Lesson 5:
Central Kitchens

Objectives

At the completion of this lesson, students will be able to:

1. Identify situations where a centralized foodservice system with a central kitchen would be most appropriate.
2. Describe the nature of the work of employees in a central kitchen and how it differs from that of a conventional foodservice system.
3. Discuss strategies that can be used to reduce or eliminate negative impacts of work in a central kitchen on employees.
4. List some positions (job titles) that would be needed in various functional areas of a central kitchen.
5. Draw the product flow for a central kitchen.
6. Identify the control points and critical control points for a central kitchen.
7. Describe strategies that would be used to ensure food safety.
8. Describe differences in equipment for a central kitchen compared to a conventional foodservice system.
9. Describe factors that influence warehouse needs for a central kitchen.
10. Describe transportation issues that a manager of a central kitchen needs to consider.

Student Reading Assignment

A Guide to Centralized Foodservice Systems, Chapters 8 and 9

Presentation Outline

Estimated time: This classroom presentation will require two 50-minute class periods. If instructors engage in questioning and class participation and incorporate learning activities, additional sessions would be required.

I. Definition
II. Human resource issues
    A. Employee expectations and fears
    B. Nature of the work
    C. Employee safety
    D. Training
    E. Scheduling
    F. Staffing
III. Layout and design of the facility
    A. Efficient work flow
    B. Typical functional areas
IV. Food safety
    A. Prerequisite programs for HACCP
    B. Role in human resource activities
    C. HACCP principles
    D. HACCP in all functional areas
V. Equipment
    A. Typical equipment by functional area
    B. Equipment issues
VI. Purchasing
VII. Planning the warehouse
VIII. Transportation
IX. Waste management
X. Other operational issues

Suggested Learning Activities

1. Plan a field trip to a centralized foodservice system that uses a central kitchen for food production. Have students make several planned observations in the facility, including the nature of the work of various employees, product flow, equipment used in the central kitchen, warehousing of food and supplies, storage of prepared food, and transportation of food. (Estimated time: 2 hours) Discuss students' observations in class. (Estimated time: 1 hour)

2. Assign students to observe central kitchen employees in different functional areas: bakery, hot food production, cold food production, and packaging (as appropriate). Based on the work activities identified on p. 109 of *A Guide to Centralized Food Production*, identify activities in which employees are engaged that may have some potential health hazards and how the central kitchen/work has been designed to minimize these hazards. Visit the Occupational Health and Safety Administration's Web site (www.osha.gov) to research these work activities. Have students develop strategies that might improve working conditions for these employees. Have students share those strategies with the class and discuss how the work of employees in central kitchens differ from that of employees in conventional foodservice systems. (Estimated time: 2 hours)

3. Take students on virtual tours of different types of centralized foodservice systems using the PowerPoint® presentations accompanying these lessons. There are several examples: Elko, NV represents a small central kitchen that pre-plates food; Minneapolis, MN is a large central kitchen that pre-plates food; and St. Paul, MN and Jefferson County, KY are large systems that use cook/chill systems and transport food in bulk. After viewing the slides from those operations, have students compare and contrast the different foodservice systems. (Estimated time: 1 hour)

4. Have students search trade publications such as *Food Management*, *Restaurants & Institutions*, and *Foodservice Equipment & Supplies* for examples of centralized foodservice systems (such as cook-chill) used in foodservice operations. Have students share examples of where and how centralized foodservice is used in various segments of the foodservice industry. (Estimated time: 30 minutes)

5. Have students identify the product flow and control points for a centralized foodservice system with a central kitchen. Select a menu item, such as spaghetti sauce or taco filling, and have students identify the critical control points for those items. (Estimated time: 30 minutes)

6. Provide students with a recipe for an item prepared in a central kitchen. You can use the *1988 USDA Quantity Recipes for School Food Service*, the 1995 USDA *Tool Kit for Healthy School Meals, Food for Fifty,* or another quantity recipe book. Have students identify the critical control points for the recipe and indicate where on the recipe information needs to be added to ensure food safety. Have students share with the class. After students have completed this exercise, refer them to the *USDA Recipes for Child Nutrition Programs*, available at www.nfsmi.org. These recipes recently have been revised to include critical control points and critical limits. (Estimated time: 30 minutes)

7. Have students create a plan for developing a HACCP program for a central kitchen. They would need to discuss the steps required, standard operating procedures needed, records that need to be maintained, etc. Students also should include procedures that would be needed at the receiving kitchens. (Estimated time: 30 minutes)

Examination Questions

Short Answer

1. List three positions that might be needed in the kitchen production area (could substitute central office, warehousing/transportation, or maintenance/sanitation).

