Design & Layout of Foodservice Facilities

Chapter 4

Chapter 4 Overview

Space analysis for the following functional areas:

- Receiving
- Storage
- Office
- Pre-preparation
- Final (Hot-food) preparation
- Bakery
- Employee locker room and toilet
- Service areas
- Dining
- Bar
- Ware washing

Space Analysis

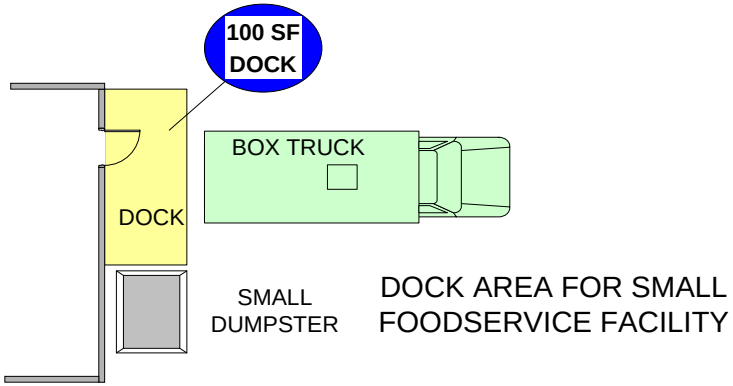
- What are the general requirements for each functional area?
- How large should each functional area be?
- How should the functional areas should be arranged in relation to each other
- What special design features are necessary in each area?

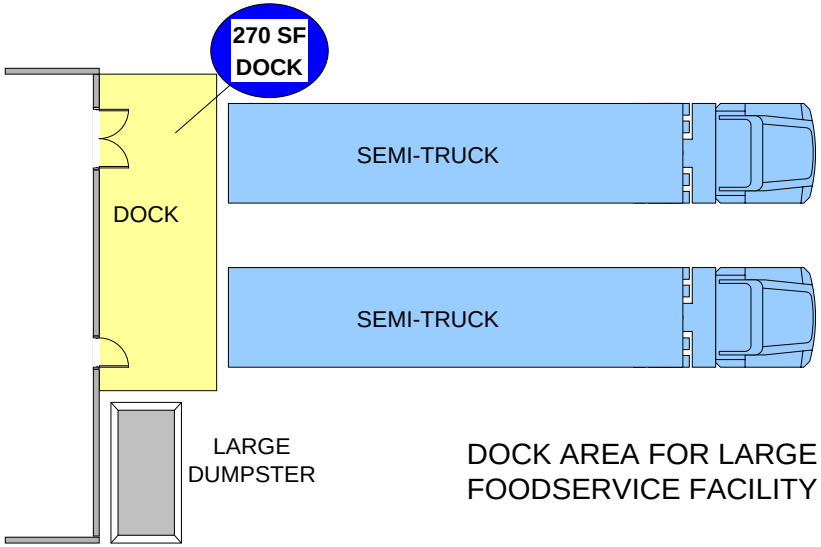
The results of space analysis are often presented in the form of an "Architectural Program for Foodservices" used to guide the design process …

Receiving

- General Description
  - Delivery & inspection of goods
- Relationship to Other Areas
  - Storage areas
  - Access for vehicles
  - Pre-preparation and preparation areas

Dock Area – Space Requirements

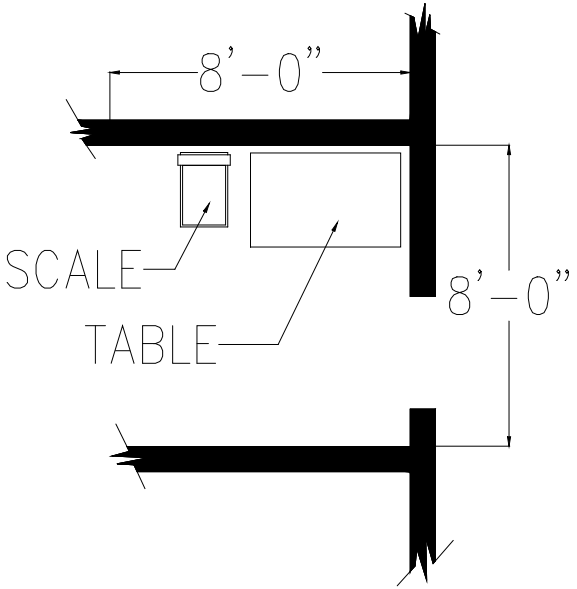




A small foodservice operation served entirely by small delivery trucks requires far less space for receiving than does a large operation served by semi-trucks.

Receiving Area – Space Requirements

This Receiving Area of approximately 64 square feet contains all the essentials and is adequate for a small restaurant. A much larger facility would have a longer receiving table and more space for staging products as they are inspected. However, few foodservice facilities require more than 120 square feet (warehouses excepted).



Storage

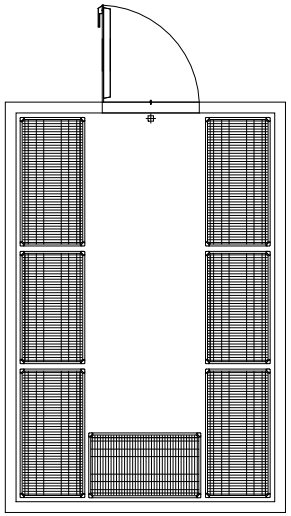
- General Description
  - Dry or canned food storage
  - Paper and cleaning supplies storage
  - Refrigerated storage
  - Utensil and cleaning equipment storage
- Relationship to Other Areas
  - Receiving
  - Pre-preparation and preparation

Dry Storage Space Requirements

Type of Food Operation	Square Feet	Square Meters
Fast food	50–125	(4.65–11.63)
Small restaurant	100–150	(9.30–13.95)
Medium restaurant or small institution	200–300	(18.60–27.90)
Large restaurant or medium institution	400–1,000	(37.20–93.00)
Large institution with simple menu	1,000–2,500	(93.00–232.50)
Large hotel, restaurant, or institution with complex menu, catering facilities, snack bars	3,000 +	(279.00+)

