Fire Safety and Fire Management

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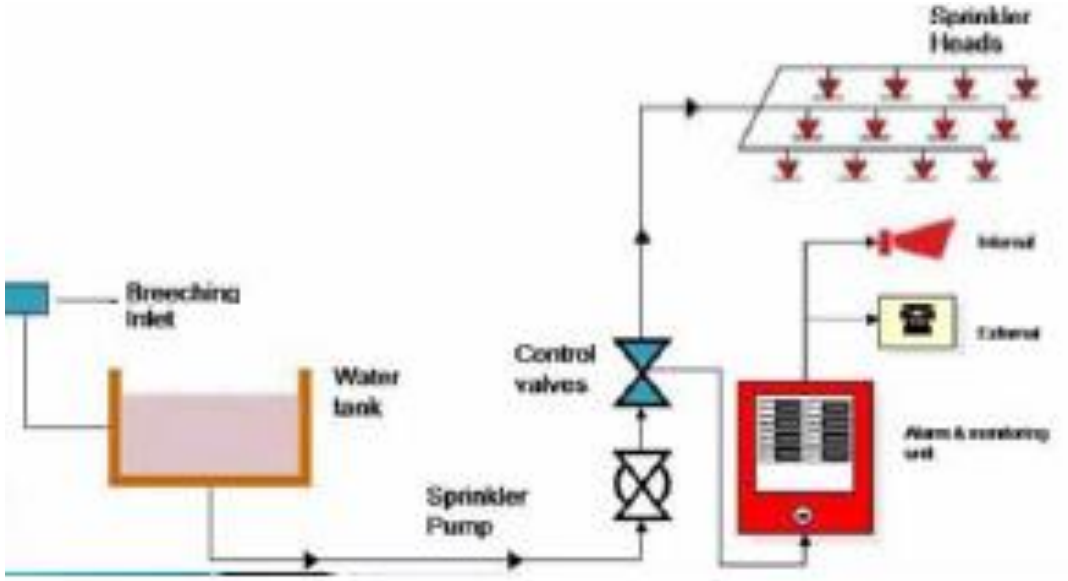
Over 20 years Experience in upstream, midstream & downstream

Safety Case
Symposium 2018
Singapore

Objectives

Ice Breaker Video

- Understand Fire safety Principles
- Familiarization of Legislation requirements
- Discuss various Prevention methods
- Discuss Communication systems
- Understand the importance of Escape
- Discuss Containment
- Discuss fire Extinguish Systems
- Familiarization of Risk Management