   A. _____

   B. _____

   C. _____

2. Draw a basic food flow for a foodservice system that uses a central kitchen. Based on the food flow, identify the control points. For nacho cheese sauce, what are the critical control points?

Discussion

1. Describe two situations where a central kitchen would be the most appropriate choice for meeting the foodservice needs of a school district.

2. The work for employees in central kitchens may be different from that of employees in conventional, on-site kitchens.

   A. Describe how the work may differ for the two types of foodservice systems.
   B. What strategies might a central kitchen manager implement to minimize or eliminate negative impacts of the work on employees?

3. In planning a central kitchen, procedures for ensuring food safety are planned. What strategies might be used to ensure food safety?

4. You are planning for a central kitchen in your school district. In planning the bakery area, you realize that the equipment for the central kitchen will be different from that used currently in the schools. This will require employee training and will change the work of those working in the bakery area. Discuss the differences in equipment for a conventional and centralized foodservice system.

5. You are the foodservice director in a school district that is growing rapidly. You are considering the feasibility of a central kitchen for your district.

A. What factors would you need to consider in determining the warehouse needs for your school district?
B. What transportation issues would need to be considered?

Answers to Examination Questions

Short Answer

1. List three positions that might be needed in the kitchen production area (could substitute central office, warehousing/transportation, or maintenance/sanitation).

   Could include cooks, assistant cooks, production workers, bakers, bakery assistants, packaging/assembly workers, catering manager.

2. Draw a basic food flow for a foodservice system that uses a central kitchen. Based on the food flow, identify the control points. For nacho cheese sauce, what are the critical control points?

   See flow chart on p. 114. Each of these steps would be control points. Critical control points are those cooking, cooling, and reheating.

Discussion Questions

1. Describe two situations where a central kitchen would be the most appropriate choice for meeting the foodservice needs of a school district.

   Responses would address issues such as rapid growth in a district, large numbers of students to serve, labor shortages, facility and equipment limitations at schools, etc.

2. The work for employees in central kitchens may be different from that of employees in conventional, on-site kitchens.

   A. Describe how the work may differ for the two types of foodservice systems.

      Employees in central kitchens may experience more heavy lifting, more repetitive and monotonous movements, higher noise levels, larger equipment that requires more reaching, refrigerated work environments, and more rigorous standards than their counterparts in conventional foodservice systems.

   B. What strategies might a central kitchen manager implement to minimize or eliminate negative impacts of the work on employees?

      The facility could be designed to ensure appropriate heights of work surfaces, distance for reach, work surfaces, distance for transporting materials, and flooring surfaces. Labor-saving devices, such as hoists and portioning equipment, could be

installed. Employees can be rotated or given frequent stretch breaks when they are assigned to areas requiring repetition. Use of a safety consultant, safety committee, safety teams, safety manual, and training also can minimize or eliminate negative impacts in the work environment.

3. In planning a central kitchen, procedures for ensuring food safety are planned. What strategies might be used to ensure food safety?

   Strategies for ensuring food safety include things such as purchasing equipment that is National Sanitation Foundation (NSF) certified and easy to clean, training employees, developing standard operating procedures, providing appropriate equipment such as thermometers and temperature recording devices to document temperatures, using a HACCP team, implementing a HACCP program, supervising employees, and doing follow-up to ensure that all policies and procedures are followed.

4. You are planning for a central kitchen in your school district. In planning the bakery area, you realize that the equipment for the central kitchen will be different from that used currently in the schools. This will require employee training and will change the work of those working in the bakery area. Discuss the differences in equipment for a conventional and centralized foodservice system.