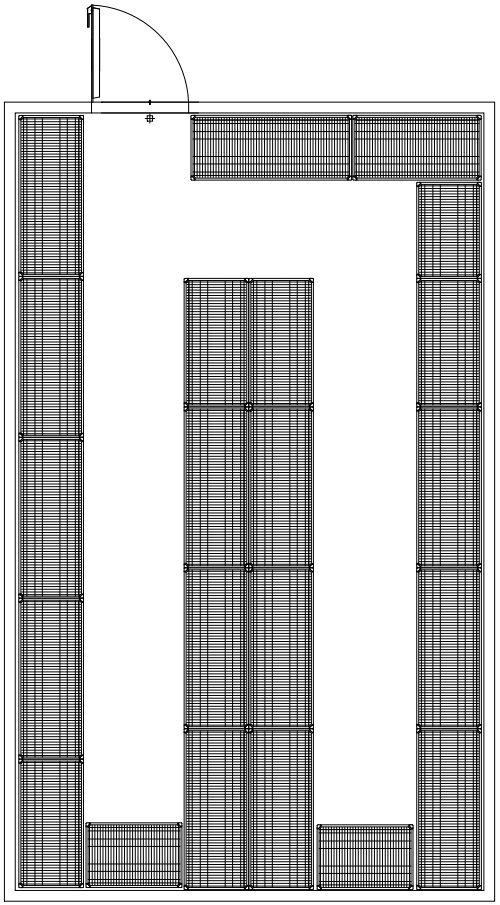
Comparing Dry Storage Spaces

96 square feet for a very small restaurant



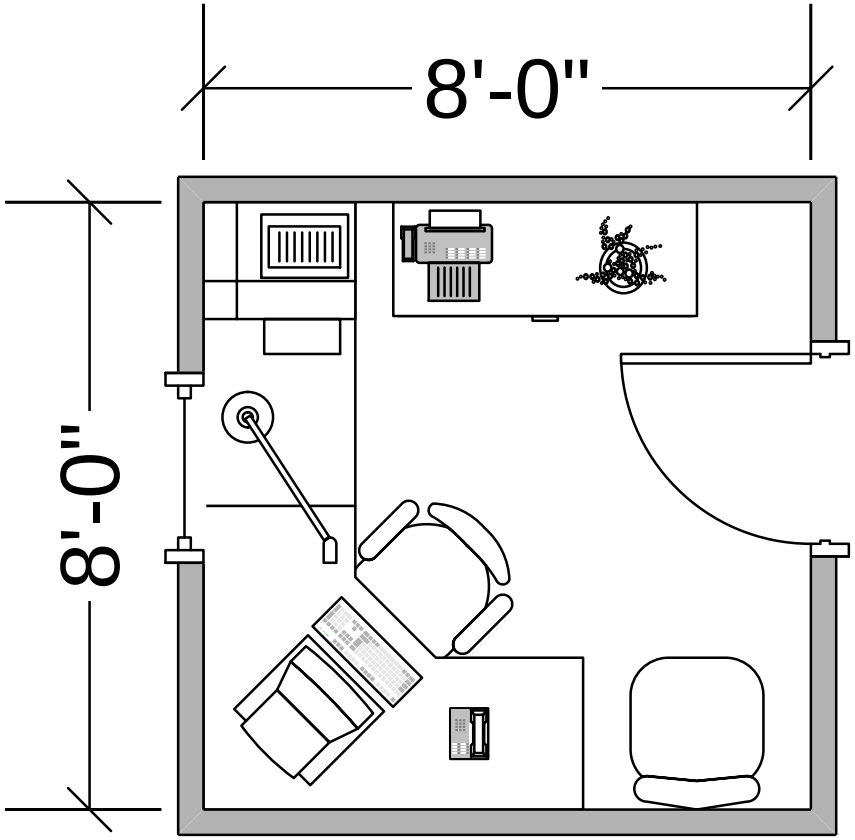
The larger space has about four times as much usable shelving as the smaller space

350 square feet for a medium to large restaurant



Office for Managerial Personnel

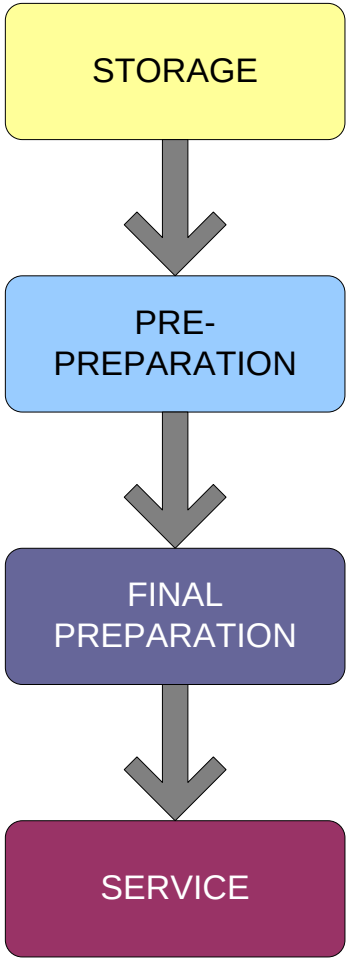
This small office, 64 net square feet, is functional for managers who need a place for quiet work and a place to speak privately with employees



Pre-Preparation

- General Description
  - Where foods are processed, mixed, combined, held, cleaned, or otherwise made ready for final preparation
  - Typically occurs prior to the meal is served
- Relationship to Other Areas
  - Storage areas
  - Final Preparation (Hot Food)

