# Personnel Requirements



## Personnel Requirements

- The planning of personnel requirements includes planning for
  - Employee parking,
  - Locker rooms,
  - Restrooms,
  - Food services,
  - Drinking fountains, and
  - Health services.

# Employee Parking -Car Types and Sizes

- Size (G1, G2 and G3)
- Stall width (8” till 12”)
- Configuration (W1, W2, W3, W4)

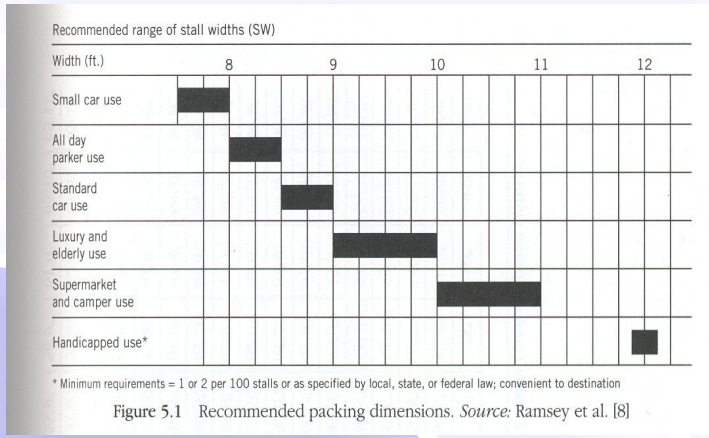
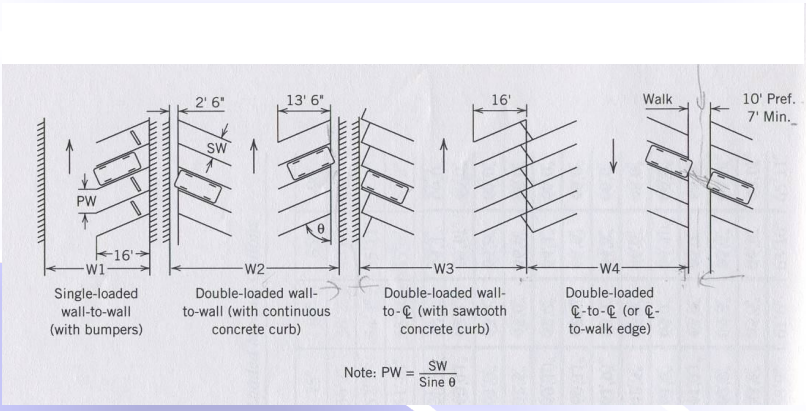



Figure 5.1 Recommended packing dimensions. *Source:* Ramsey et al. [8]



# Employee Parking
# Single- and double-loaded module options



## Procedure

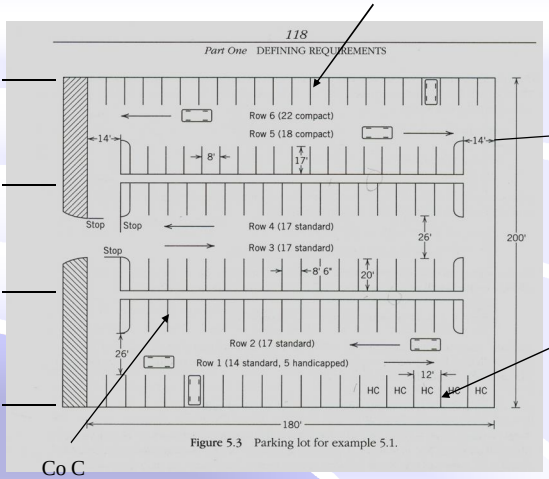
- Determine the number of automobiles to be parked.
  1:2, 1:3, handicapped %, compact Cars %, …
- Determine the space required for each automobile.
  Stall width
- Determine the available space for parking.
  Parking dimension
- Determine alternative parking layouts for alternative parking patterns (Module Selection- Table 4.3).
- Select the layout that best utilizes space and maximizes employee convenience.



## Parking Space
## Module Width (Table 4.1)

| | SW | W | 45 | 50 | 55 | 60 | | | 90 |
|---|---|---|---|---|---|---|---|---|---|
| G1 | 8 0 | 1 | 25 9 | | | | | | 41 9 |
| G2 | 8 6 | 2 | 32 0 | | | | | | 48 0 |
| G3 | 9 0 | 3 | 49 0 | | | | | | 65 1 |
| G3 | 10 0 | 4 | 57 7 | | | | | | 66 0 |

# Parking Lot Shape






# Factors

**The factors** to be considered in determining the specification for a specific parking lot are:

1. The percentage of automobiles to be parked that are compact automobiles as a planning guideline, if more specific data are not available, 33% of all parking is often allocated to compact automobiles.

2. Increasing the area provided for parking decrease the amounts of time required to park and de-park.

3. Angular configurations allow quicker turnover; perpendicular parking yields greater space utilization.

4. As the angle of a parking space increases, so does the required space allocated to aisles.

## Example

A new facility is to have 200 employees. A survey of similar facilities indicates that one parking space must be provided for every two employees and that 40% of all automobiles driven to work are compact automobiles, five percent of the spaces should be allocated for the handicapped. The available parking lot space is 180 ft and 200 ft deep what is the best space utilization parking layout ?