   For a central kitchen, the equipment will be more mechanized than it would be for a conventional kitchen because of the quantity of product produced. For example, bowl lifts, batter depositors, portioning equipment for cookies and rolls, and other equipment (such as a cinnamon roll dough roller and cutter or donut fryer) will be purchased for a central kitchen in which large quantities of baking are done. Employees will require training on using the new equipment and processes.

5. You are the foodservice director in a school district that is growing rapidly. You are considering the feasibility of a central kitchen for your district.

   A. What factors would you need to consider in determining the warehouse needs for your school district?

      The size of the warehouse would depend on the menu, number of meals served, purchasing methods, commodity usage and delivery schedule, and future needs. In addition, the manager would need to consider the location of the warehouse in relation to the central kitchen, layout and design of the warehouse, inventory control methods, and staffing.

   B. What transportation issues would need to be considered?

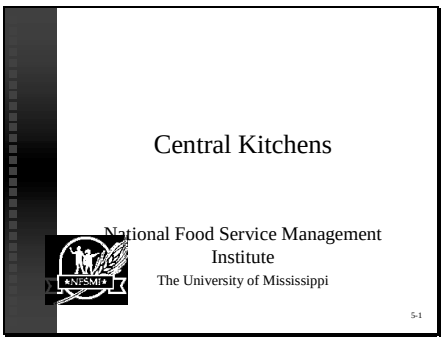
      Transportation issues include trucks (number, refrigeration, type of fuel), drivers, delivery schedules (receiving kitchen work schedules, scheduling around playground and bus schedules at schools, traffic, and access to secured buildings), facilities, communication, and contingency plans.

Examination Items by Objective

Objective 1 Discussion question 1
Objective 2 Discussion question 2A
Objective 3 Discussion question 2B
Objective 4 Short answer question 1
Objective 5 Short answer question 2
Objective 6 Short answer question 2
Objective 7 Discussion question 3
Objective 8 Discussion question 4
Objective 9 Discussion question 5
Objective 10 Discussion question 6

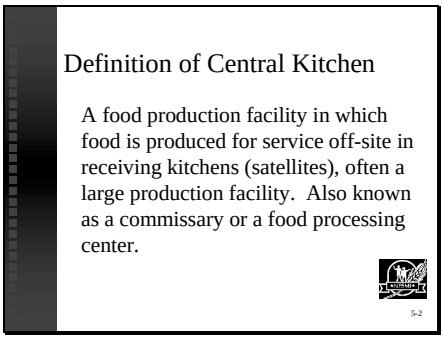
Lesson 5 Slide Notes

Slide 1



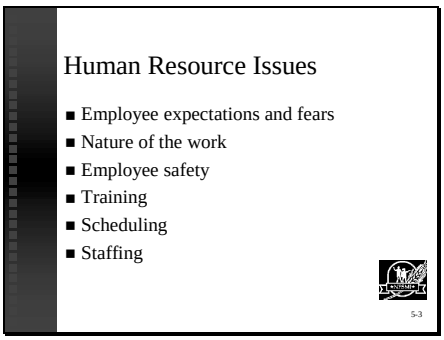
Note: These slides were developed to accompany Chapter 9, Central Kitchens. There also are slides related to Chapter 8, Food Safety in Centralized Foodservice Systems.

Slide 2



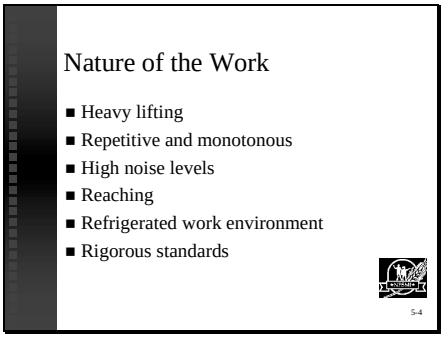
The definition of a central kitchen is presented. A central kitchen may also be called a commissary or a food processing center.
Refer to Glossary, p. 189.

Slide 3



There are many human resource issues hat must be considered when planning and implementing a centralized foodservice system. Employee expectations and fears often are challenging because most people fear change. Employees need to be considered when making a major change, and communication with and preparation of employees when making a system change will be critical for a successful transition.
Refer to pp. 107-108.