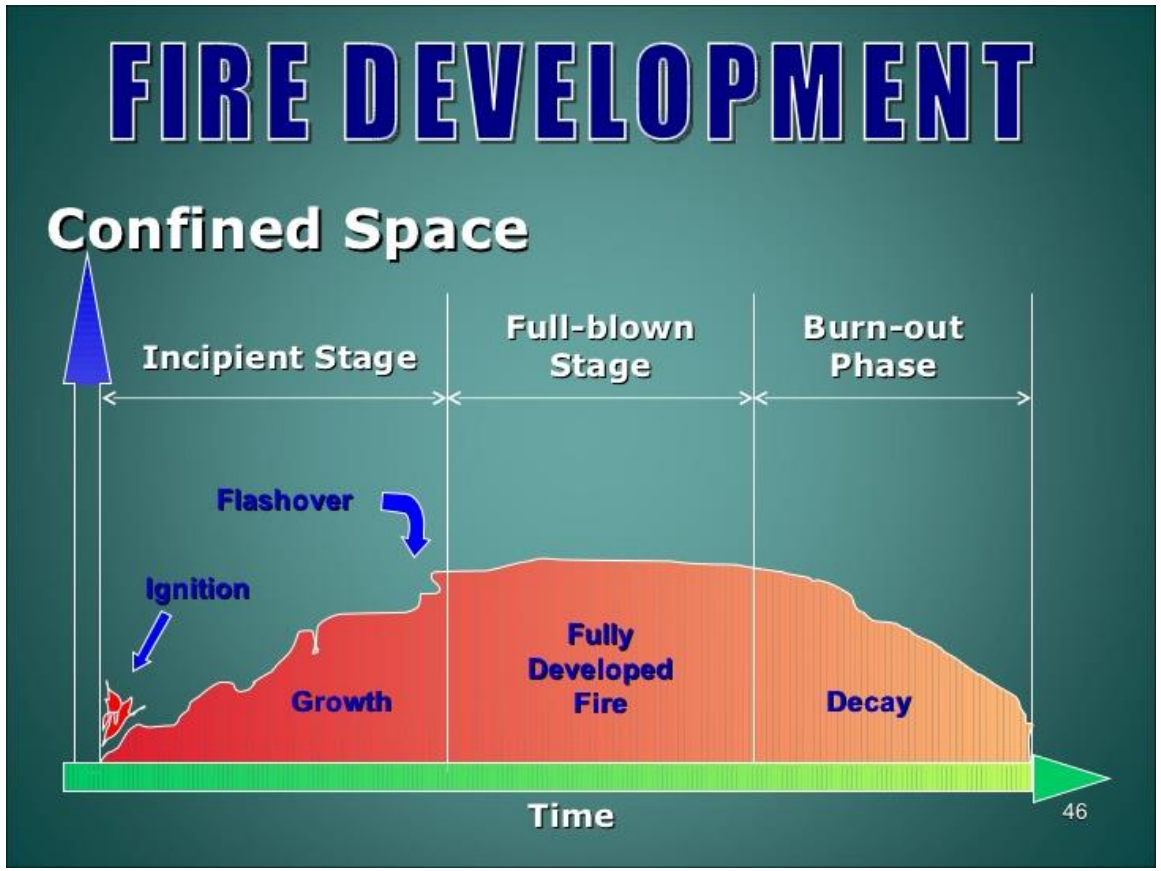
Fire Safety in nutshell

Fire Safety Principles

- Basic components of a fire are:
  - Fuel
  - Source of Ignition
  - Oxygen
  - Process of combustion

- Commonly referred as :Fire Tetrahedron”
- Class A Fires – Ordinary Combustibles -wood & Paper