Flow and Spatial Relationships for Preparation

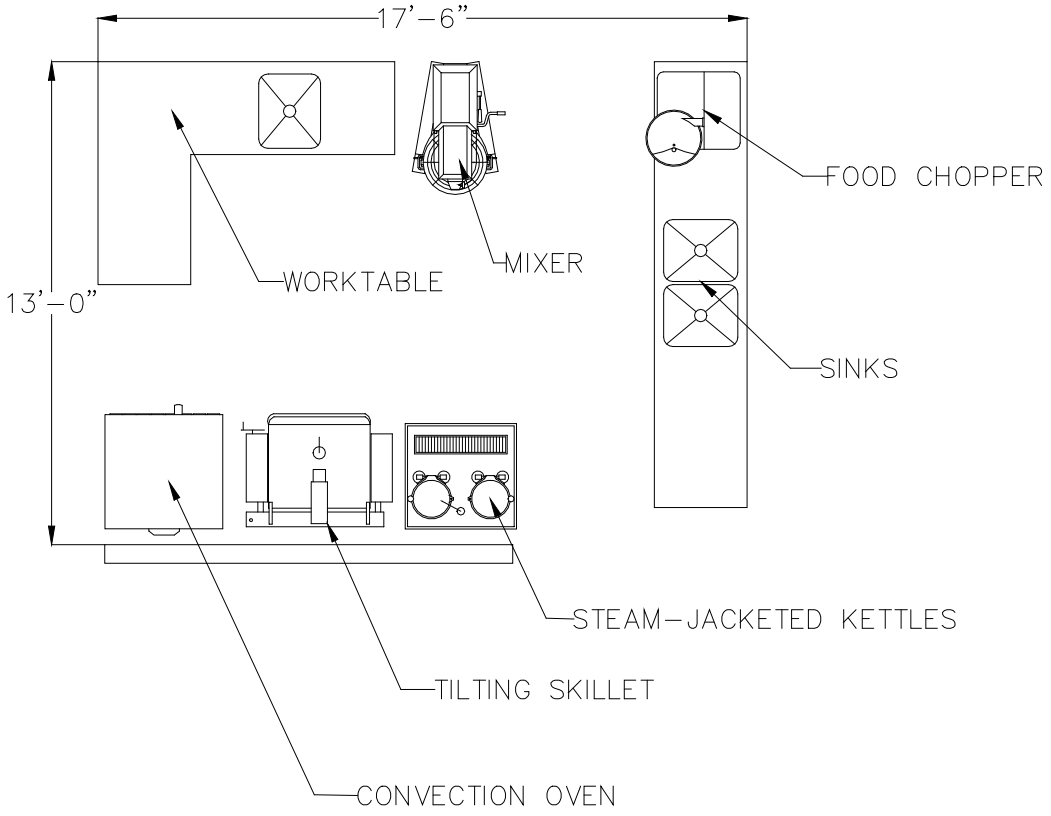


Raw food flows from storage to pre-prep, then to final preparation (hot and cold), and finally to service.

These functional areas need to be located adjacent to one another, following the flow of food products, for efficient design.

Pre-Preparation Area for Small Restaurant

This pre-prep area requires about 225 square feet, and is adequate for a medium sized restaurant or small institution.

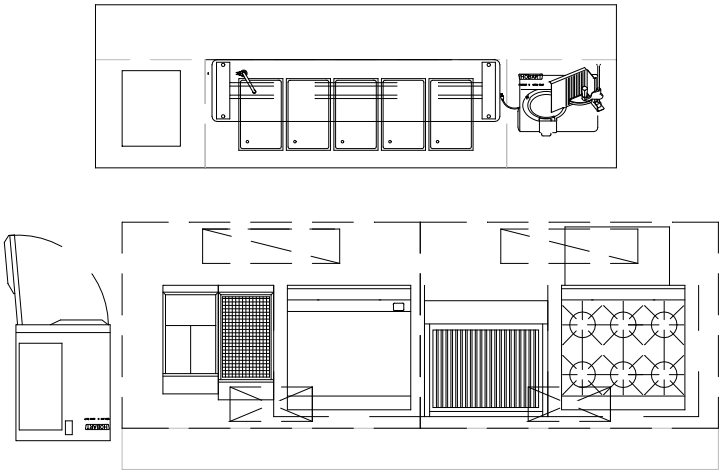


Final (Hot Food) Preparation

- General Description
  - Frying, steaming, broiling, grilling, and other processes adding heat to the food
  - Typically occurs as the meal is served
- Relationship to Other Areas
  - Pre-preparation
  - Storage for “directs” (items that go directly from storage to final prep, such as steaks, chops, frozen french fries)

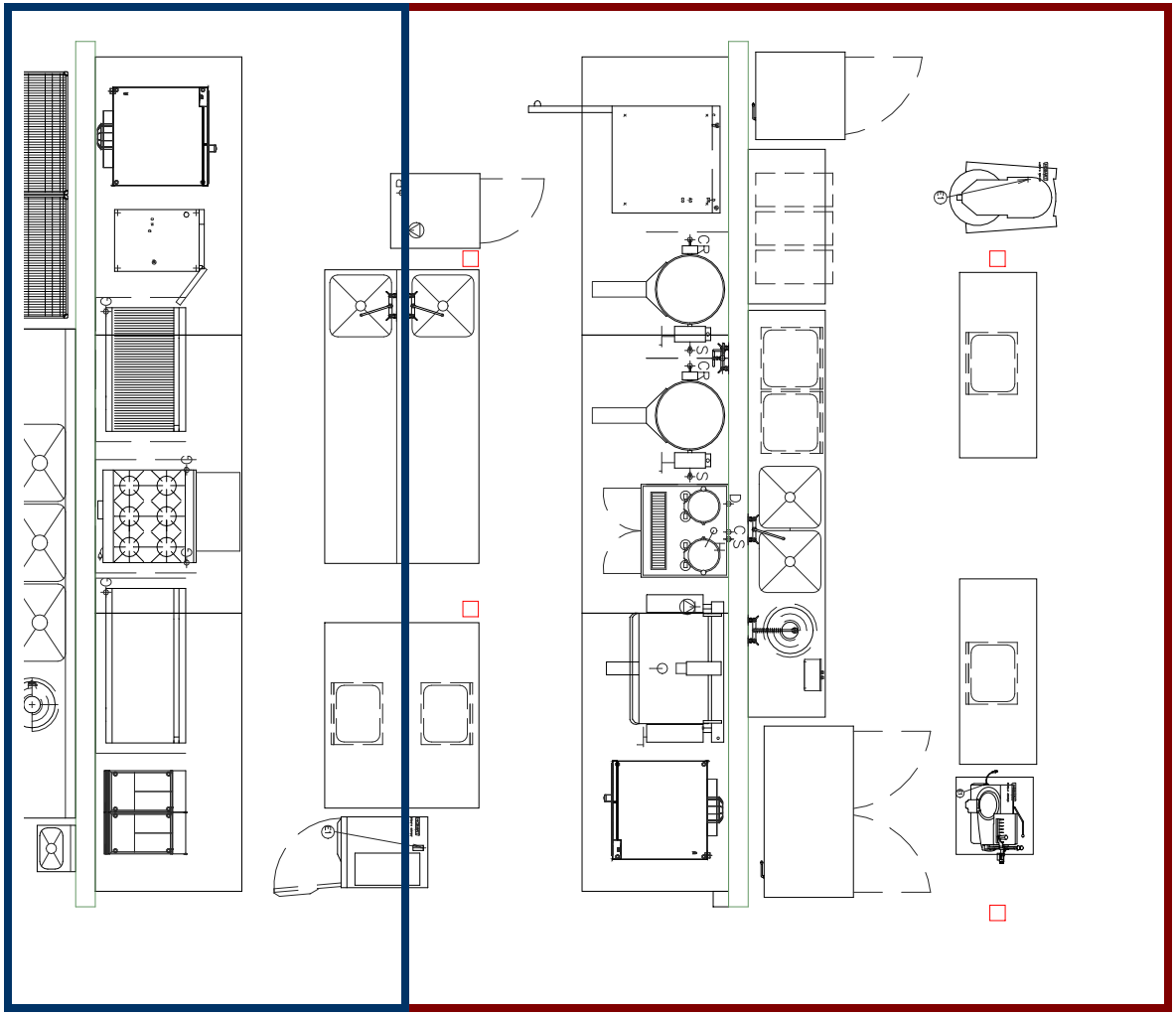
Hot food Preparation for a Small Restaurant

