the installation of the equipment and facilities, all items to be installed must be approved in writing by management.

III Personnel

A An adequate number shall be provided to meet the demands of the location.

B Specific skills possessed by service personnel should be enumerated.

C Will be bonded.

D Will be uniformed.

IV Utilities

All utilities, water, and electricity, including outlets, will be furnished by the location.

V Maintenance

The operator will be responsible for all maintenance and repair at his expense, as follows:

A Cleaning and polishing.

B Routine—all equipment will be checked daily and a record of service calls maintained and made available to management.

C Emergency—24 hour maintenance service must be available.

D Preventive—A program of preventive maintenance and regular replacement of worn, damaged, or malfunctioning equipment must be instituted and carried out. This should be described in detail. In order to assure this, each bidder should specify equipment backlog to meet such an exigency.

VI Service and Price

A Service location facilities:
1 Specific street addresses from which supplier will service machines.
2 Detailed description of facilities.
a Shop repair space
b Storage facilities i.e. roominess, neatness, measures established to insure these
c Office area
3 Number of employees.
4 Annual dollar volume.
5 Number of customer company locations in area.
6 Method of service operation—in detail.

B Price:
1 Candy to be vended at

2 Coffee and hot chocolate to be vended at
3 Carbonated beverage with crushed ice to be vended at
4 Canned hot foods and soup to be vended at
5 Sandwiches to be vended at
6 Pastry items to be vended at

C Products to be vended:
A complete listing of all products to be offered for sale by price and supplier should be enclosed with the bid.

VII Hold Harmless

Operator agrees to hold the account, its agents, officers, and employees harmless from any and all damages to property resulting from, or alleged to result from, the activities of the operator or from the operator's acts or omissions. Operator agrees to hold the account harmless from any loss or damage which may arise as a result of the failure of any utility service.

VIII Insurance

Operator agrees to procure, and keep in force during the entire term of the agreement, policies of insurance written on companies acceptable to the account in the following kinds of minimum amounts:

A Public Liability: $100,000 each person, $300,000 each occurrence.

B Property Damage: $75,000 each occurrence.

C Workmen's Compensation Insurance required by location.
(NOTE: Items A and B shall name the location of as coinsured.)

IX Payments and Accounting

A The operator shall pay to the account the percentage of monthly gross sales on or before the 15th of the month following and shall accompany this payment with a detailed explanation of sales and commissions.

B Over-the-Dock Inventory Control.
1 All shipments crossing the loading dock are inventoried into the premises and commissions will be computed and payable based upon this inventory control. The individual responsible for the inventory control will be an employee of the account.
2 All losses incurred in the operation of the vending machines due to theft, fire, accident, spoilage, etc., will be the responsibility of the operating vending company.
3 Any merchandise removed from the premises is likewise inventoried and deducted from the accountability.
4 Warehouse space will be leased from the account. State space required on a square footage basis.

C Internal accounting program:
1 Describe in detail complete accounting procedures:
a Inventory—warehouse and on location.
b Service personnel accounting controls.
c Coin-counting facilities.
2 Method of recording, checking, and reporting sales—
Forms used (include samples).
3 Include all regular accounting forms used with detailed explanation of each and their general importance.
4 Explain your internal audit system.
5 Method of commission payments—explain in detail.
Such other reasonable financial or statistical reports as may be required.

D State financial arrangements on which you plan to operate account.

X Audits and inspection

Authorized representatives of the account may inspect the operator's operations and premises at all times. Authorized representatives of the account may inspect and audit the books and records of the operator at any or all reasonable times.

XI **No transfer or subleases**

No assignment, transfer, or hypothecation of the operating agreement may be made in whole or in part without the written consent of the account being first had and obtained.

XII **Cancellation of operating agreement**

Account may cancel the agreement at any time upon 30 days written notice for any one or more of the following reasons:

A Failure to pay the monthly payment due on or before the 15th day of each month.

B Quality of services required unsatisfactory to the account after service of a 10-day notice to correct, including any cessation or diminution of service including, but not limited to, failure to maintain adequate personnel whether arising from labor disputes or otherwise.

C Maintenance of facilities and equipment unsatisfactory after a 15-day notice to correct.

D Any substantial change in ownership or proprietorship of operator which in the opinion of the account is not in its best interests.