- Class B Fires – Flammable and combustible liquids and gases
- Class C Fires – Energized Electrical equipment
- Class D Fires – Combustible Metals – Lithium Battery
- Class K Fires – Cooking Oils and Fats

Fire safety Principles



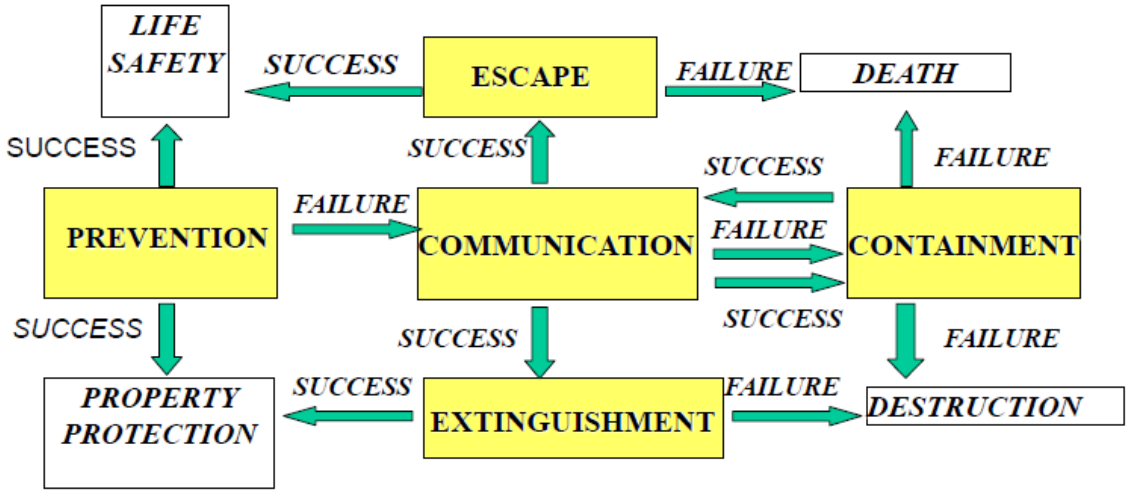
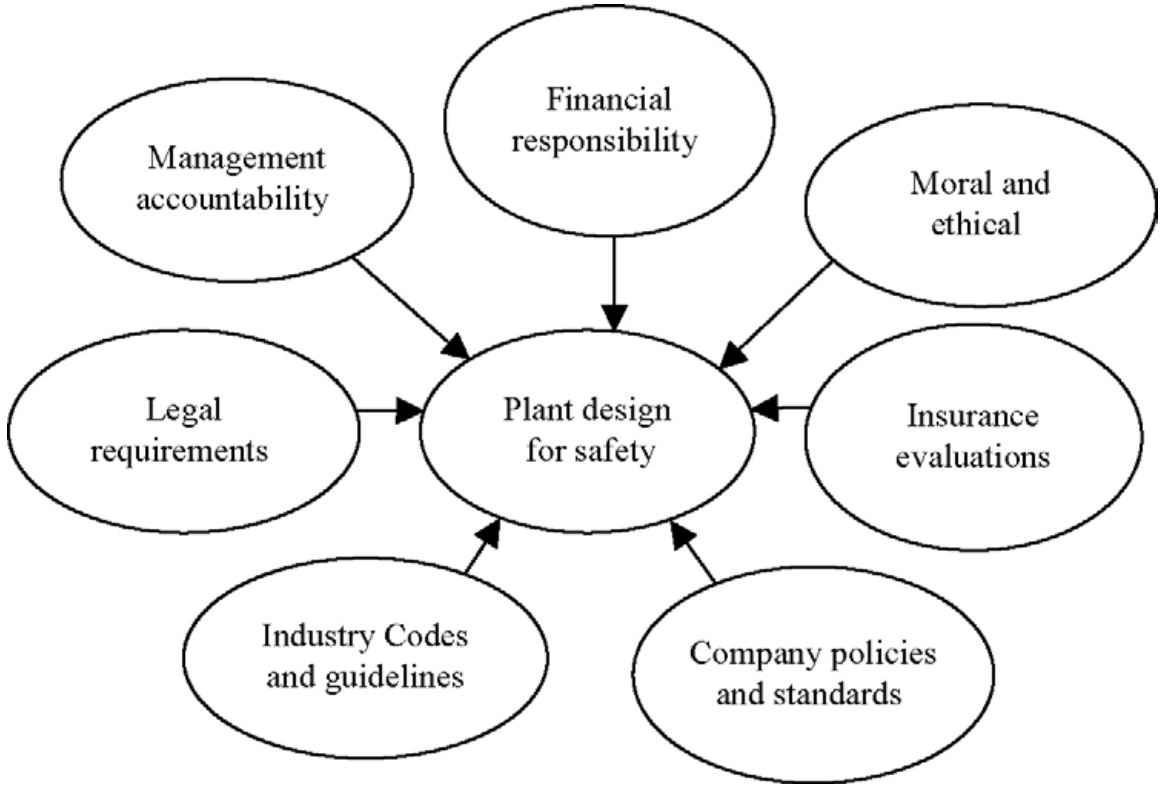