## Solution

- No. of space required = 200/2= 100 parking: 40 parking for compact and 5 for handicapped
- Alternatives

For W4 with $90^{O}$ (for best utilization) and using table 4.1 give that

for compact cars (8'' 0″) the module width is 57 ' 2″

for Standard cars (8 6″) the module width is 66' 0″

- How many of W4?

2 of 57' 2″ = 114 4″

2 of 66' 0″ = 132 0″ < 200

2 of 66' 0″ and 1 of 57' 2″ = 189' 2″ < 200 OK

- Number of cars = width available/width requirement *no. of modules * rows per module

Potential no. of compact cars = 180/8 * 2* 1 = 44 C. cars

Potential no. of standard cars = 180/8.5 *2*2 = 84

sum = 128 > 100 it is Ok

# Solution

- Modifications
  - Handicapped = 5% *100 * 12' = 60 ft
  - Remaining automobile space $= \left\lfloor \frac{180-60)}{8.5} \right\rfloor = 14$ this means Row 1 has 14 St cars and 5 HC cars
  - Circulation lanes of 14' (15') each, leave $\left\lfloor \frac{180-2X14)}{8.5} \right\rfloor = 17$ automobile parking space in Row 2, 3 and 4
  - For compact cars the impact of circulation lanes will be : $\left\lfloor \frac{180-2X14)}{8.0} \right\rfloor = 18$ for Row 5
  - For Row 6 it is dedicated for compact cars means 180/8.0 = 22 space

| Row | Comp | St | H C |
|---|---|---|---|
| 1 | - | 14 | 5 |
| 2 | - | 17 | |
| 3 | - | 17 | |
| 4 | - | 17 | |
| 5 | 18 | | |
| 6 | 22 | | |
| tot | 40 | 65 | 5 |

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# Parking lot

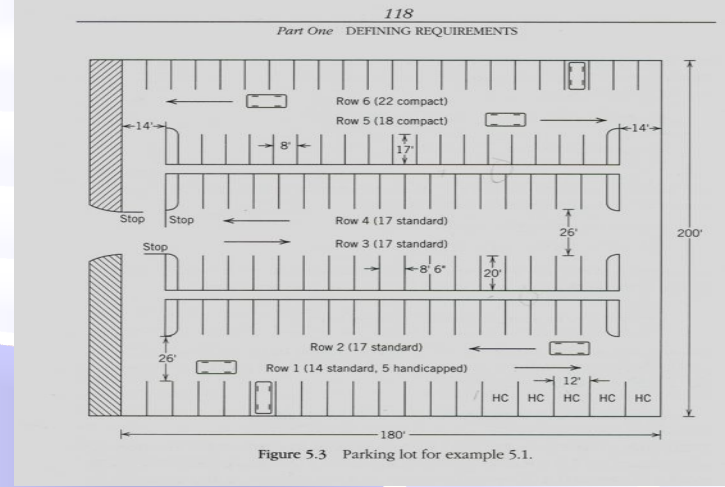


Figure 5.3 Parking lot for example 5.1.

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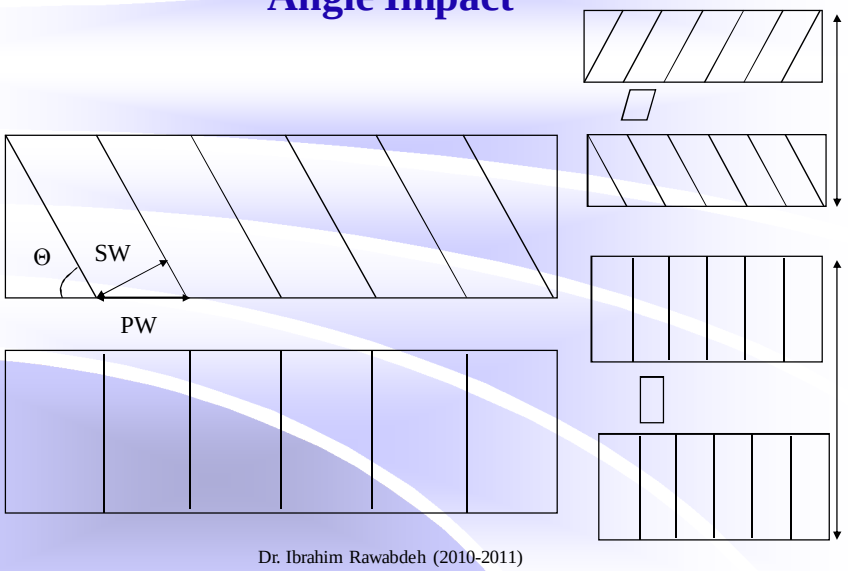
# Parking Lot Angle Impact






# Restrooms

- Main point to be made!! A restroom should be located within 200 ft of every permanent workstation.