Slide 4



The nature of the work will differ in centralized foodservice systems compared to conventional foodservice systems. Usually large package sizes are purchased and larger equipment is used, which may increase heavy lifting for employees. Jobs may be more repetitive and monotonous, noise levels may be higher, and more reaching may occur in central kitchens. Some central kitchens have refrigerated work environments that may be more stressful for employees. Standards in central kitchens are rigorous.
Refer to pp. 108-109.

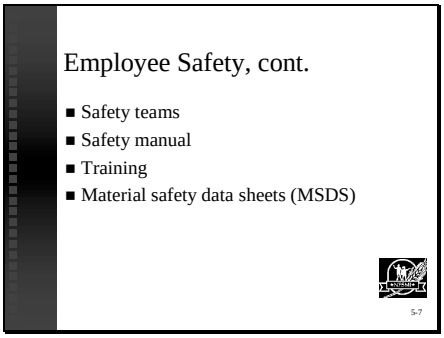
Slide 5

There are many facility design issues that should be considered when planning a central kitchen. Ergonomic considerations such as height of work surfaces, distances for reaching, sharp edges, and transportation distances can improve employee safety and health. Flooring surfaces should be durable, yet non-slippery.
Refer to pp. 109-111.

Slide 6

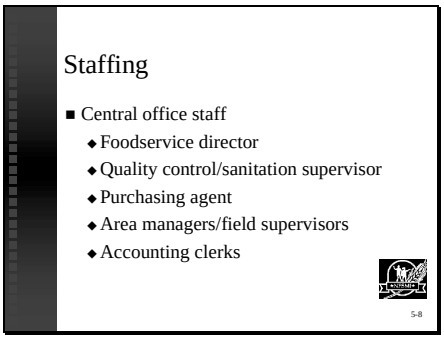
Continued from slide 5.

Slide 7



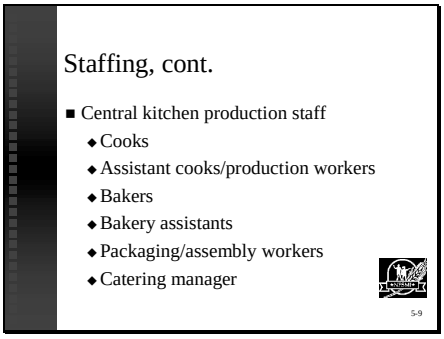
Continued from slides 5-6.

Slide 8



Staffing for a central kitchen may differ slightly from that of a conventional oodservice system. Here are some examples of positions that might comprise a central office staff.
Refer to p. 112.

Slide 9

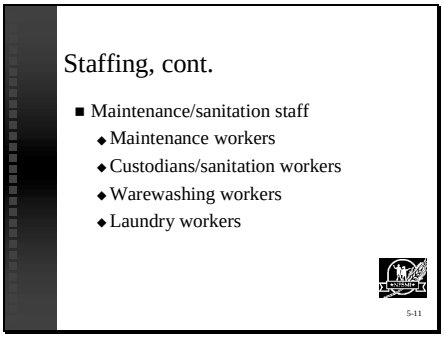


The central kitchen food production staff may require some employees with greater skills than would be used in a conventional system. For example, a baker may be required. Here are some examples of position titles.
Refer to p. 112.

Slide 10

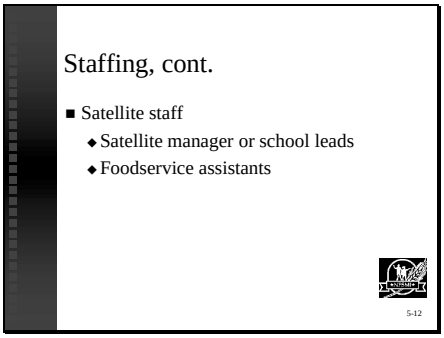
Usually there is a central warehouse located at the central kitchen facility. Staff positions required may include arehouse supervisor, warehouse workers, forklift operator, and truck drivers.
Refer to p. 112.