E Failure to comply with any terms of the agreement after reasonable notice to correct.

sample contract
appointment of agent
for food service management

This Agreement, made this_____day of_____, 196 , by and between _____, Principal, a corporation organized and existing under the laws of the State of_____, having its principal office at_____, City of_____, hereinafter designated as the "School" and Canteen Corporation, Agent, a Delaware corporation with its principal offices at 1430 Merchandise Mart, Chicago, Illinois 60654, hereinafter referred to as "Canteen." 57

In consideration of the mutual promises and covenants herein contained the parties hereto hereby agree as follows:

1 The School hereby appoints Canteen as exclusive agent to manage the cafeteria which School owns and operates at the above address for the exclusive use of its faculty and students, and Canteen hereby accepts such appointment.

2 Canteen shall use such space, equipment, fixtures, china, crockery, glass, tableware and kitchen utensils, and utilities provided by the School as may be reasonably necessary for the efficient management of the described cafeteria, and shall supervise all cleaning and use of such items. School will maintain, repair and replace said equipment and fixtures and will assume responsibility for garbage removal as well as the maintenance of the building, including regular care and cleaning of the floors, light fixtures, walls and windows.

3 The variety of hot and cold foods, beverages and confections sold by the School, the prices charged by the School and the portions served shall all be determined by the School. All food service personnel in the cafeteria shall be subject to the approval of the School and shall comply with all rules and regulations issued by the School.

4 All food for sale in the cafeteria shall be owned by the School and all sales of food shall be made directly by the School to its faculty and students. Canteen shall participate in such sales only as an agent for the School, acting for, on behalf and in the name of the School.

5 Canteen shall indemnify School against any loss or damage (including attorney's fees and other costs of litigation) caused by Canteen's negligent acts or omission or the negligent acts or omissions of Canteen's agents or employees. Canteen expressly agrees to defend any suit against School alleging personal injury, sickness or disease arising out of the consumption or use of the merchandise sold, as well as any loss resulting from pilferage by Canteen's employees.

School shall promptly notify Canteen in writing of any claims against either Canteen or School, and in the event of a suit being filed, shall promptly forward to Canteen all papers in connection therewith. School shall not incur any expense or make any settlement without Canteen's consent; provided however, that if Canteen refuses or neglects to defend any such suit, School may defend, adjust, or settle any such claim and the costs of such defense, including reasonable attorney's fees to be charged to Canteen's account.

6 Canteen will procure and maintain the following insurance:

(a) Workmen's Compensation Insurance as prescribed by the laws of the State in which the described shall be located;

(b) Comprehensive Bodily Injury and Property Damage Liability Insurance, including bodily injury and property damage caused by automobiles, with limits of $300,000 for injury or death of any one person; $500,000 for injury or death of two or more persons in any one accident; and $100,000 for property damage in any one accident.

Canteen shall furnish School such evidence of insurance, including insurance covering Canteen's contractual liability hereunder as School may reasonably require.

7 All records pertaining to the service hereunder shall be kept on file by Canteen for a period of three (3) years from the date the record is made.

8 Canteen will select and dismiss all employees, in accordance with the policies, rules and regulations, promulgated by School. Employees furnished by Canteen must be acceptable to School. School agrees that no employee of Canteen will be hired by School without the express permission of Canteen for the period of this contract and six (6) months thereafter.

9 Equipment, if any, furnished by Canteen shall remain the property of Canteen, who shall have the right to remove same at any time.

10 Canteen agrees to comply with all federal, state and local laws and regulations governing the preparation, handling, and serving of foods, and to procure and keep in effect all necessary licenses, permits and food handler's cards, and agrees to post within the catering areas in a prominent place such permits and/or notices as are required by law. Canteen agrees to comply with all applicable federal, state and local laws and regulations pertaining to wages and hours of employment.

11 School shall provide all products, merchandise and supplies reasonably required to carry out the terms of this agreement, and Canteen agrees to assist School in ordering said products. The cost of the foregoing shall be paid for out of the School's operating fund.

12 Canteen shall be paid for its services $_____, per period. Each period will consist of four (4) consecutive weeks.

13 Within ten (10) days of receipt of Canteen's four-week accounting statement, School will reimburse Canteen for the cost of labor, insurance, licenses, any other operating expense, and $_____ as an indirect overhead charge for general and administrative expenses as well as the fee described in paragraph above.

14 This Agreement constitutes the entire agreement between the parties with respect to the subject matter hereof and there are no other or further written or oral understandings or agreements with respect thereto. No variation or modification of this Agreement and no waiver of its provisions shall be valid unless in writing and signed by the duly authorized officers of Canteen and School.