Figure Matrix of tactics and objectives

Legislation

- Legal Obligations
  - Submit plan for approval, inspection by registered inspector, Temp. fire/permit /Fire safety certificate, appointment of Fire Safety Manager, Fire Certificate
- Occupational Safety Health Administration (OSHA)
- Environmental Protection Agency
- Industry codes and Guidelines
- Management Responsibilities
- Company polices and Standards
- Insurance Recommendations

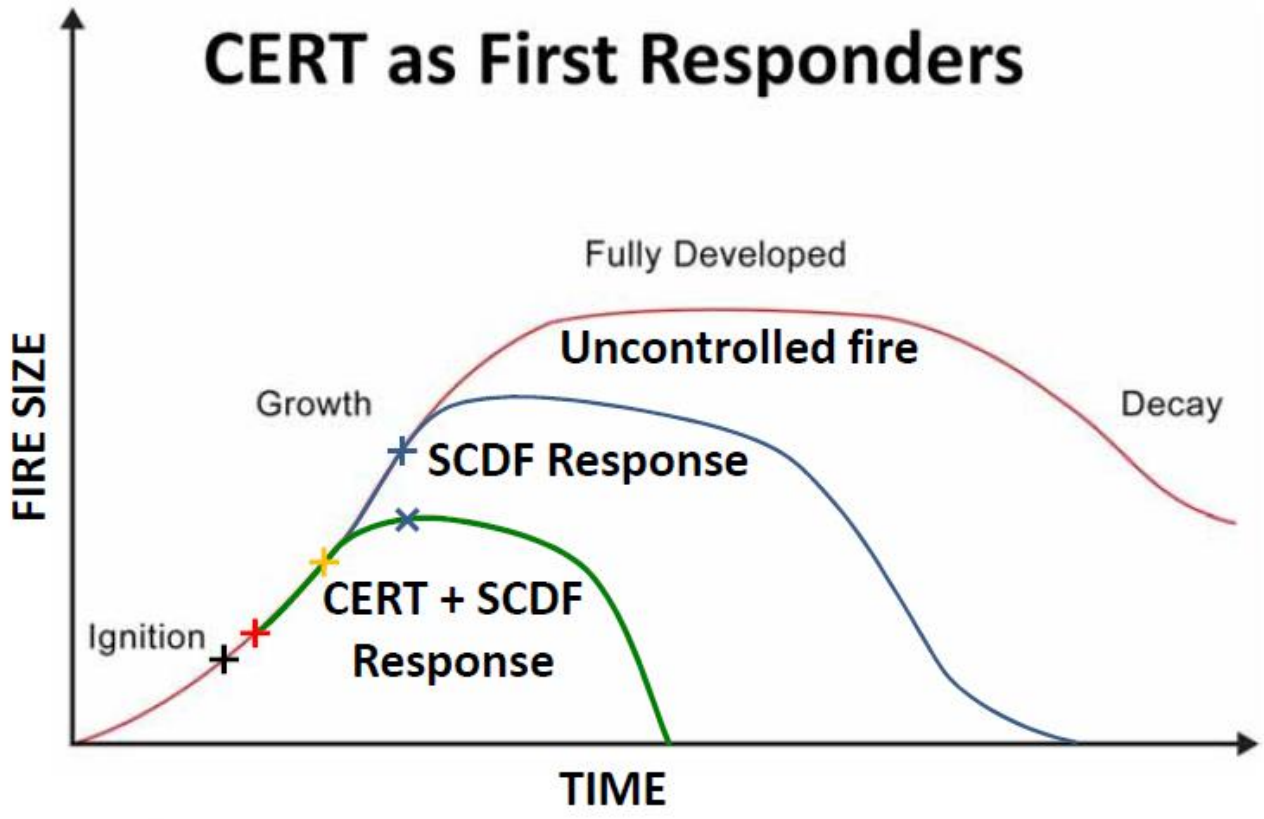


Prevention

- Ignition Prevention
  - Natural phenomena, Human Carelessness, Technological failure, Vandalism
- Fuel Limitation
  - Building fabric, Building contents
- Fire Safety Management

