Design & Layout of Foodservice Facilities

Chapter 5

Chapter 5 Overview

This Chapter:

- Describes the desirable relationships between the component parts of a work area in a food facility
- Develops the methods for analyzing a layout and lists the features that should be included in each work area
- Illustrates typical layouts for each functional area of a foodservice operation

Applying Design Principles to Layout: Access to Raw Materials

The "Assembly line" model is common in foodservice design:

Hospital tray line

Fast food restaurants



RAW INGREDIENTS (PARTS)

Applying Design Principles to Layout: Access to Raw Materials

A salad/cold food preparation area with access to raw materials:



Applying Design Principles to Layout: Access to Raw Materials



This final preparation area provides a reach-in refrigerator next to the grill to store hamburger patties and a reach-in freezer next to the fryers for frozen French fries.

Applying Design Principles to Layout: Flow of Materials and Personnel



Applying Design Principles to Layout: Flow of Materials and Personnel



Applying Design Principles to Layout: Access to Utensils and Equipment

Example of Access: Design that provides "parking spaces" for racks and carts in a preparation area



Applying Design Principles to Layout: Access to Utensils and Equipment

- Utensil drawer in each worktable, for each employee, or one drawer for each 4 linear feet of worktable
- Overhead utensil racks (ceiling-hung) in hot-food and coldfood preparation areas & near steam-jacketed kettles for paddles or wire whips
- Shelving under each worktable for larger utensils
- Wall-hung over shelf above each table
- Racks for mixer parts and bowls

- Large racks in bakery, hot-food preparation, and salad preparation areas for sheet pans, baking pans, and other large utensils
- Special storage racks for food processor blades and parts
- Large rack or special storage room for catering supplies
- Knife rack in each preparation area

Applying Design Principles to Layout: Ease of Sanitation

Wall hung tables, with tall backsplashes, are easy to keep clean and sanitary



Applying Design Principles to Layout: Ease of Sanitation





Layout – Dish Area Configurations





Equipment Mounting Approaches Pros and Cons

Concrete Bases	Close and seal areas where insects congregate	Lack of flexibility
Small Steel Legs	None (though standard on most equipment)	6" height prevents ease of cleaning
Stands	Provide open spaces for mopping/cleaning	Area around legs hard to clean
Casters	Utility connections must be quick-disconnect	Flexibility; easy to clean
Wall-Hung	Easily cleaned surfaces and underneath	Expense
Pedestal	Close and seal; provides utility chase	Difficult to change

Equipment Mounting Approaches Stands

		CONVECTION OVE	EN-
SPREADER- GRIDDLE-	RANGE	SPREADER	
Щ / Ц			EQUIPMENT STANDS

Stands provide open space under range section making it easier to mop

Equipment Mounting Approaches Wall-Hung Equipment



Note how the floor area under the kettle is completely clear and easily mopped and sanitized

WALL-HUNG EQUIPMENT

Equipment Mounting Approaches Pedestal on Curb



This service counter, viewed from the employee side, is mounted on pedestals on concrete curbs. Note the open space for parking dish carts and the utility services (electrical) in the pedestals

Layout of Functional Areas Receiving

 Adequate space for large trucks to maneuver.

- Providing a large enough dock for one truck (small operations) or two trucks (large operations).
- If the loading dock is shared by other functions in the building, then foodservice needs a controlled entry.
- Adequate aisle width needs to be provided so that products can be checked and weighed without blocking access to the dock.

Layout of Functional Areas Dock



A small foodservice operation served entirely by small delivery trucks requires far less space for receiving than does a large operation served by semi-trucks.

Layout of Functional Areas Receiving

For a small foodservice facility:

Staging

Table

Scale



Layout of Functional Areas Storage (Dry, Cold)

- Aisle widths determined by storage:
 - Transporting with fork lifts and storing on pallets requires industrial shelving and 6' – 8' aisle widths
 - Transporting on hand trucks and storing on standard shelving requires 3' 4' aisles
- Although shelving comes in widths from 12" to 36", the 24" – 30" widths are most efficient

Layout of Functional Areas Storage (Dry, Cold)

These two walk-ins are identical in size. The upper walk-in has 4' aisles, the lower walk-in has 3' aisles. Note how the lower walk-in has 20% more useable shelving, with no increase in space required.





Layout of Functional Areas Storage (Dry, Cold)



The walk-ins on the left are the minimum efficient size, given the high cost of walk-in units and refrigeration systems. The unit on the right, often called a "step-in," has more refrigerated aisle space than shelf space! A reach-in would be a better alternative.

Layout of Functional Areas Prepreparation



Pre-preparation in this large institutional foodservice occurs at multiple points.

Layout of Functional Areas Final Preparation Worksheet

MENU ITEM	PREPARATION TECHNIQUE	EQUIPMENT REQUIRED	SERVINGS/ HOUR*
<ftb>Strip steak</ftb>	Broil	Charbroiler	36
Swordfish steak	Broil	Charbroiler	16
Chicken breast	Broil	Charbroiler	44
Shrimp	Sauté	Open-burner range	12
Scallops	Sauté	Open-burner range	8
Calamari	Sauté	Open-burner range	4
Lobster tail	Steam with heat	Combi oven	12
Fried chicken	Deep-fat fry	Fryer	12
Home fries	Deep-fat fry	Fryer	32
Asparagus	Steam	Combi oven	24

Layout of Functional Areas Final Preparation Equipment



The selection of equipment and layout for the final preparation area is based on the worksheet (previous slide)

Layout of Functional Areas Final Preparation Equipment

This design integrates pre-preparation and final preparation equipment around a center set of work tables.



Layout of Functional Areas Fast Food Service

Note the difference between the upper approach, "McDonald's," in which customers are served simultaneously, and the lower approach, "Wendy's," in which customers are served sequentially.



Layout of Functional Areas Scramble Cafeteria Service

This design for a renovation of a corporate cafeteria uses a scramble approach. Note the convenience store in the center of the servery.



Courtesy Maddox-NBD, Inc.

Layout of Functional Areas Warewashing

This dish room for a table service restaurant is designed for unloading and scrapping by servers or by the dish crew. The corner loader prevents back strain.



Layout of Functional Areas Ware washing

This dish room for a cafeteria uses a tray accumulator to collect soiled trays and to hold them during periods of peak demand so the dish crew isn't swamped. Trays are scrapped as they are unloaded from the accumulator, dishes are racked, and sent down the conveyor to the corner dish machine.

Accumulator



Layout of Functional Areas Employee Rest Room and Lockers



This rest room, locker, and linen storage area combines three functions in a efficient space.

Layout of Functional Areas Service Kitchens



Catering kitchen for a large fine-dining operation. (Equipment labels and item descriptions are Figure 5-27) Copyright © 2003 John Wiley & Sons, Inc. All rights reserved. Reproduction or translation of this work beyond that named in Section 117 of the 1976 United States Copyright Act without the express written consent of the copyright owner is unlawful. Request for further information should be addressed to the Permissions Department, John Wiley & Sons, Inc. The purchaser may make back-up copies for his/her own use only and not for distribution or resale. The Publisher assumes no responsibility for errors, omissions, or damages, caused by the use of these programs or from the use of the information contained herein.