

Foundations of Real Estate Management™

Module 4: Building Operations II

Session 1: Fire Alarm and Fire Sprinkler Systems (75 minutes)

Objectives:

- Describe the purpose of the fire alarm system and the fire sprinkler system.
- List the parts and explain the operation of the fire alarm system.
- Describe how a standpipe system operates.
- List the parts and explain the operation of a wet pipe fire sprinkler system.
- Describe the general operation of the wet pipe sprinkler system, the deluge sprinkler system, the pre-action system, and chemical systems.

Fire Protection

- Fire alarm system
- Fire sprinkler system

Fire Alarm Systems

- Fire alarm panel
 - Annunciator panel
 - Knox® boxes
 - Alarm signals
 - Trouble signals
 - Supervisory trouble signals
 - Central monitoring station
- Initiating devices
 - Manual
 - Pull station
 - Automatic
 - Heat detectors
 - Fixed-temperature detectors
 - Rate-and-rise detectors
 - Combination
 - Smoke detectors
 - Ionization detectors
 - Photoelectric detectors
 - Projected beam detectors
 - Duct detectors
 - Carbon monoxide detectors
 - Water flow switches
 - Valve temper switches
 - Water temperature alarms
- Notification appliances
 - Horn and strobe appliance
 - Emergency Voice Alarm Communications (EVAC) system
 - Automatic mode (horn and speaker appliance)
 - Manual mode

- Americans with Disabilities Act (ADA) requirements
- Activate
 - Magnetic door holders and locks
 - Fire doors
 - Smoke doors
 - Smoke management fan
 - Pressurization fan
 - Elevator recall

Training and Testing

- Train occupants
- Test, inspect, maintain equipment

Fire Sprinkler Systems

- Wet pipe sprinkler system
 - Fire department connection (FDC)
 - Fire pump
 - Sprinkler riser
 - Sprinkler heads, mains, and branches
 - Water flow alarms, signals
 - Valve tamper switches
- Early Suppression Fast Response (ESFR) sprinklers (warehouse applications)
- Standpipe systems
- Dry pipe systems
- Deluge system
- Pre-action system
- Chemical systems
- Fire extinguishers

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Module 4: Building Operations II

Session 2: Building Maintenance (30 minutes)

Objectives:

- Describe the difference between reactive, preventive, and predictive maintenance
- Provide an example of each type of maintenance

Reactive Maintenance

- Repair, replace after expiration or breaking
- Examples
 - Replace light bulbs after they burn out
 - Fix motor after it has failed

Preventive Maintenance

- Proactive
- Scheduled maintenance (time-based schedule)
- Examples
 - Group re-lamping
 - Scheduled maintenance, HVAC system

Predictive Maintenance/Reliability Centered Maintenance (RCM)

- Proactive
- Statistics, measurement, experience determine service intervals
 - Statistical Process Control (SPC)

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Module 4: Building Operations II

Session 3: Elevators and Escalators (30 minutes)

Objectives:

- Describe the difference between traction and hydraulic elevators.
- Explain the operation of each system.

Elevators

- Components
 - Elevator cab
 - Elevator shaft
 - Buttons and switches
 - Indicators, tones, lanterns
 - Information screens
 - Elevator phones
 - Americans with Disabilities Act (ADA)
 - Destination floor control systems
 - Express elevators
 - Freight elevators
 - Service keys
- Types of elevators
 - Traction elevators
 - Components
 - Sheave
 - Counterweight
 - Brake
 - Overhead traction elevator
 - Basement traction elevator
 - Hydraulic elevators
 - Components
 - Hydraulic fluid
 - Pump
 - Piston
 - Hole-less hydraulic
 - Machine Room-Less (MRL) elevators
 - Elevator maintenance
 - Safety
 - ANSI/ASME A 17.1 standard
 - Testing and maintenance programs

Lifts for Disabled

- Wheelchair lifts

Escalators

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Module 4: Building Operations II

Session 4: Roofing Systems (30 minutes)

Objectives:

- List the components of a roofing system
- Describe the differences between built-up, modified bitumen, and single-ply roofs

Roof: Long-Term Fixed Asset

- Life cycle cost analysis (LCC)

Components of a Roofing System

- Decking
- Insulation
 - Inverted or protected roof assembly
 - Types of insulation
 - Extruded polystyrene
 - Blue board
 - Phenolic foam (recalled)
- Walk paths