Slide 11



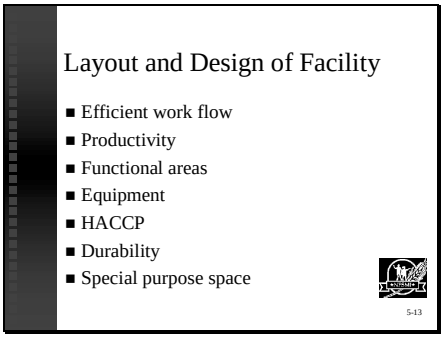
Maintenance and sanitation staff members are important for a central kitchen. Here are some examples of position titles that may be used in that functional area.
Refer to p. 112.

Slide 12



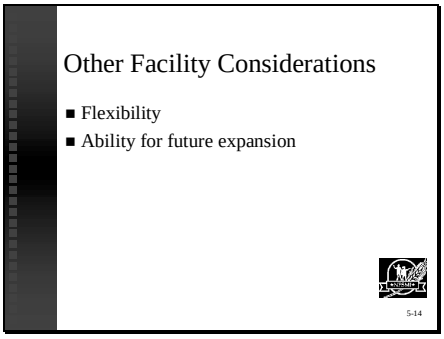
Fewer staff members will be required at the receiving kitchens or satellites.
Refer to p. 113.

Slide 13



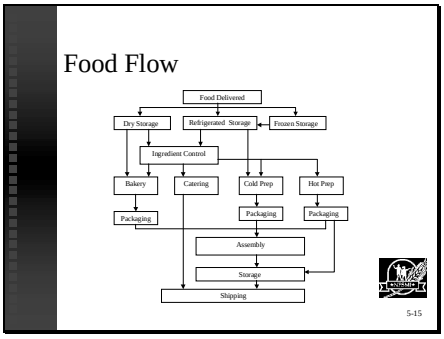
The layout and design of the central kitchen is based on many factors. Discuss each of the factors.
Refer to pp. 113-117

Slide 14



Continued from slide 13.

Slide 15

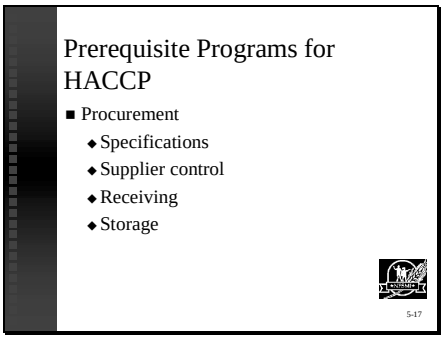


The food flow is critical to the productivity and efficiency of the operation and to the HACCP program. Discuss the possible flow of food using this diagram.
Refer to pp. 114-115.

Slide 16

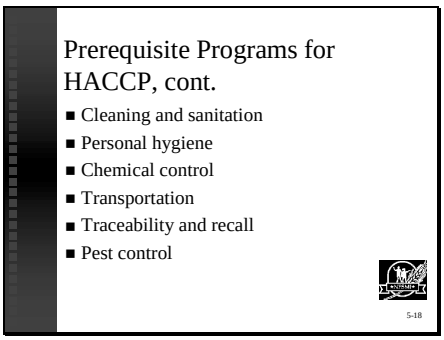
The major functional areas of a central kitchen are listed. These functional areas may vary depending on decisions specific to an operation.
Refer to pp. 118-119.

Slide 17



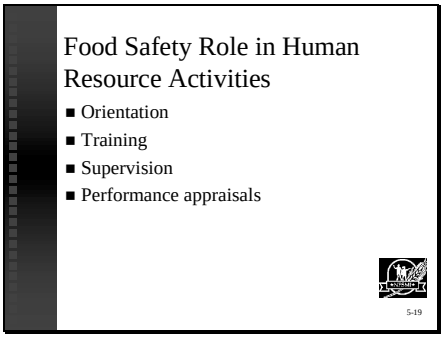
Food safety and the implementation of HACCP programs will be critical for central kitchen operations. Prerequisite programs for HACCP will need to be in place in the operation. Discuss these prerequisite programs related to procurement.
Refer to pp. 83, 87.