This hot food preparation area for a small restaurant has a chef's table, reach-in freezer, fryers, grill, char broiler, and range. It requires approximately 300 square feet (20 x 15)



Preparation Areas for a Medium Size Institution

Final Prep 300 sf



Pre-Prep 800 sf

Employee Locker Room & Toilet

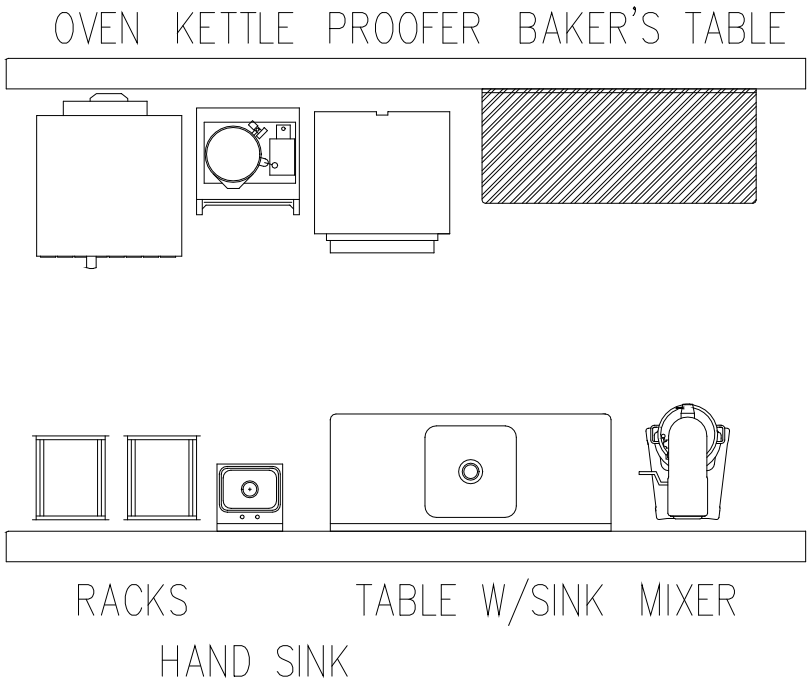
- General Description
  - Rest Rooms for employee use
  - Secure storage for employee belongings
- Relationship to Other Areas
  - Can be relatively separate from other functional areas

Baking

- General Description
  - Produces baked goods, such as rolls, muffins, cookies, cakes, pastries, and similar items
- Relationship to Other Areas
  - Pre-preparation
  - Can be relatively separate from other functional areas
  - Requires dry and refrigerated storage
  - Locating the bakery near customers can increase sales

