

# Problem 11

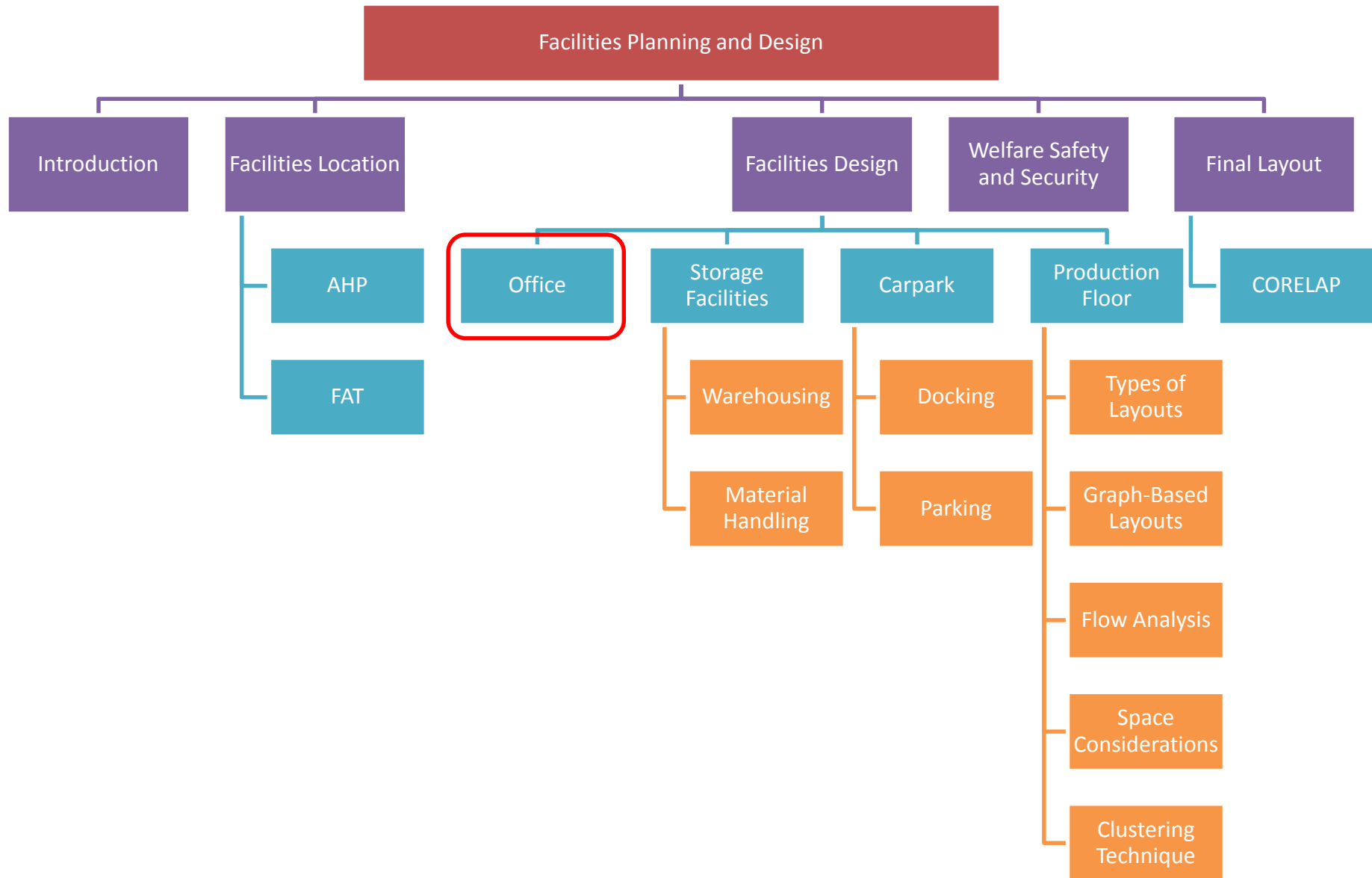
## Office Layout

E212 – Facilities Planning and Design



SCHOOL OF  
ENGINEERING

# E212 Facilities Planning & Design - Topic Tree





## **Some Key Considerations of Office Layout Design**

- ❖ Size / Capacity
  - Adequate work space
- ❖ Noise / Sound level
  - Kept to minimum
- ❖ Proximity to amenities such as lift, doors, printers, toilets etc
- ❖ Productivity
  - Minimize walking long distances, minimize performing useless work etc
- ❖ Nature of work activities
- ❖ Human ergonomics
- ❖ Security / Privacy
- ❖ Budgets Constraint
- ❖ Scalability
  - Support business expansion / restructuring

# Office Facility Planning - Types of Office Space



## **Open office space**

- No floor-to-ceiling partition walls exist
- May have lower partition walls

### Advantages

- Promotes staff interaction and communication
- Facilitates supervision of staff
- Lower maintenance cost
  - Cooling, ventilation costs are reduced
- Less space is required
- Layout changes are quicker and less costly



### Disadvantages

- May present difficulty in controlling noise
- Lesser visual and aural privacy
- Lacks status recognition for staff
- Does not allow discussion of confidential topics at work



## **Closed office space**

Presence of floor-to-ceiling partition walls (permanent/ temporary) that segment the office space into smaller rooms

### **Advantages**

- Contains noise level well
- Conducive for work tasks requiring concentration/ confidentiality
- More privacy for staff
- Visible status recognition for staff

### **Disadvantages**

- Higher maintenance cost due to more built-in structures and fixtures
- Less flexible in reorientation and rearrangement of work spaces



# Recent Office Layout Trends



## Trends affecting Office Layout

- **Flexibility and mobility**
  - Easy-to-assemble furniture
  - Can be configured in a number of ways to fit available space.
- **Collaborative working environments**
  - 70/30 cubicle-to-traditional office ratio
  - Promote Collaborative space
- **Hot Desking**
  - Employees do not have their own desks
  - Sharing of workstations