Types of Roof Systems

- Built-up roofs (BUR)
- Modified bitumen roofs
 - Thermoplastic
 - Elastomeric
- Single-ply membrane roofs
 - Types of membrane
 - Ethylene propylene diene monomer (EPDM)—rubber
 - Polyvinyl chloride (PVC)—vinyl
 - Thermoplastic olefin (TPO)
 - Ballasted system
 - Mechanically attached system
 - Fully adhered system

Roof Maintenance

- Inspections
- Common problems
 - Equipment on roof surface
 - Roof penetrations
 - Leaves
 - Clogged roof drains
 - Trash and debris

ANSI/IWCA I-14.1 Window Washing Standard

- Roof anchor installation and testing

Green Roofs

- Vegetation over waterproofing membrane
- Provide amenity space for building users (garden)
- Reduce heating and cooling costs
- Reduce heat island effect
- Increase lifespan of roof
- Reduce storm water runoff
- Filter pollutants

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Module 4: Buildings Operations II

Session 5: Solid Waste Management and Recycling (30 minutes)

Objectives:

- List the recyclable and non-recyclable items that make up the solid waste stream for a typical commercial building.
- Explain the value of performing a waste audit.
- Describe four primary types of waste removal containers.
- Identify the benefits (financial, social, legal) of properly handling waste materials

The Waste Stream

- Solid waste (aka municipal solid waste)
 - Disposal
 - Landfills
 - Incineration
 - Waste-to-energy plant
 - Examples
 - Office trash
 - Kitchen waste
 - Composting
- Medical waste
 - Require special containers
 - Special handling for “sharps”
- Hazardous materials and chemicals
 - Solvents and lubricants
 - Unknown substances
 - Require special handling

Recycling

- Transfer stations
- Office paper
 - White paper
 - Mixed paper
 - Use of totes
- Newspapers
- Cardboard
 - Cardboard baler
- Glass, plastic, steel, and aluminum cans and bottles
- Fluorescent tubes and ballasts
 - Contain mercury; requires special handling
- Electronic equipment

The Waste Audit

- What the audit measures
 - Items not being recycled
 - Contamination in recyclable stream
 - Proper use, size of waste containers
 - Diversion rate
- Implementing improvements
 - Educating tenants
 - Educating janitorial employees
 - Selecting appropriate containers

Solid Waste Consultants

- Can help you...
 - Reduce solid waste stream
 - Improve recycling program
 - Choose right equipment
 - Negotiate better rates for waste removal and recycling

Waste Containers

- Front load
- Rear load
- Roll off
- Compactors

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Module 4: Building Operations II

Session 6: Janitorial Services (60 minutes)

Objectives:

- Describe the three levels of cleaning: routine, prestige, and clinical.
- Compare and contrast the four types of cleaning: policing, routine, periodic, and project work.
- Compare and contrast the five types of cleaning contracts: fixed price, cost plus percentage, cost plus fixed fee, performance based, and incentive based
- List at least five materials used in green cleaning

Levels of Cleaning

- Routine cleaning
- Prestige cleaning
- Clinical cleaning

Managing Dirt

- Capture dirt before it enters the building
 - Walk-off mats
 - Wet weather mats

Types of Cleaning

- Policing
- Routine
- Periodic
- Project work

Components of Cleaning Contracts

- Labor
 - Area cleaning
 - Team cleaning
- Materials
 - Material Data Safety Sheet (MSDS)
- Equipment
- Evening v. day cleaning™

Types of Contracts

- Fixed price
- Cost plus percentage
- Cost plus fixed fee
- Performance based
- Incentive based
- Union v. non-union vendors
- Vacancy credits

Green Cleaning

- Green Seal standards
- LEED® certification

Window Cleaning

- Rope decent equipment
- Swing stage scaffolding equipment
- ANSI/IWCA I-14.1 Window Cleaning Safety Standard

Carpet Cleaning

- Interim carpet maintenance
- Restorative carpet maintenance
- Carpet cleaning processes
 - Bonnet cleaning
 - Dry cleaning
 - Extraction
 - Low moisture encapsulation

Janitorial Inspections

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Module 4: Building Operations II

Session 7T: Property Tour (90 minutes)

Objective:

- This tour enables you to continue exploring the mechanical and engineering areas of a commercial building

Tour Highlights

- Elevators and escalators
- Roof systems
- Solid waste and recycling
- Janitorial inspection

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