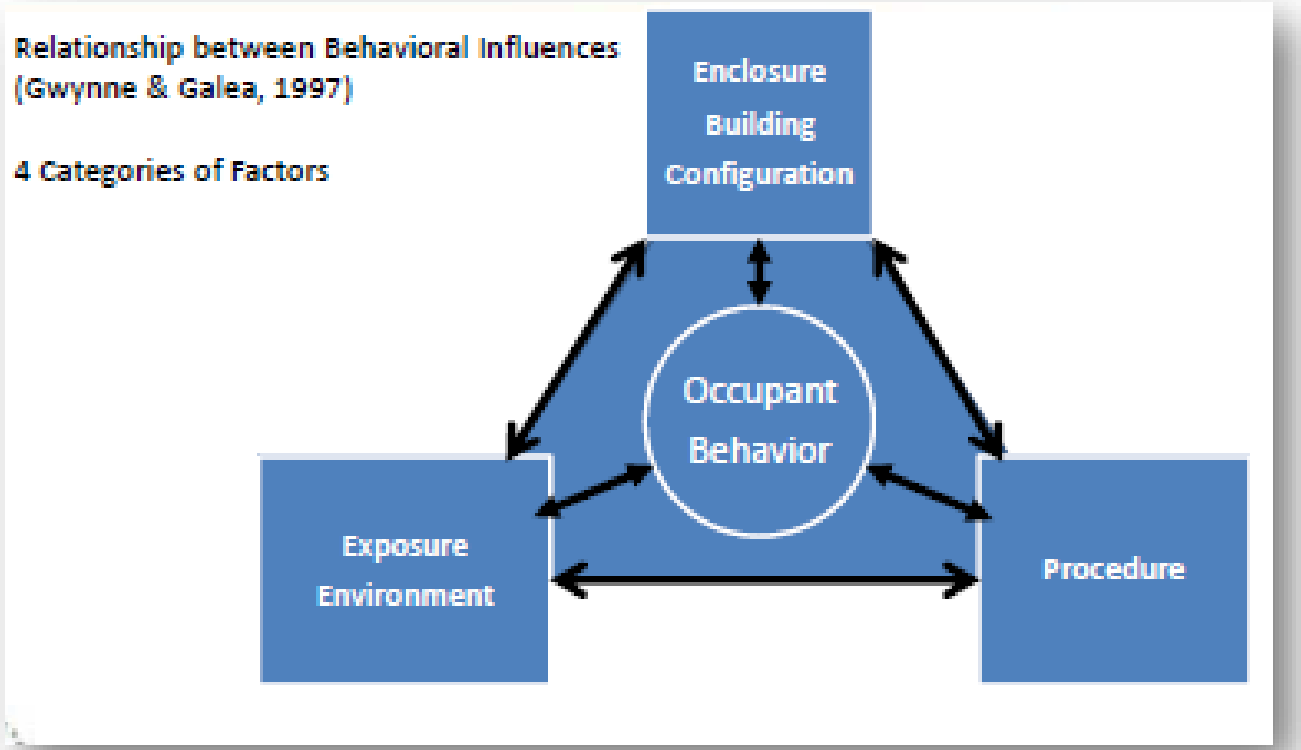
Communication

- Detection
  - Manual call point – Breaking glass
  - Auto - Smoke, Heat ,Light, Thermal turbulence
- Alarm
  - Occupants, Fire Service
- Signs and Fire notices
  - Signs, fire notices