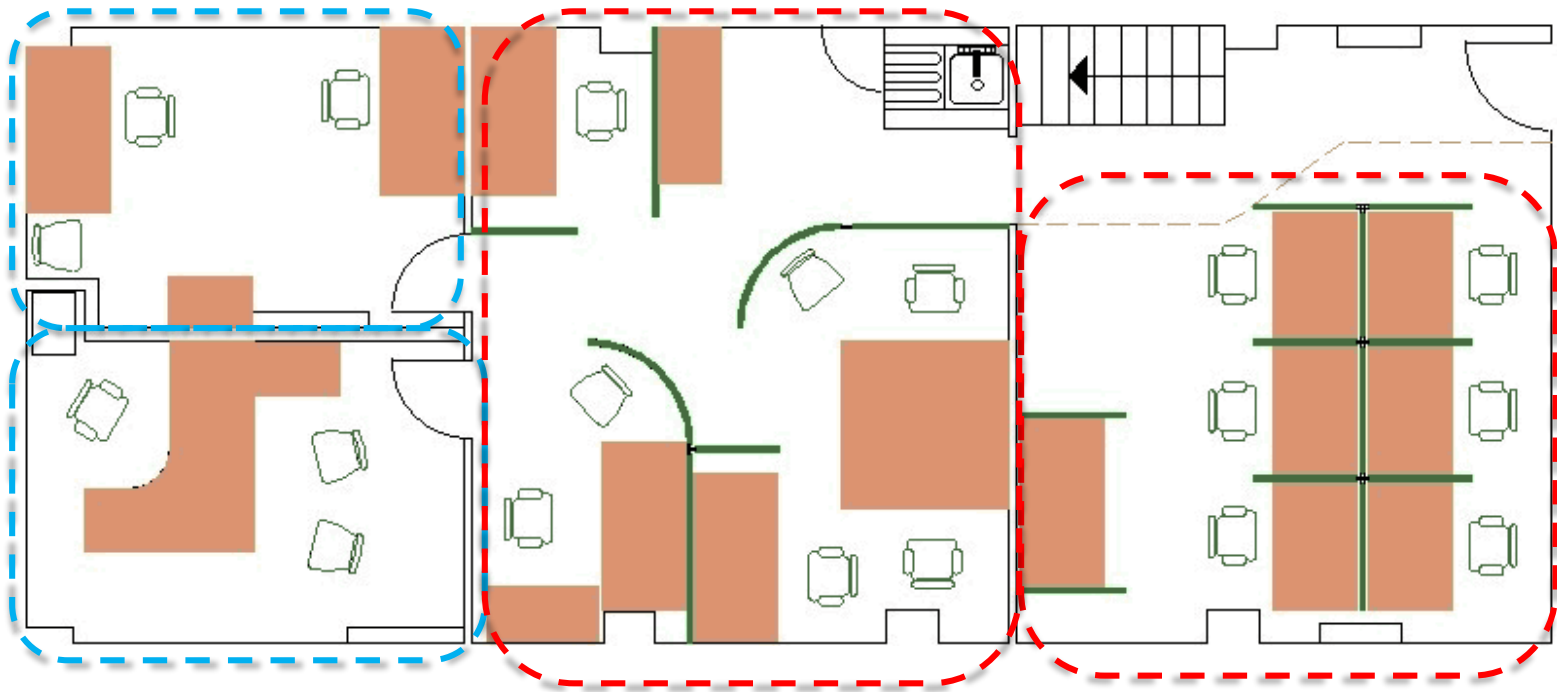


# Office Facility Planning - Examples



## Example of office space plan (2-D): Open & closed structure

Closed Structure  
Design



Open Structure  
Design



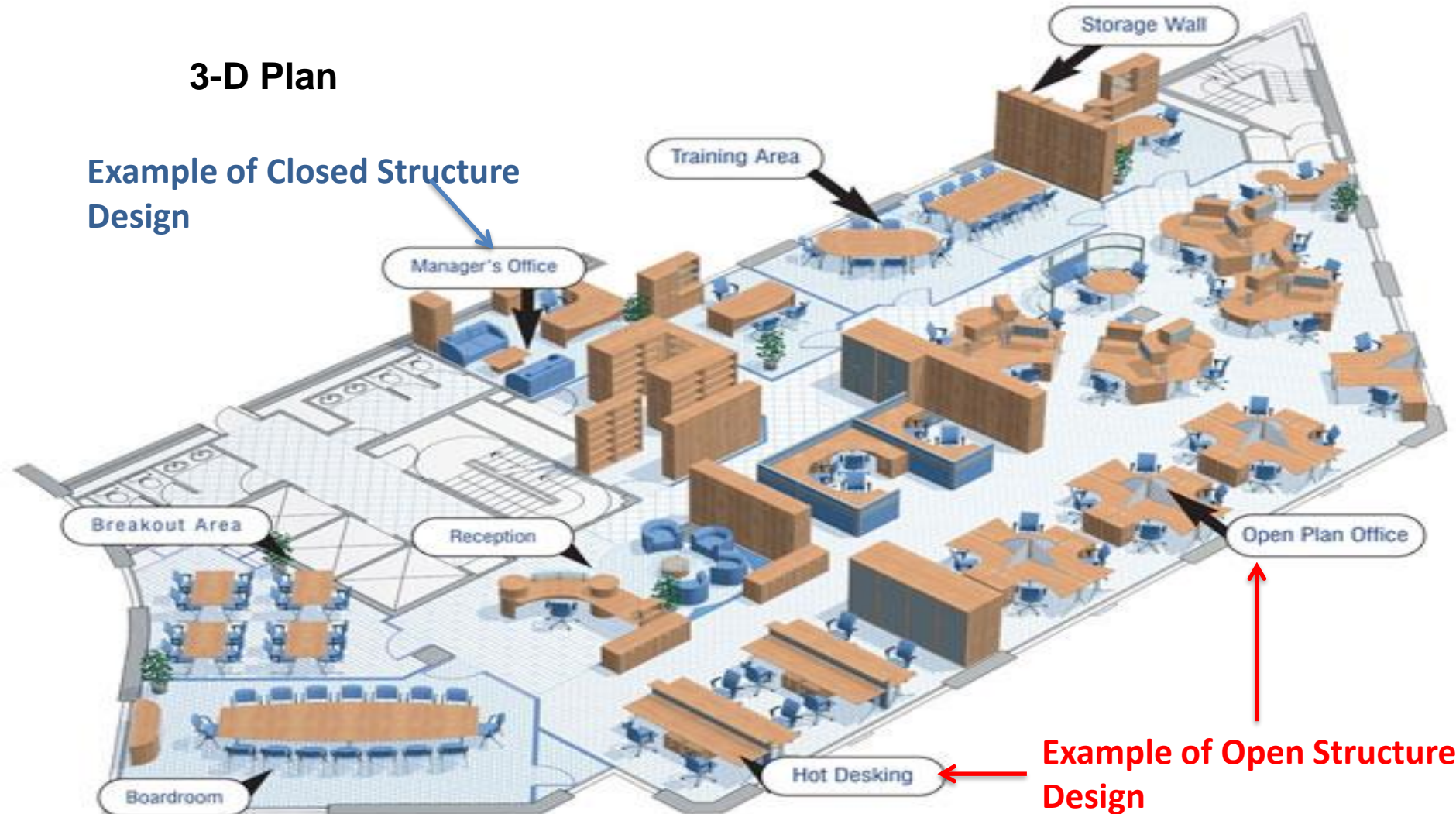
# Office Facility Planning - Examples



## Example

### 3-D Plan

Example of Closed Structure Design



Example of Open Structure Design



# Office Facility Planning - Typical Area Requirements



## Typical Area Requirements

Designation	Square feet (ft <sup>2</sup> )	Square meter (m <sup>2</sup> )
Director/President's Office	250 to 400	23.2 to 37.2
Vice President's Office	150 to 250	13.9 to 23.2
Executive Office	100 to 150	9.3 to 13.9
Employee (open space)	80 to 125	7.4 to 11.6
Secretary/Administrator (open space)	60 to 110	5.6 to 10.2
Conference/Meeting Room	25 to 30 (per person)	2.3 to 2.8 (per person)
Reception area	150 to 350	13.9 to 32.5

*There are multiple standards for office room area in the industry. However, for this module we are using the above standard.*



## Security System

- Measures should be layered to provide diversity and redundancy
- **Concentric approach:**
  - a) Outer circle: barriers and intrusion detection systems
  - b) Inner circle: access control systems
- Application and integration of Closed Circuit Television (CCTV) into overall security system

# Office Facility Planning-Examples of Security Measures and Devices



## **Examples of security measures / devices (to discuss about security measures with students; no need to put in layout plan)**

- Outer Circle:



Gates / Doors  
Locks



Alarms  
Warning signs



Ample lighting  
Motion detectors



- Inner Circle:

Security Cards  
Biometrics



- Integrated:

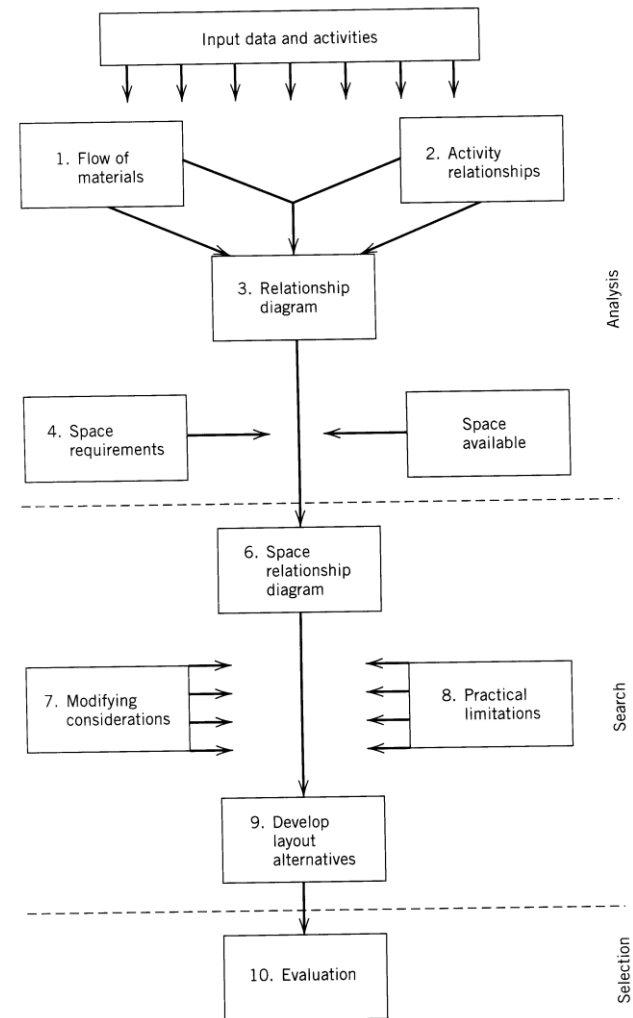
Closed-Circuit TV



# Office Facility Planning – Steps of designing layout plan

## Steps

1. Determine office facility objective(s)
2. Define work activities to be performed
3. Collect data to establish departmental interrelationships
4. Generate departmental area requirements
5. Conduct interviews to verify/refine office requirements
6. Generate alternative layout plans.
7. Evaluate and select the most suitable layout plan.



Muther's Systematic Layout Planning (SLP) Procedure

# Problem 11

## Suggested Solution

# Office Plan (Considerations)

---



Facility objective: Secured, low capacity office

Planned activities:

- Desktop work (can be confidential)
- Internal project meetings
- Document storage (can be confidential)

Office structure:

- Can be a combination of closed and open office spaces
- Fully open structure is not recommended due to confidential nature of some work activities

Additional facilities:

- Meeting Room
- Printer Area

Additional amenities:

- Pantry area

# Aisle Consideration



Types of Flow	Aisle Width (in feet)	Aisle Width (in metre)
Tractors	12	3.66
3-ton Forklift	11	3.35
2-ton Forklift	10	3.05
1-ton Forklift	9	2.74
Narrow aisle truck	6	1.83
Manual platform truck	5	1.52
Personnel	3	0.91
Personnel with doors opening in the aisle from one side	6	1.83
Personnel with doors opening in the aisle from two sides	8	2.44