15 This Agreement shall be effective as of_____.

16 Term and Notices: This Agreement shall continue for a period of one year from its effective date and thereafter from year to year, provided, however, that either party may at any time during the life of this Agreement or any extension thereof terminate this Agreement by giving ninety (90) days notice in writing to the other party of its intention to so do. All notices to School shall be addressed to it at _____and all notices to Canteen shall be addressed to the Secretary of Canteen Corporation, Merchandise Mart, Chicago, Illinois, 60654.

suggested references

Trade publications

Cooking for Profit
1202 South Park Street
Madison, Wisconsin 53715

Fast Food Magazine
630 Third Avenue
New York, New York 10017

Food Engineering
540 North Michigan Avenue
Chicago, Illinois 60611

Food Processing
111 East Delaware Place
Chicago, Illinois 60611

Food Service Equipment Dealer
95 East Putnam Avenue
Greenwich, Connecticut 06830

Food Service Magazine
2132 Fordem Avenue
Madison, Wisconsin 53704

Institutional Distribution
630 Third Avenue
New York, New York 10017

Institutions Magazine
1801 South Prairie Avenue
Chicago, Illinois 60616

School Lunch Journal
4101 East Iliff
Denver, Colorado 80222

Vend Magazine
188 West Randolph Street
Chicago, Illinois 60601

Volume Feeding Management
205 East 42nd Street
New York, New York 10022

Selected books

Brodner, Joseph, Carson, Howard M., and Maschal, Henry T. *Profitable Food and Beverage Operation*. New York: Ahrens Publishing Company, 1962.

Dukas, Peter, and Lundberg, Donald. *How To Operate A Restaurant*. New York: Ahrens Publishing Company, 1960.

Horwath, Ernest B., and Horwath, Edmund J. *Uniform System of Accounts for Restaurants*. Chicago: National Restaurant Association, 1963.

Kotschevar, Lendal H. *Quantity Food Purchasing*. New York: John Wiley & Sons, Inc., 1961.

Kotschevar, Lendal H., and Terrell, M. E. *Food Service Planning, Layout and Equipment*. New York: John Wiley & Sons, Inc., 1961.

Special reference

School Lunches and Other School Feeding Programs 1962—July 1967 A list of selected references, Library List No. 88, National Agricultural Library, United States Department of Agriculture, Washington, D.C. 20250.

other reports from EFL

The following publications are available without charge from the offices of EFL: 477 Madison Avenue, New York, New York 10022.

Bricks and Mortarboards.
A guide for the decision-makers in higher education: how the colleges and universities can provide enough space for the burgeoning enrollments of this decade; how the space can be made adaptable to the inevitable changes in the educational process in the decades ahead. (One copy available without charge. Additional copies $1.00.)

College Students Live Here.
A report on the what, why, and how of college housing; reviews the factors involved in planning, building, and financing student residences.

The Cost of a Schoolhouse.
A review of the factors contributing to the cost and effectiveness of schoolhousing, including planning, building, and financing.

Design for ETV—Planning for Schools With Television.
A report on facilities, present and future, needed to accommodate instructional television and other new educational programs. Prepared for EFL by Dave Chapman, Inc., Industrial Design.

Relocatable School Facilities.
A survey of portable, demountable, mobile, and divisible schoolhousing in use in the United States and a plan for the future.

The Schoolhouse in the City.
EFL's annual report for 1965 and an essay on how the cities are designing and redesigning their schoolhouses to meet the problems of real estate costs, population shifts, segregation, poverty, and ignorance.

The School Library.
A report on facilities for independent study, with standards for the size of collections, seating capacity, and the nature of materials to be incorporated.

School Scheduling by Computer/
The Story of GASP.
A report of the computer program developed by MIT to help colleges and high schools construct their complex master schedules.

SCSD: The Project and the Schools.
A second report on the project to develop a school building system for a consortium of 13 California school districts.

To Build or Not To Build.
A study of the utilization of instructional space in small liberal arts colleges, with a do-it-yourself workbook for the individual use of the institutions that wish to survey their own utilization levels.

The Impact of Technology On the Library Building.
A position paper reporting an EFL conference on this subject.

profiles of significant schools

A series of reports which provide information on some of the latest developments in school planning, design, and construction.

Schools Without Walls—open space and how it works

Three High Schools Revisited: Andrews, McPherson, and Nova

Middle Schools—controversy and experiment

case studies of educational facilities

A series of reports which provide information on specific solutions to problems in school planning and design.

6. A College Health Center.
Case study of a model center for small private colleges; architectural design by Caudill, Rowlett & Scott.

8. The Schools and Urban Renewal.
A case study of the Wooster Square renewal project in New Haven, Connecticut.

9. Air Structures For School Sports.
A study of air-supported shelters as housing for playfields, swimming pools, and other physical education activities.