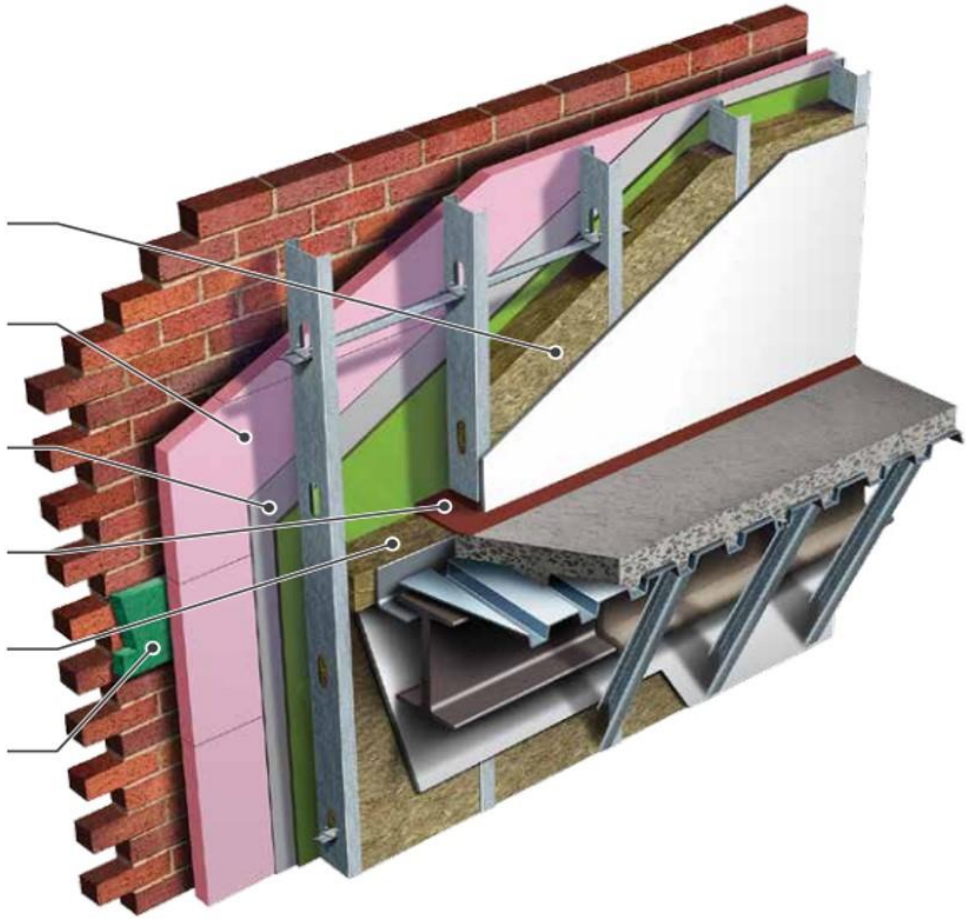
Escape

- Emergency Response Plan
  - CERT
- Alarms and Notifications
- Evacuation Routes
- Emergency Doors, stairs, Exits and Escape Hatches
- Marking and Identification
  - Emergency Illumination
- Shelter-in-Place
- Offshore Evacuation
  - Means of egress, flotation assistance

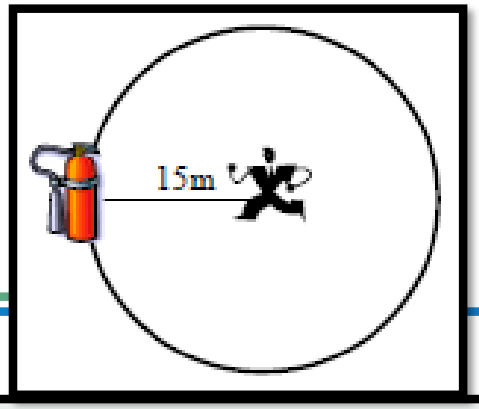


Containment

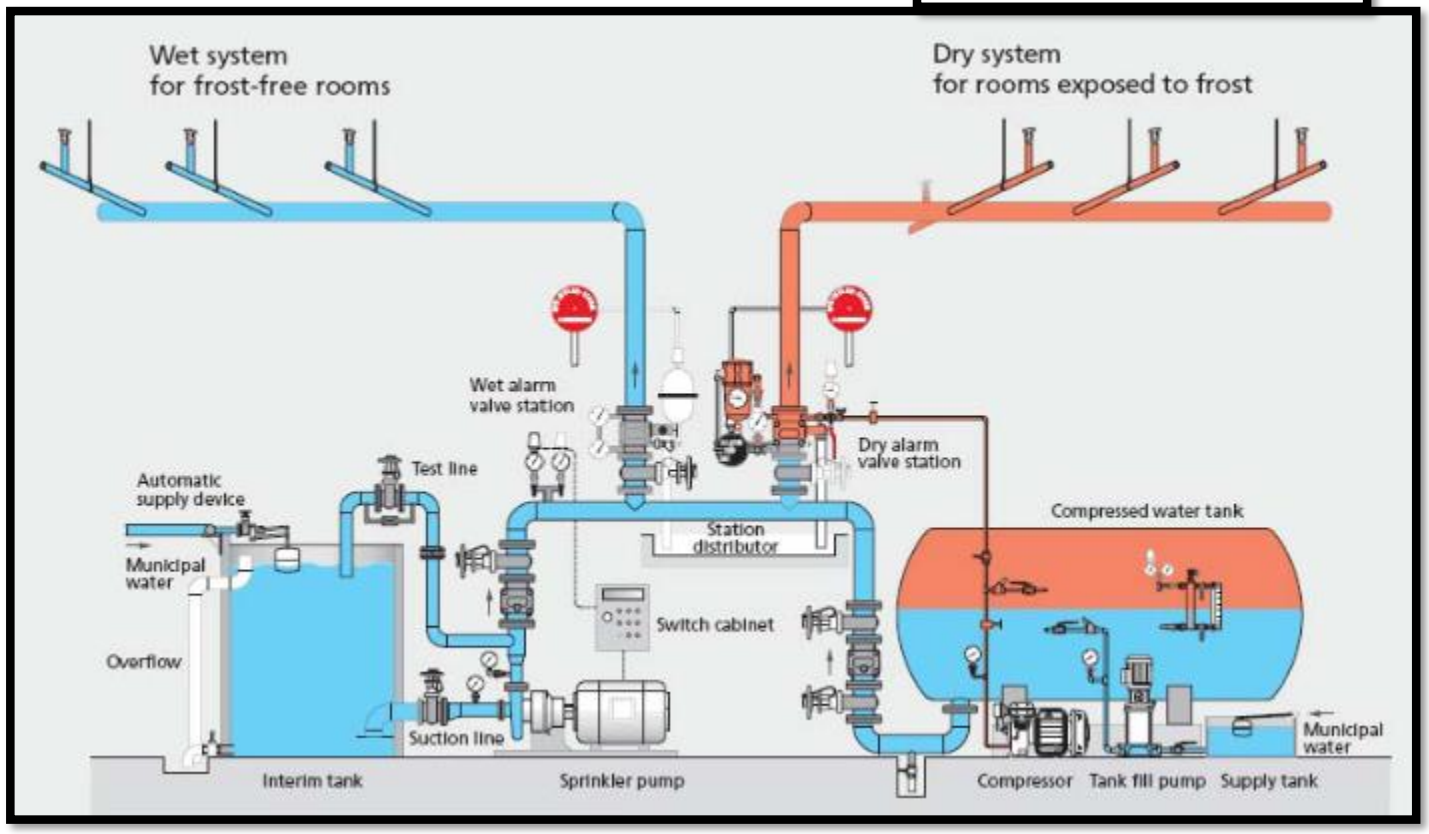
- Passive measures: Structural Protection
  - Structural protection, Fire resistance, materials
- Passive measures: compartment Protection
- Active measures
  - Pressurization, venting,