# Office Plan (Proposed)

---



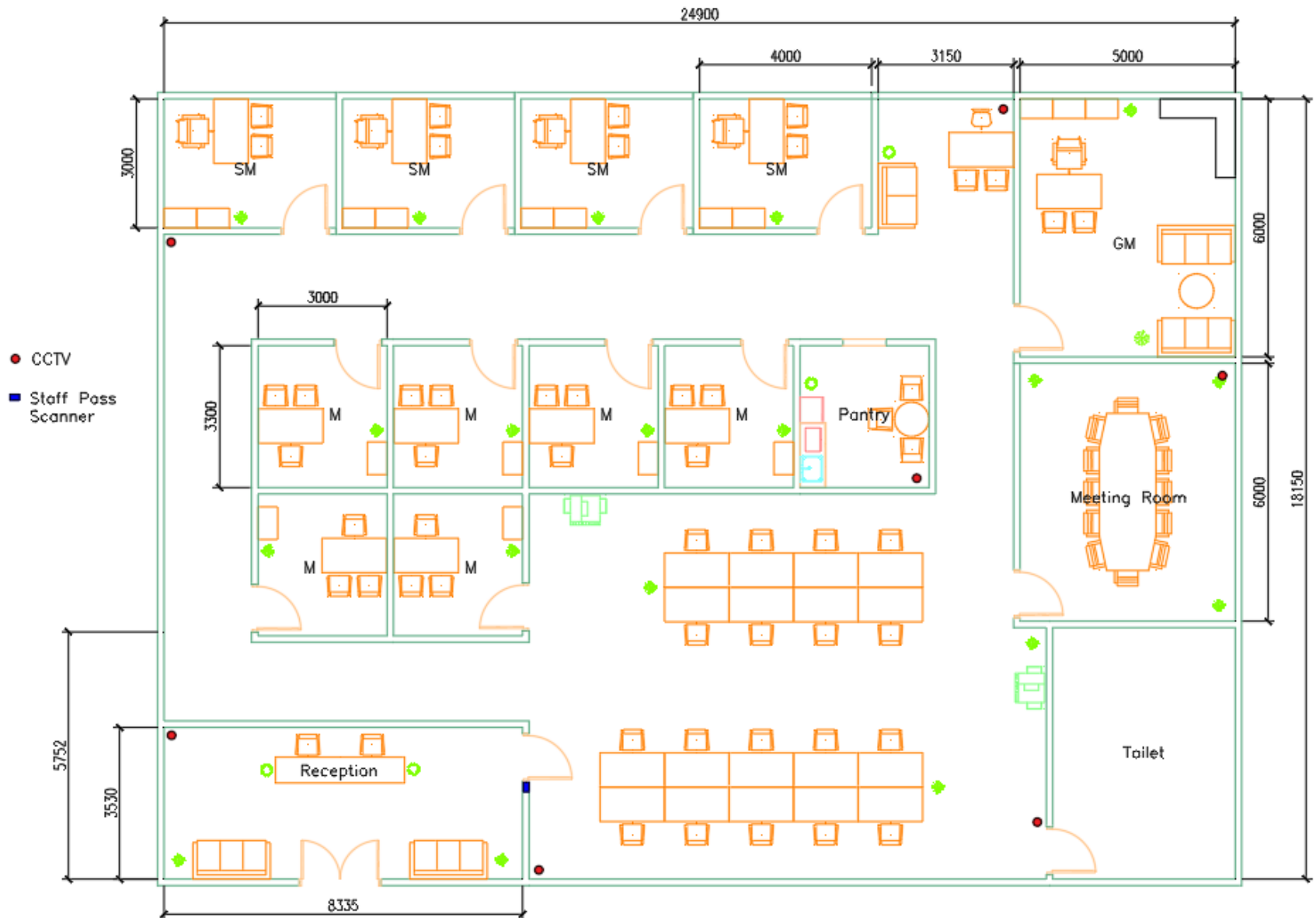
Security System: Concentric approach with integration

- a) Outer circle: Gates, Doors fitted with lock and alarm
- b) Inner circle: Card Reader; locked cabinets
- c) Integration: Closed-Circuit TV (round-the-clock)

Proposed office layout can be a modification / adaptation from the existing plan, incorporating ergonomic considerations, e.g. sound level, color scheme, privacy, aesthetics, etc.

Data collection is required to determine staff work interrelationships and verify requirements at this initial layout planning stage.

# New Office Layout



# Learning Objectives

---



- List the key considerations to different types of office layout design
- Calculate minimal space requirement for an office facility based on the personnel and departmental requirements
- Select appropriate security system for an office facility
- Draft out an office layout using AUTOCAD

# Overview of E212 Facilities Planning and Design