10. The New Campus In Britain: Ideas of Consequence for the United States.
Recent British experience in university planning and its implications for American educators, architects, and planners.

11. Divisible Auditoriums.
Operable walls convert little-used auditoriums and theaters into multipurpose, highly utilized space for the performing arts and instruction.

12. The High School Auditorium:
Six Designs for Renewal. Renovation of little-used auditoriums in old and middle-aged schools to accommodate contemporary educational, dramatic, and music programs.

technical reports

2. Total Energy—On-site electric power generation for schools and colleges, employing a single energy source to provide light, heat, air conditioning, and hot water.

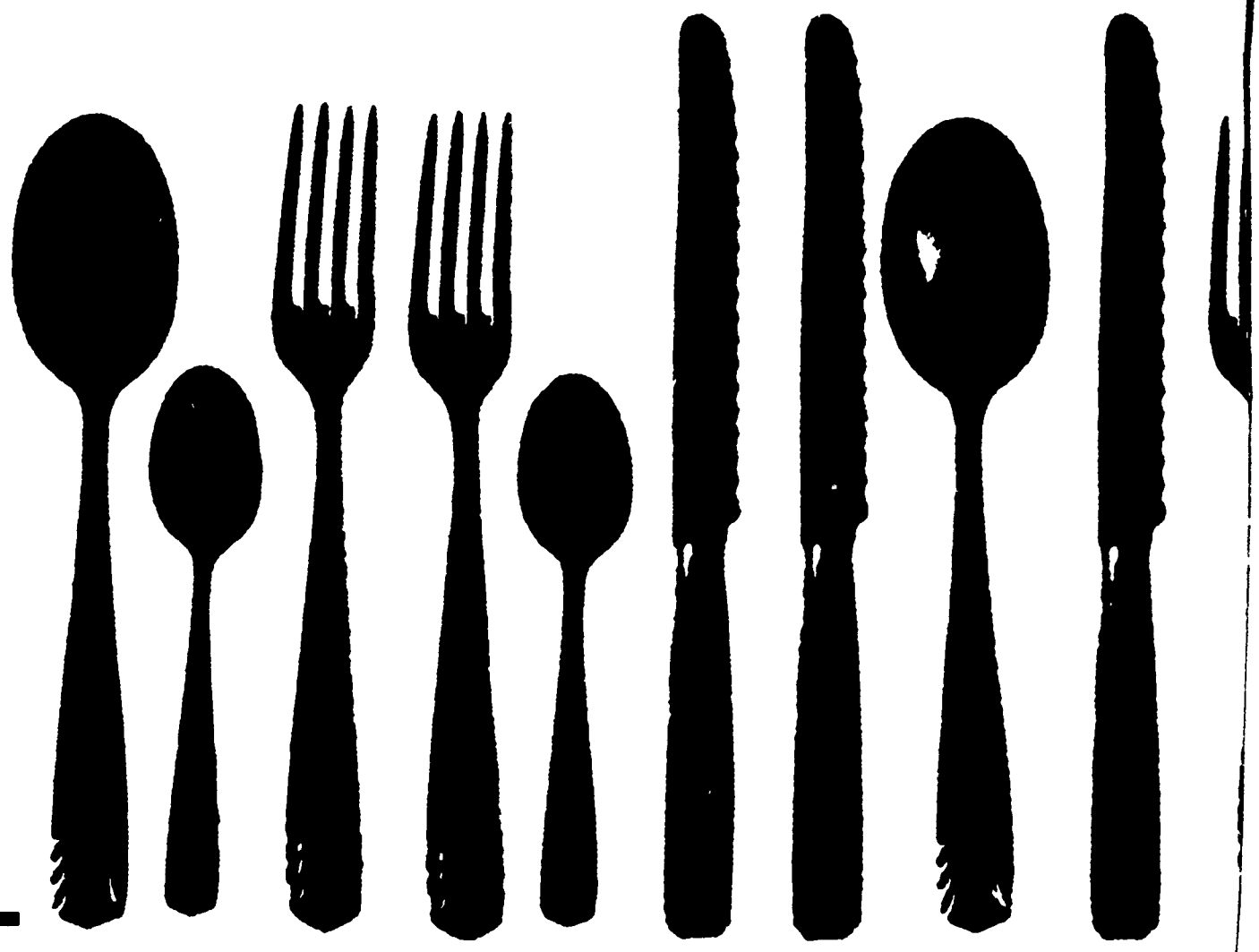
college newsletter

A periodical on design questions for colleges and universities.

Credits

Edited by Gaila Coughlin
Designed by Michel Goldberg
Printed by Georgian Lithographers, Inc.

TR no 3



EFL