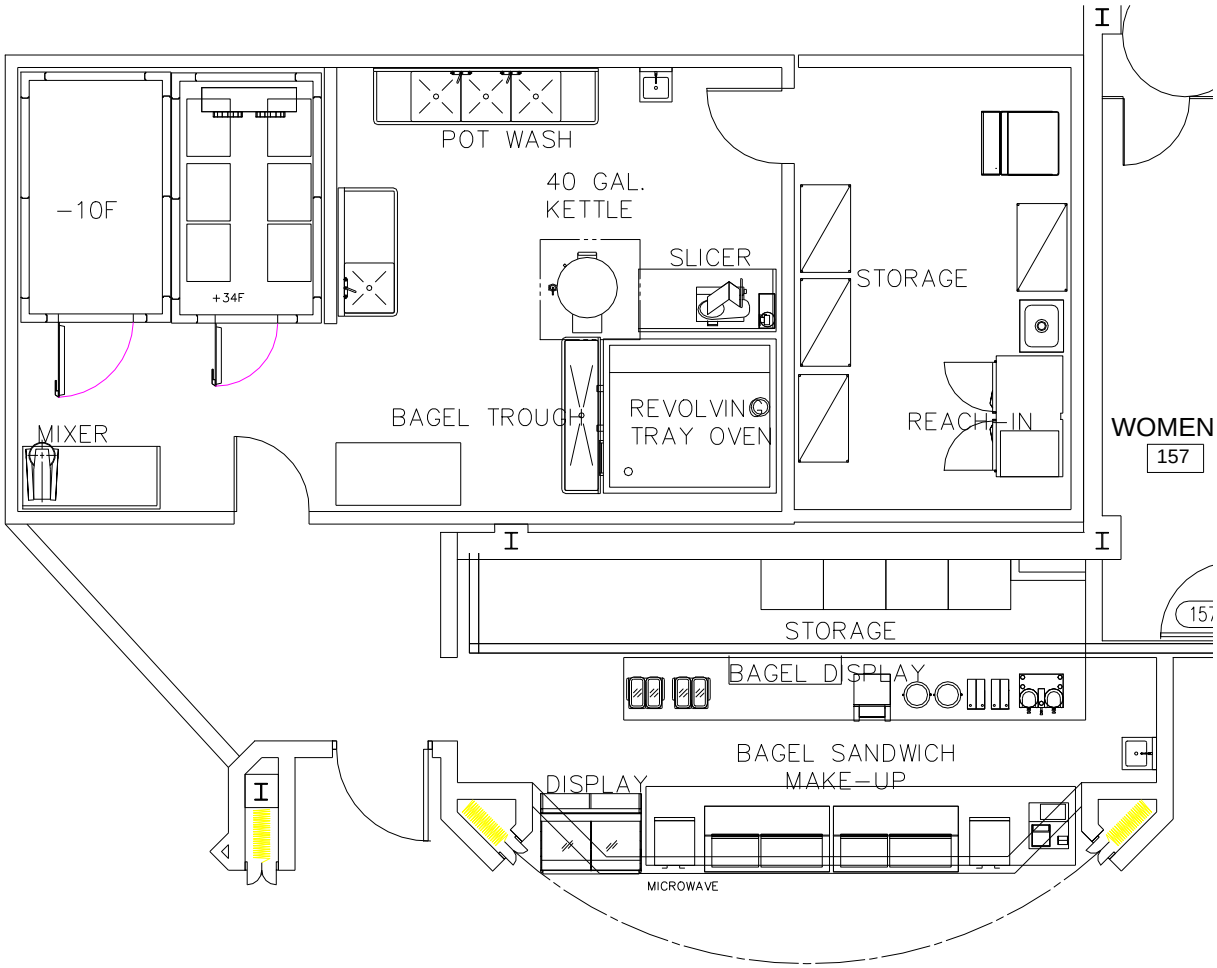
Baking Area

This baking area is about 17’-6” long by 9’-6” wide, or 166 square feet. It is designed to prepare cakes, pastries, rolls, muffins, and similar items, including those that “rise” (use yeast).



Bakery Example: A Bagel Shop

- This Bagel Shop has a total of about 1700 square feet, with 210 sf in the store room, 110 sf in the walk-ins, about 400 sf in preparation, and the remainder in service



Service Area

- General Description
  - Design varies based on foodservice concept
- Relationship to Other Areas
  - Final Preparation
  - Warewashing

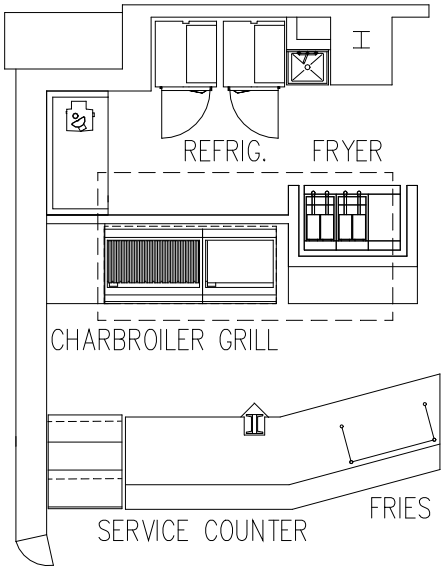
Service Types

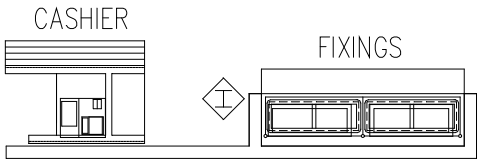
Table service restaurant	Kitchen pickup station
Snack bar	Service counter direct to customer
Fast food	Service counter direct to customer
Cafeteria	Straight-line cafeteria
Delicatessen	Deli counter
Buffet	Buffet line
Scramble	Separate food stations
Food court	Separate food locations around a common dining area
Tray Service (Health Care)	Cold and hot carts rolled to patient room or dining area

Service Example: Fast Food Concept

This fast-food style station is part of a larger foodservice facility.

It is about 675 square feet, including circulation between the counter and the cashier (red box).