1 for each sex at least

15 $ft^2$ per Toilet

6 $ft^2$ for Urinal

Table 4.2 summarizes the requirements

# Restrooms

Table 6. Number of Toilets Needed for Number of Employees

| Maximum Number of Employees Present at any One Time | Minimum Number of Toilets Needed |
|---|---|
| 1 – 15 | 1 |
| 16 – 35 | 2 |
| 36 – 55 | 3 |
| 56 – 80 | 4 |
| 81 – 110 | 5 |
| 111 – 150 | 6 |
| Over 150 | 1 additional toilet for each additional 40 employees |

Table 7. Number of Sinks Needed for Type of Employment and Number of Employees

| Type of Employment | Number of Employees | Minimum Number Of Sinks |
|---|---|---|
| Non-industrial (Office and Public Facilities) | 1 – 15 | 1 |
| | 16 – 35 | 2 |
| | 36 – 60 | 3 |
| | 61 – 90 | 4 |
| | 91 – 125 | 5 |
| | Over 125 | 1 sink for each additional 45 employees |
| Industrial (Manufacturing and warehouse Facilities) | 1 – 100 | 1 sink for each 10 employees |
| | Over 100 | 1 sink for each additional 15 employees |



# The Employee-Facility Interface

Storage of Employees Personal Belongings

- Change of clothes not required
  - Lunches and personal belongings can be stored at the employees workspace
- Change of clothes required
  - Locker should be provided
  - Provided for each sex with 6 $ft^2$ allocated for each person using the locker room
  - If showers are provided, it should be separate from toilets facilities

# Food Services

- Options
  - Dinning away from the facility
  - Vending machine + Cafeteria < 200 employees
  - Serving Line + Cafeteria > 200 employees
  - Full Kitchen + Serving Line + Cafeteria > 400 employees
- Why dinning in/not dinning away
  - Large meal breaks
  - Employee supervision is lost (not return , tired, horseplay, late)
  - A loss of work interaction
  - A loss of work concentration on the task to be performed

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# Food Services

Table 3. Shift Timing for 30 min. Lunch Breaks

| Beginning of Lunch Break | Time Sat Down In Chair | End of Lunch Break |
|---|---|---|
| 11:30 am | 11:40 am | 12:00 noon |
| 11:50 am | 12:00 noon | 12:20 pm |
| 12:10 pm | 12:20 pm | 12:40 pm |
| 12:30 pm | 12:40 pm | 1:00 pm |

Table 4. Space Requirements for Cafeterias

| Classification | Allowance per Person ($ft.^2$) |
|---|---|
| Commercial | 16 – 18 |
| Industrial | 12 – 15 |
| Banquet | 10 – 11 |

Table 5. Space Requirements for Full Kitchens

| Number of Meals Served | Area Requirements ($ft.^2$) |
|---|---|
| 100 – 200 | 500 – 1000 |
| 200 – 400 | 800 – 1600 |
| 400 – 800 | 1400 – 2800 |
| 800 – 1300 | 2400 – 3900 |
| 1300 – 2000 | 3250 – 5000 |
| 2000 – 3000 | 4000 – 6000 |
| 3000 - 5000 | 5500 – 9250 |

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# Food Services

- Space Specifications
- Vending machine ---→ 1 $ft^2$ per person
- Cafeteria (Table 4.4-Allaowance per person) based on the table shape and size
  - 36, 42, 48 in (Square)
  - 6, 8, 10 X 30 in (Rectangle)
- Serving line (300 $ft^2$ for 7 employee/min-shift)
- Cafeteria +Serving line +Full Kitchen (Table 4.5- Number of meals served)



# Food Services - Example

- **Statement:**

  If a facility employs 600 people and they are to eat in three equal 30 min. shifts, how much space should be planned for the cafeteria with vending machines, serving lines, or a full kitchen?

- **Solution:**
  - If 36-in. square tables are to be utilized, Table 4 indicates 12 $ft.^2$ are required for each of the 200 employees to eat per shift. Therefore, a 2,400 $ft.^2$ cafeteria should be planned. If a vending area is to be used in conjunction with the cafeteria, an area of 200 $ft.^2$ should be allocated for vending machines. Thus, a vending machine food service facility would require 2,600 $ft.^2$
  - A service line may serve 70 employees in the first third of the meal shift. Therefore, three serving lines (200/70) of 300 $ft.^2$ each should be planned. A total of 3,300 $ft.^2$ (2400+900) would be required for a food service facility using serving lines.
  - A full kitchen will require 3,300 $ft.^2$ for serving lines plus (from Table 5) 2,100 $ft.^2$ for the kitchen. Therefore, a total of 5,400 $ft.^2$ would be required for a full kitchen food service facility.

## Offices Requirements

- President Office: 250-400 sq ft
- Vice president: 150-250 sq ft
- Executive office: 100-150 sq ft
- Partitioned open space-supervisor or manager: 80-110 sq ft
- Open space-Clerical or secretary: 60-110 sq ft
- Conference rooms: 15 sq ft per person
- …
- …
- …

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## Health Services

Pre-employment examination
First aid treatment room (100 sq ft)
Clinic (250 sq ft) + 75 sq ft (waiting room)

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