Slide 18



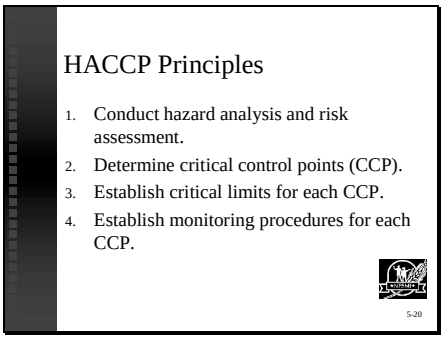
Other areas in which prerequisite programs are needed are listed.
Refer to pp. 83, 88-90.

Slide 19



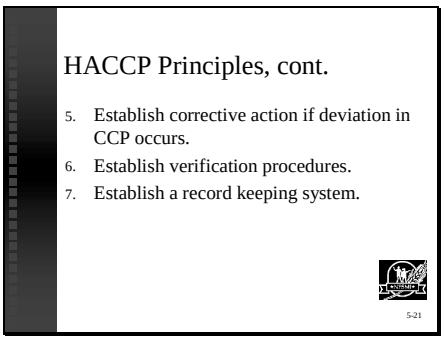
Food safety has an important role in human resource activities. Food safety should be an integral component of employee orientation, training, and supervision. Performance appraisals of employees should include food safety as one criterion of performance.
Refer to p. 91.

Slide 20



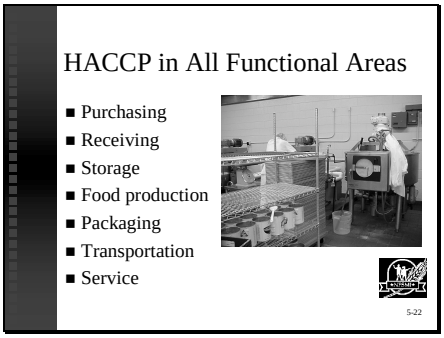
HACCP programs must be in place in central kitchens. Discuss the seven HACCP principles.
Refer to pp. 94-98.

Slide 21



Continued from slide 20.

Slide 22

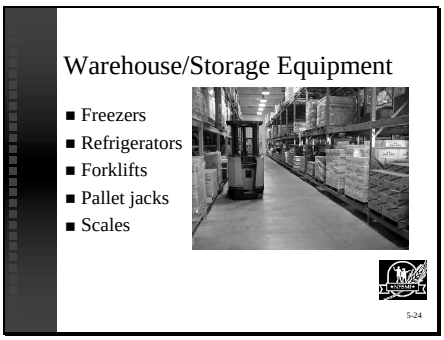


HACCP is applied to all of the functional areas in a central kitchen. Ask students to provide examples from each functional area.
Refer to pp. 87-90.

Slide 23

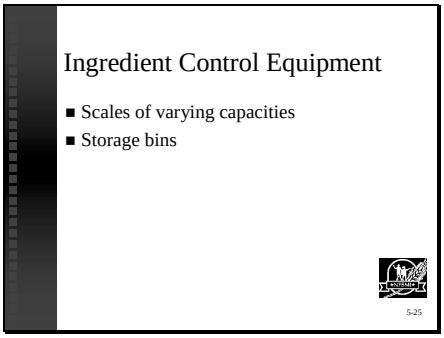
Central kitchens often have some unique equipment in the various functional areas.
Refer to pp. 118-120.

Slide 24



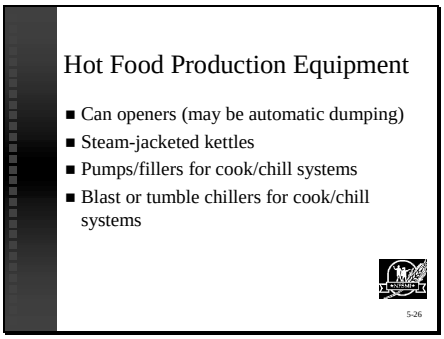
In the warehouse and storage area, there is need for freezers and refrigerators. In addition forklifts, pallet jacks, and hoists/lifts may be used. Scales are needed for the receiving function.
Refer to p. 119.