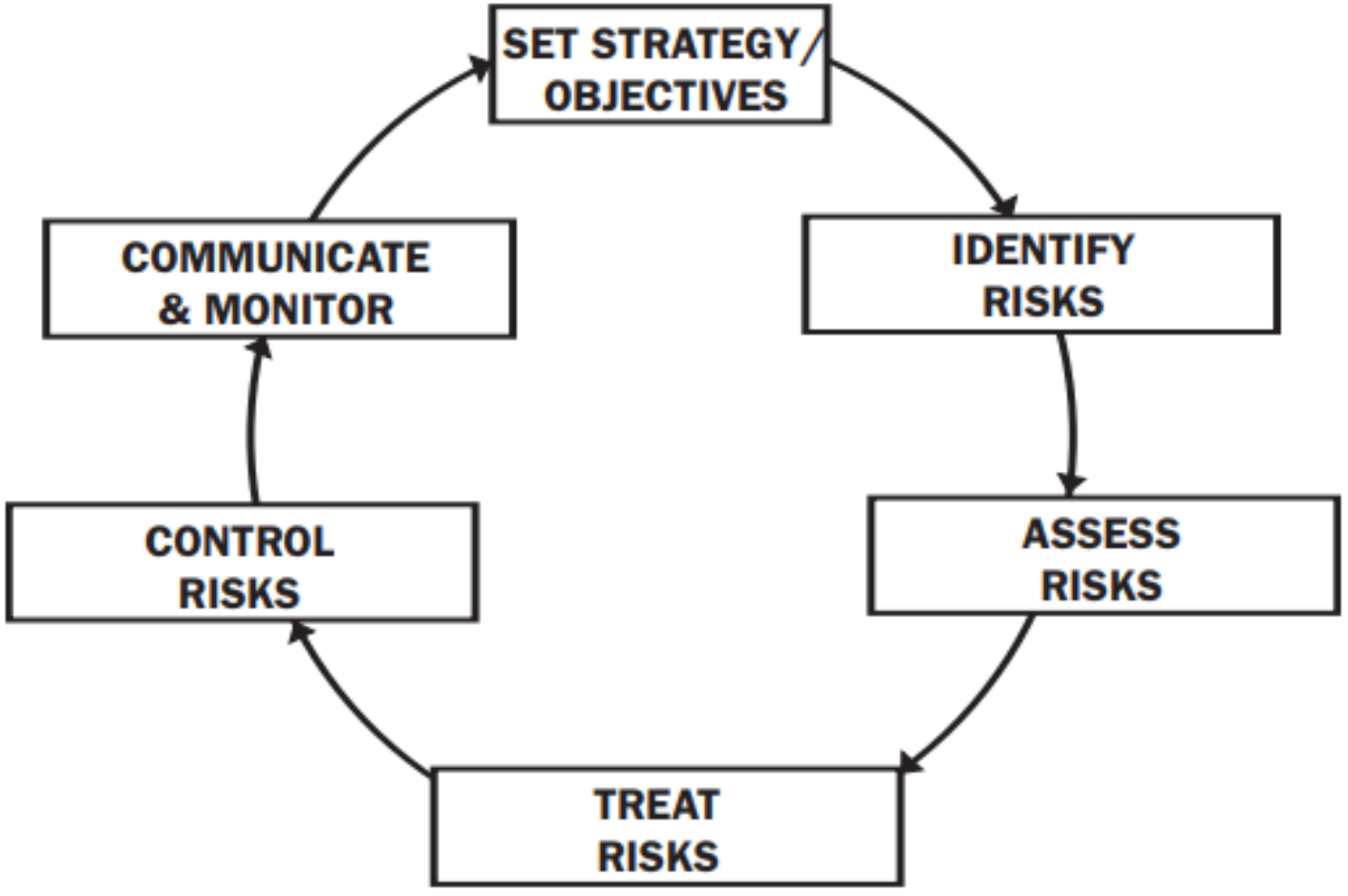
Extinguishment

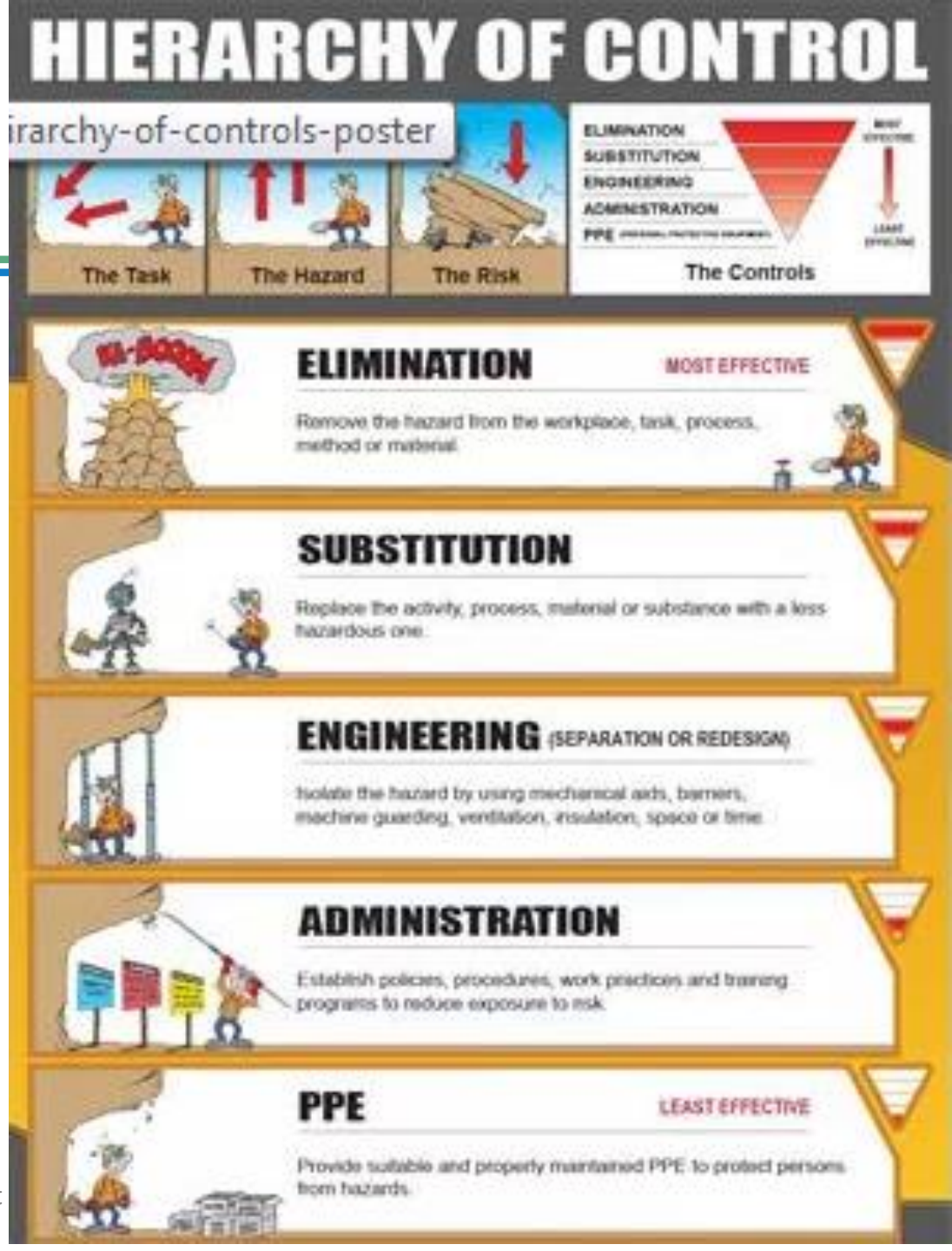


- Automatic Fire Extinguishing Systems
  - Types, components, sprinkler system design
- Water mist system
- Foam System
- Gas Suppression System
- Wet chemical suppression System