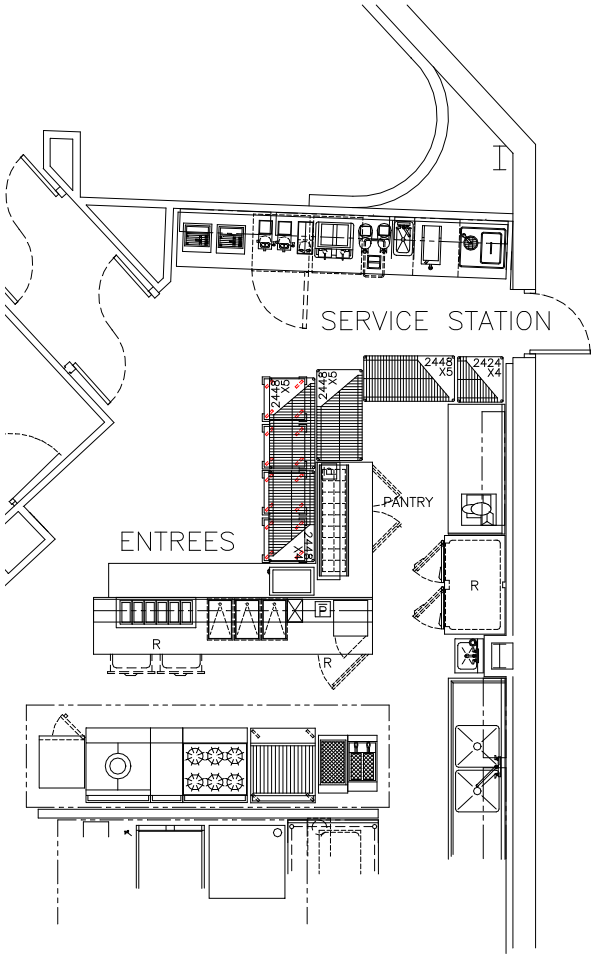




Service Example: Table Service Restaurant

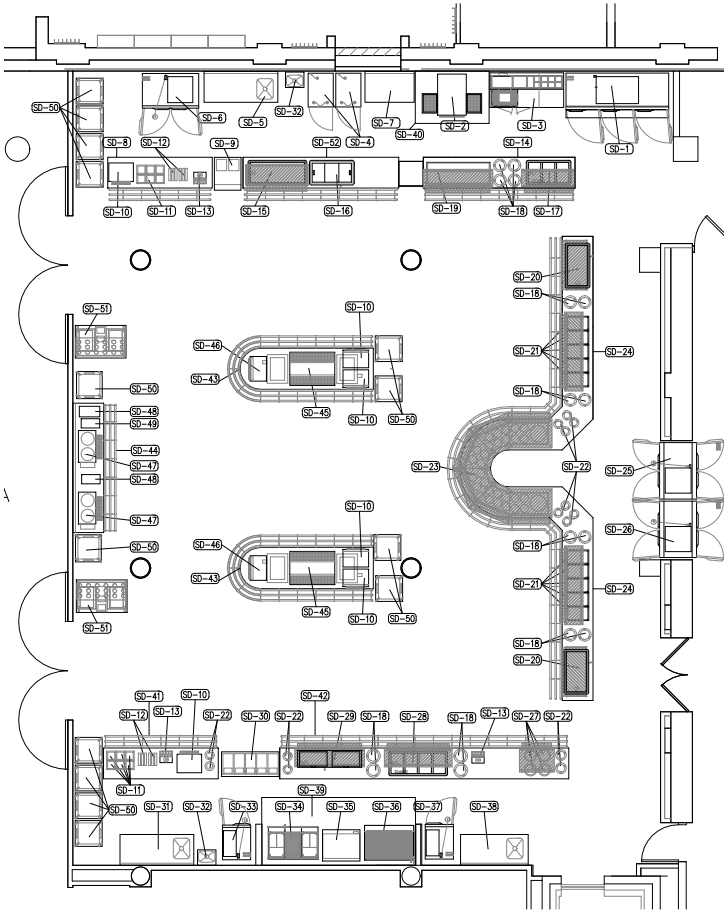
This is the service station of a large table service restaurant.

The area in the red box is about 420 square feet



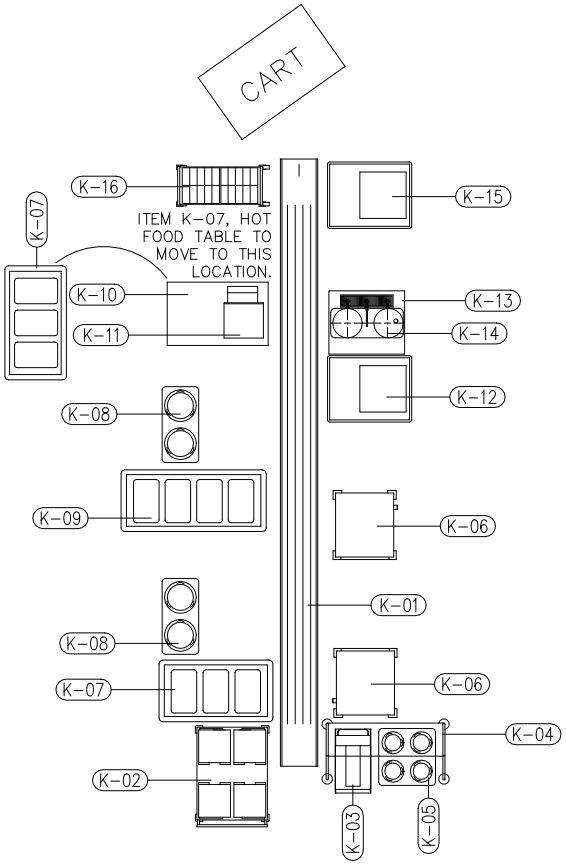
Service Example: Scramble Servery Concept

This is a scramble cafeteria at a university serving 1200 people per meal. It is 3125 square feet (red box).



Service Example: Tray Make-Up

This is a tray make-up system for a health care foodservice facility. It requires approximately 725 square feet. (See page 100 of the text for equipment details.)



Dining – Estimating Space Requirements

Dining area space requirements are a function of (a) anticipated number of guests, and (b) seat turnover rates – guests per hour. These are average turnover rates for various foodservice concepts:

Table service, moderate price	1.0–2.0
Table service, high price	0.75–1.0
Table service, luxury	0.5–0.75
Cafeteria service	2.2–3.0
Counter service	2.0–3.0
Booth service	2.0–3.0
Fast food	2.5–3.5

A high price table service restaurant designed for a capacity of 600 guests on Saturday evening between 6:00 and 9:00 pm would require 200-267 seats.

Dining – Service Area & Square Feet per Seat

Concept	Service Area/100 seats	Square Feet/Chair
Table Service Moderate Price	100	12-14
Table Service High Price	150	13-16
Table Service, Luxury	200	16-20
Cafeteria Service	500	12-14
Scramble Cafeteria	600	12-14
Booth Service	100	12-14
Banquet	25	10-12
Fast Food	50	9-11