Slide 25



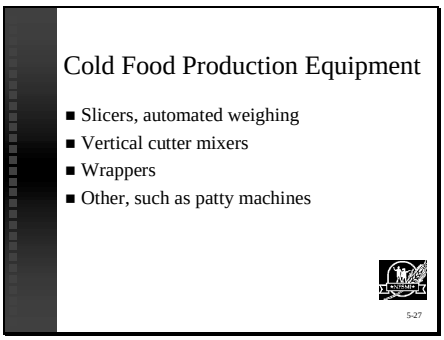
Some central kitchens have an ingredient control room or area where ingredients are weighed or measured. In those areas, there is need for scales of varying capacities and storage bins on wheels.
Refer to p. 119.

Slide 26



The hot food production area has varying needs for equipment depending on whether food is sent out hot or chilled. This functional area needs can openers (many of which will automatically dump the ingredients) and steam-jacketed kettles or cook tanks. If a cook/chill system is used, there need to be pumps/fillers and either a blast or a tumble chiller.
Refer to p. 119.

Slide 27



In the cold food production area, the equipment needs vary based on how food is purchased. Most of these areas have slicers, and many of those are automated with automated weighing and portioning. There may also be a need for vertical cutter mixers, wrappers, and other specialized equipment such as patty machines.
Refer to p. 119.

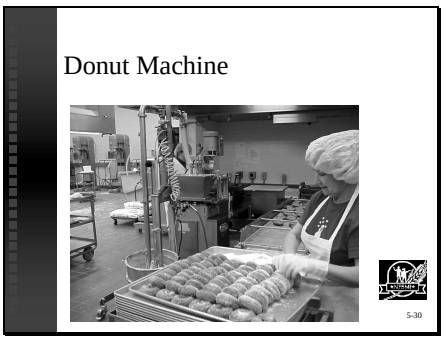
Slide 28

The equipment needs in the bakery area are fairly consistent among the different operations. Mixers, proofers, and ovens are used in most bakery areas. Other equipment needed might include depositors, dough rollers, and donut fryers.
Refer to p. 119.

Slide 29

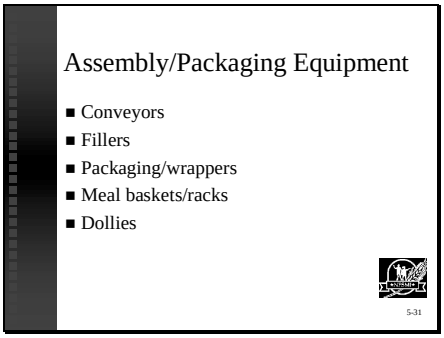
This is an example of a bakery area in a large central kitchen. Racks of French bread are on the left and roll-in ovens on the near right.

Slide 30



This bakery area has equipment for depositing and frying donuts. The depositor is in the center, and the conveyor fryer is along the right of the picture. In the background there are two large mixers.

Slide 31



The equipment needs in the assembly/packaging area vary greatly depending on whether the central kitchen transports food pre-plated or in bulk. Equipment listed here will be found in foodservice systems that pre-plate meals.
Refer to p. 119.

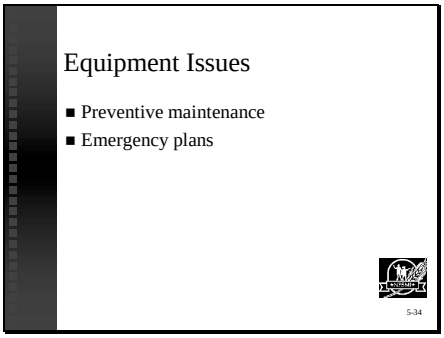
Slide 32

This is the packaging area in a large central kitchen.

Slide 33

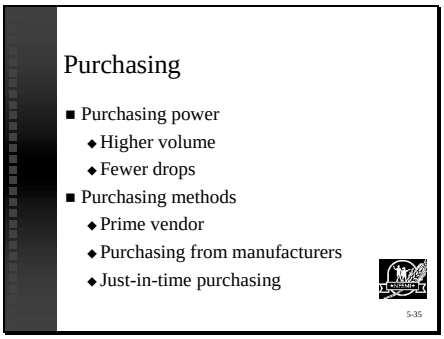
Equipment for sanitation is fairly standard for central kitchens. Three-compartment sinks or dishwashing machines are used for warewashing. Cart washers are available in most operations. They are located near the loading dock where carts are returned from the receiving kitchens.
Refer to p. 119.

