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
Applying Design Principles to Layout: Access to Raw Materials

A salad/cold food preparation area with 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

Flow in the dish washing process at a restaurant

- Conway to Dishwashing
- Scraping and Stacking
- Dishwashing
- Air Drying and Sorting
- Dish Storage
- Dish Storage
- Dishets Bussed to Cart
- Dishets Used for Service
- Dishets Moved to Pantry
- Dishets Moved to Range
Applying Design Principles to Layout: Flow of Materials and Personnel

Relationship of Dishwashing to other functions
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 cold-food 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

**Profile (A)**
3”
3/4” RADIUS

*Used for dish tables to keep fluids in*

**Profile (B)**
1”
1/2”

*Raised edge keeps fluids and food on table surface*

**Profile (C)**
1 1/2”
1/2”

*Used for surfaces where control of fluids is unnecessary*

**Profile (D)**
1 1/2”
1/2”

*Raised edge keeps fluids and food on table surface*
Layout – Work Area Configurations

- U-SHAPED WORK ISLAND
- L-SHAPED TABLE ALONG WALL
- BACK-TO-BACK WORKTABLES
- PARALLEL WORKTABLES
Layout – Dish Area Configurations
# Equipment Mounting Approaches

## Pros and Cons

<table>
<thead>
<tr>
<th>Method</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Bases</td>
<td>Close and seal areas where insects congregate</td>
<td>Lack of flexibility</td>
</tr>
<tr>
<td>Small Steel Legs</td>
<td>None (though standard on most equipment)</td>
<td>6” height prevents ease of cleaning</td>
</tr>
<tr>
<td>Stands</td>
<td>Provide open spaces for mopping/cleaning</td>
<td>Area around legs hard to clean</td>
</tr>
<tr>
<td>Casters</td>
<td>Utility connections must be quick-disconnect</td>
<td>Flexibility; easy to clean</td>
</tr>
<tr>
<td>Wall-Hung</td>
<td>Easily cleaned surfaces and underneath</td>
<td>Expense</td>
</tr>
<tr>
<td>Pedestal</td>
<td>Close and seal; provides utility chase</td>
<td>Difficult to change</td>
</tr>
</tbody>
</table>
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.
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.
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
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
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.
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.
Pre-preparation in this large institutional foodservice occurs at multiple points.
### Final Preparation Worksheet

<table>
<thead>
<tr>
<th>MENU ITEM</th>
<th>PREPARATION TECHNIQUE</th>
<th>EQUIPMENT REQUIRED</th>
<th>SERVINGS/HOUR*</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;ftb&gt;Strip steak</td>
<td>Broil</td>
<td>Charbroiler</td>
<td>36</td>
</tr>
<tr>
<td>Swordfish steak</td>
<td>Broil</td>
<td>Charbroiler</td>
<td>16</td>
</tr>
<tr>
<td>Chicken breast</td>
<td>Broil</td>
<td>Charbroiler</td>
<td>44</td>
</tr>
<tr>
<td>Shrimp</td>
<td>Sauté</td>
<td>Open-burner range</td>
<td>12</td>
</tr>
<tr>
<td>Scallops</td>
<td>Sauté</td>
<td>Open-burner range</td>
<td>8</td>
</tr>
<tr>
<td>Calamari</td>
<td>Sauté</td>
<td>Open-burner range</td>
<td>4</td>
</tr>
<tr>
<td>Lobster tail</td>
<td>Steam with heat</td>
<td>Combi oven</td>
<td>12</td>
</tr>
<tr>
<td>Fried chicken</td>
<td>Deep-fat fry</td>
<td>Fryer</td>
<td>12</td>
</tr>
<tr>
<td>Home fries</td>
<td>Deep-fat fry</td>
<td>Fryer</td>
<td>32</td>
</tr>
<tr>
<td>Asparagus</td>
<td>Steam</td>
<td>Combi oven</td>
<td>24</td>
</tr>
</tbody>
</table>
The selection of equipment and layout for the final preparation area is based on the worksheet (previous slide)
This design integrates pre-preparation and final preparation equipment around a center set of work tables.
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.
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.
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.
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.
This rest room, locker, and linen storage area combines three functions in a efficient space.
Catering kitchen for a large fine-dining operation.
(Equipment labels and item descriptions are Figure 5-27)