Risk Management





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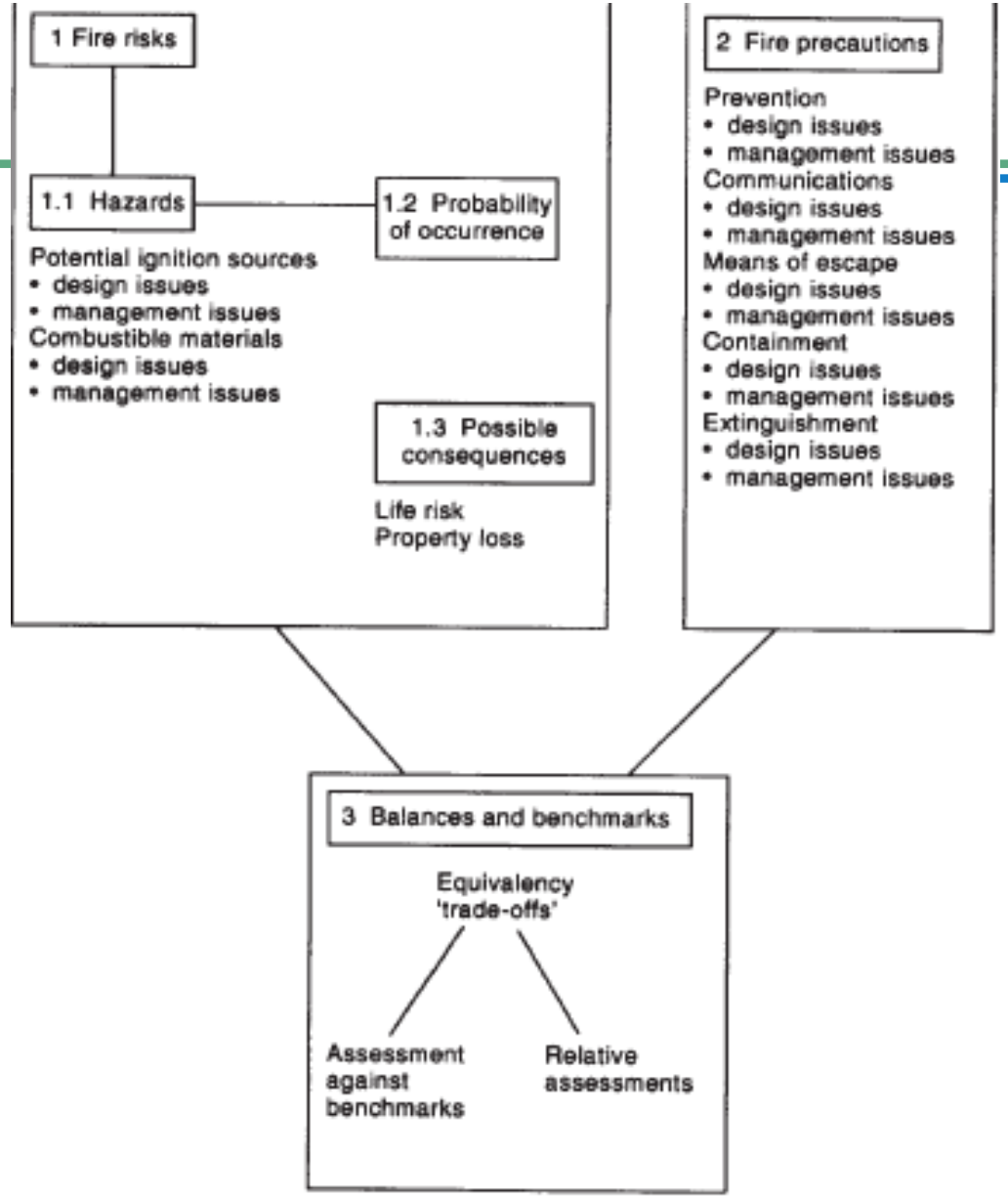

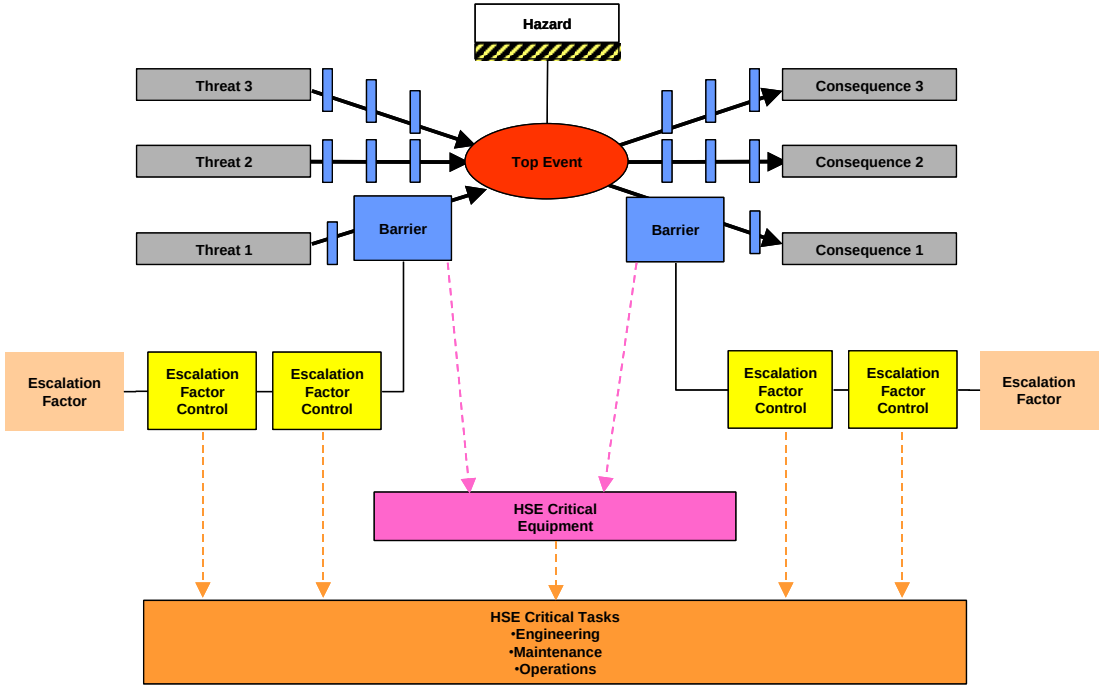

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