Slide 34



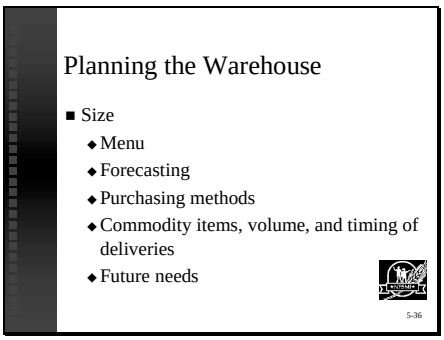
Two major equipment issues must be addressed. Preventive maintenance is important in a central kitchen to avoid work delays that may prevent getting meals transported on time. Also, there is a need to have an emergency plan in place because of the impact of work delays at the central kitchen.
Refer to p. 120.

Slide 35



Purchasing techniques change for centralized operations, although they vary greatly among the school central kitchens. Discuss some of the ways that purchasing power and methods change purchasing for centralized foodservice systems.
Refer to pp. 120-121.

Slide 36



Warehousing of food and supplies is an important component of a central kitchen. There are many factors that need to be considered when planning the warehouse. The size of the warehouse needed varies depending on the menu, forecasting techniques, purchasing methods, and commodity items used and their delivery schedule. Future needs of the school district and changes in food products should be considered in planning the size of the warehouse. Many school districts have had to add space at a later date, particularly freezer space as more and more food items are purchased frozen.
Refer to p. 122.

Slide 37

Planning the Warehouse, cont.

- Location of warehouse
- Layout and design
- Inventory control
  - Perpetual inventory
  - Physical inventory
  - Inventory turnover
- Staffing

5-37

Other factors about the warehouse to consider include location, layout and design, inventory control, and staffing. Refer to pp. 122-124.

Slide 38

Transportation

- Trucks
  - Number
  - Refrigeration
  - Type of fuel
  - Purchase or lease

5-38

Transportation is needed to take food to receiving kitchens. There are many decisions about trucks that need to be made: number required, need for refrigeration, type of fuel, and whether they are purchased or leased. Refer to p. 124.

Slide 39

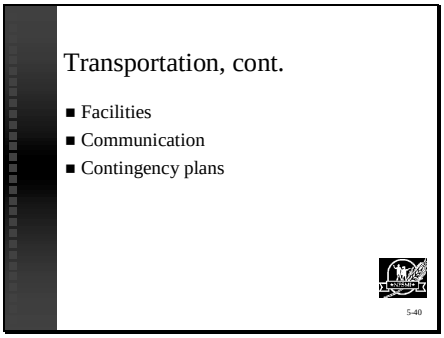
Transportation, cont.

- Drivers
- Delivery schedule
  - Receiving kitchen work schedules
  - Scheduling of playground and buses
  - Traffic
  - Access to secured buildings

5-39

Truck driver is a new position for many school foodservice operations. Delivery schedules also need to be planned carefully to ensure timely deliveries to the receiving kitchens. Refer to pp. 124-125.

Slide 40

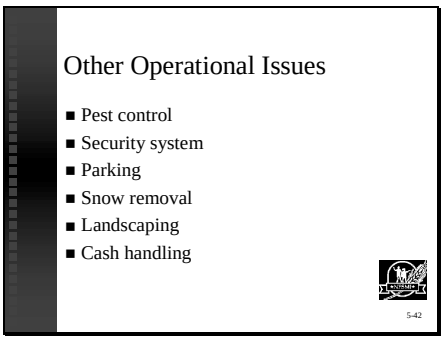


Other issues related to transportation include the satellite facilities, communication between the drivers and the central kitchen, and contingency plans.
Refer to p. 125.

Slide 41

A central kitchen generates a large quantity of waste. Decisions have to be made about what can be recycled and how to dispose of food waste and grease. Costs for waste removal can be expensive in some areas, and there are environmental concerns.
Refer to pp. 125-126.

Slide 42



There are many other operational issues that must be considered in planning and implementing a central kitchen. Discuss each of these issues and how they may differ from a conventional foodservice system.
Refer to pp. 126-127.