Bar

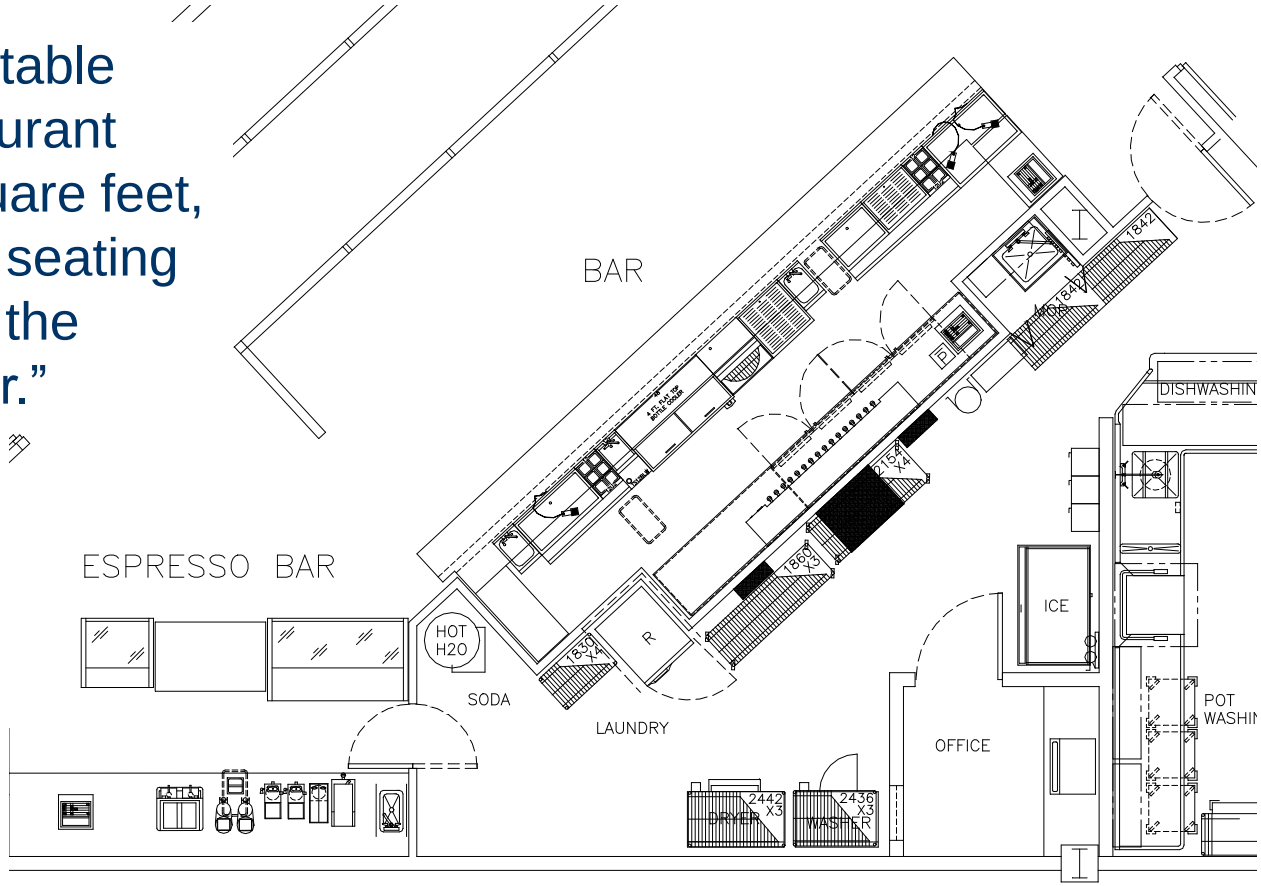
- General Description
  - Service of spirits, beer, wine, etc.
  - A bar for servers who take drinks to customers tables is a “service bar”
- Relationship to Other Areas
  - Adjacent to customer reception
  - If food is served at the bar, it should be near final preparation

Bar Sizing

Restaurant Dining Room Size		Suggested Cocktail Lounge and Bar Size			
Seats	SF	Seats	SF	Bar Size	
				Length	SF
50	750	15	150	10	120
80	1,200	20	200	15	180
100	1,500	30	300	20	240
140	2,100	40	400	30	360
180	2,700	50	500	35	420
200	3,000	60	600	40	480

Service Example: Bar

This bar in a table service restaurant uses 500 square feet, including the seating area, but not the "espresso bar."



Ware Washing

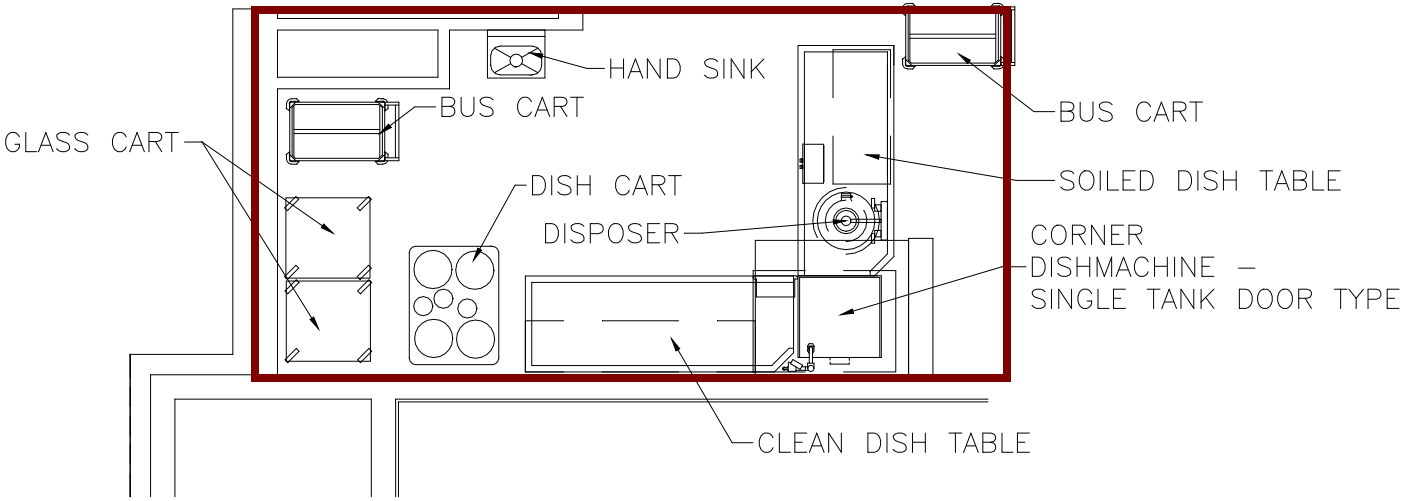
- General Description
  - Seating for customers
- Relationship to Other Areas
  - Final preparation
  - Ware washing
  - Bar (if part of the concept)

Ware Washing Space Requirements

Space requirements for dish rooms are a function of the number of dishes per hour to be washed and the type of machine:

MACHINE TYPE	Dishes/Hour	SF
Single-tank dishwasher	1,500	250
Single-tank conveyor	4,000	400
Two-tank conveyor	6,000	500
Flight-type conveyor	12,000	700

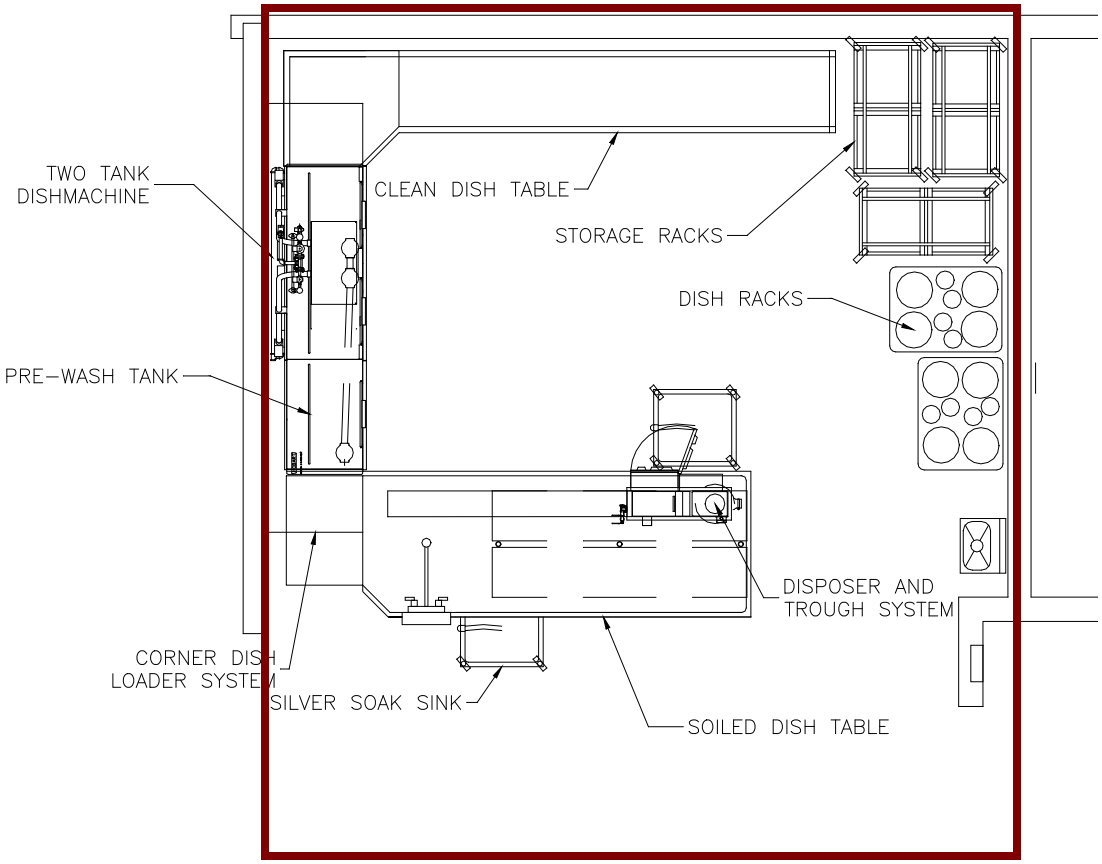
Ware Washing Examples



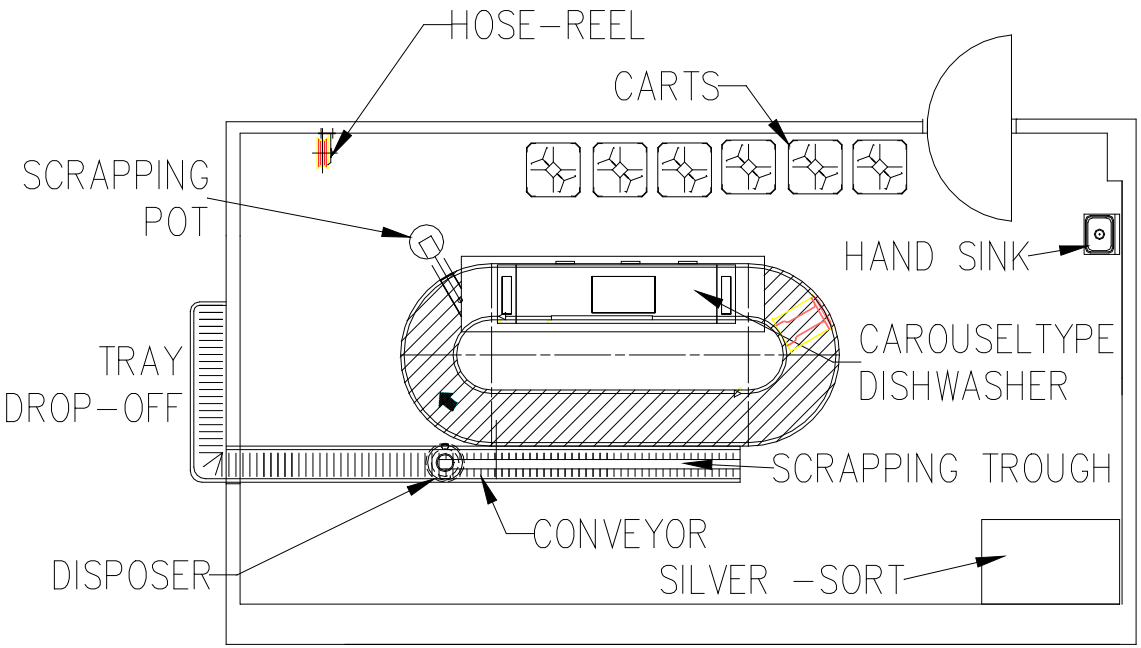
This is a very small dish room for a small foodservice operation; it uses only 175 square feet. It uses a single tank, door-type dish machine.

Ware Washing Examples

This dish room uses a two-tank rack conveyor machine. It requires 525 square feet, including drop off space in front of the soiled dish table.



Ware Washing Examples



This dish room uses a carousel type dish machine with two tanks. It requires 550 square feet of space.

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