KOHLER RONAN

FIRE PROTECTION SYSTEMS

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LEARNING OBJECTIVES

AFTER COMPLETION OF THIS COURSE, PARTICIPANTS WILL BE ABLE TO...

Determine when to provide sprinklers and/or standpipes for a project

Identify different types of fire protection systems and their various components

Perform basic calculations required for sprinkler design

Understand basic architectural considerations

FIRE PROTECTION DESIGN PROCESS

HOW DO YOU KNOW WHAT IS REQUIRED?

2012 IBC with 2016 CT Supplement

- Define "Use Group"
  - Assembly, Education, High Rise

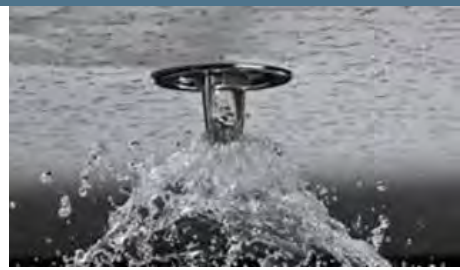
2012 IFC with 2016 CT Supplement

Architectural "buy-offs"

Insurance Requirements

Local Ordinances

FIRE SPRINKLERS



YOU'VE DETERMINED SPRINKLERS ARE REQUIRED; NFPA DETAILS HOW TO INSTALL/DESIGN

NFPA 13

Sprinklers throughout entire building

- To protect structure and occupants

NFPA 13D (ONE AND TWO FAMILY HOMES)

No sprinklers in attics, small bathrooms, etc.

- To allow occupants to escape

NFPA 13R (LOW-RISE RESIDENCE)

Similar to 13D, dormitories, small hotels, etc.

- To allow occupants to escape, limited property protection

OTHER AREAS REQUIRING PROTECTION

STAGES >1000 SQ.FT.

- Standpipes on either side
- Deluge system above if curtain not provided
- Sprinklers in chair storage if combustible

ELEVATOR HOISTWAYS

- Sprinkler at top of shaft (if not ASME 17.1 compliant)
- Sprinkler at bottom of shaft (unless hydraulic fluid non-combustible)

VERTICAL OPENINGS TO ANOTHER FLOOR

- Sprinklers 6′-0″ on center around opening with 18″ draft stop

COMBUSTIBLE CONCEALED SPACES

- Sprinklers must be provided in unless it meets exception in NFPA 13, 2010.

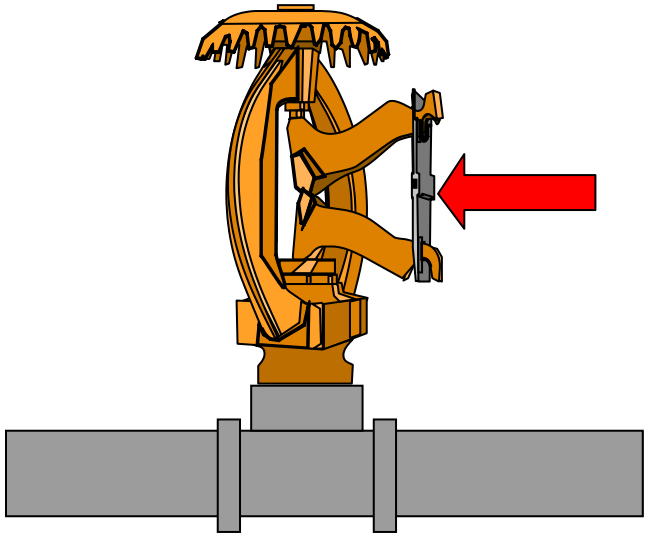
SPRINKLER SPACING AND WATER FLOW REQUIREMENTS

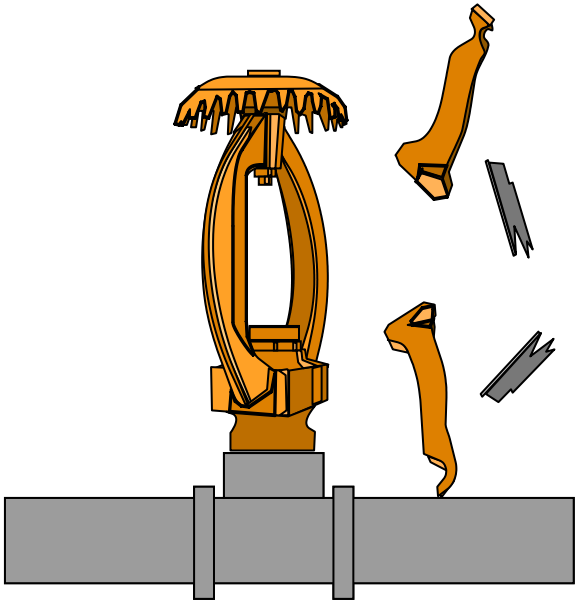
BASED ON NFPA 13

Sprinkler Spacing

Hazard	Max Area Covered By 1 Sprinkler (Sq. Ft.)	Max Distance Between Sprinklers
Light	225	15
Ordinary	130	12 - 15
Extra	100	12

FIRE SPRINKLER OPERATION





FIRE PROTECTION SYSTEMS

OVERVIEW

Fire sprinklers (required)

-Wet, dry, pre-action or deluge system

Additional fire suppression systems (optional)

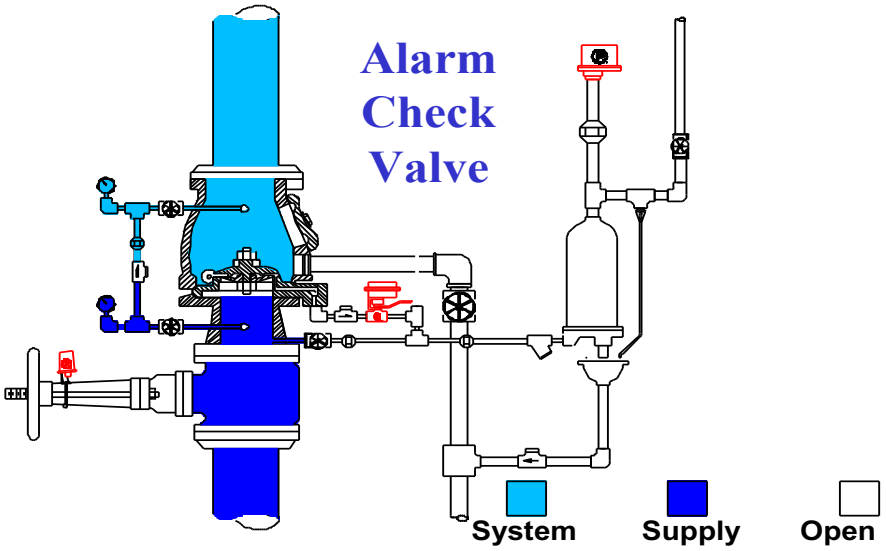
-Water mist

-Gaseous (Inergen, FM200, Sapphire)

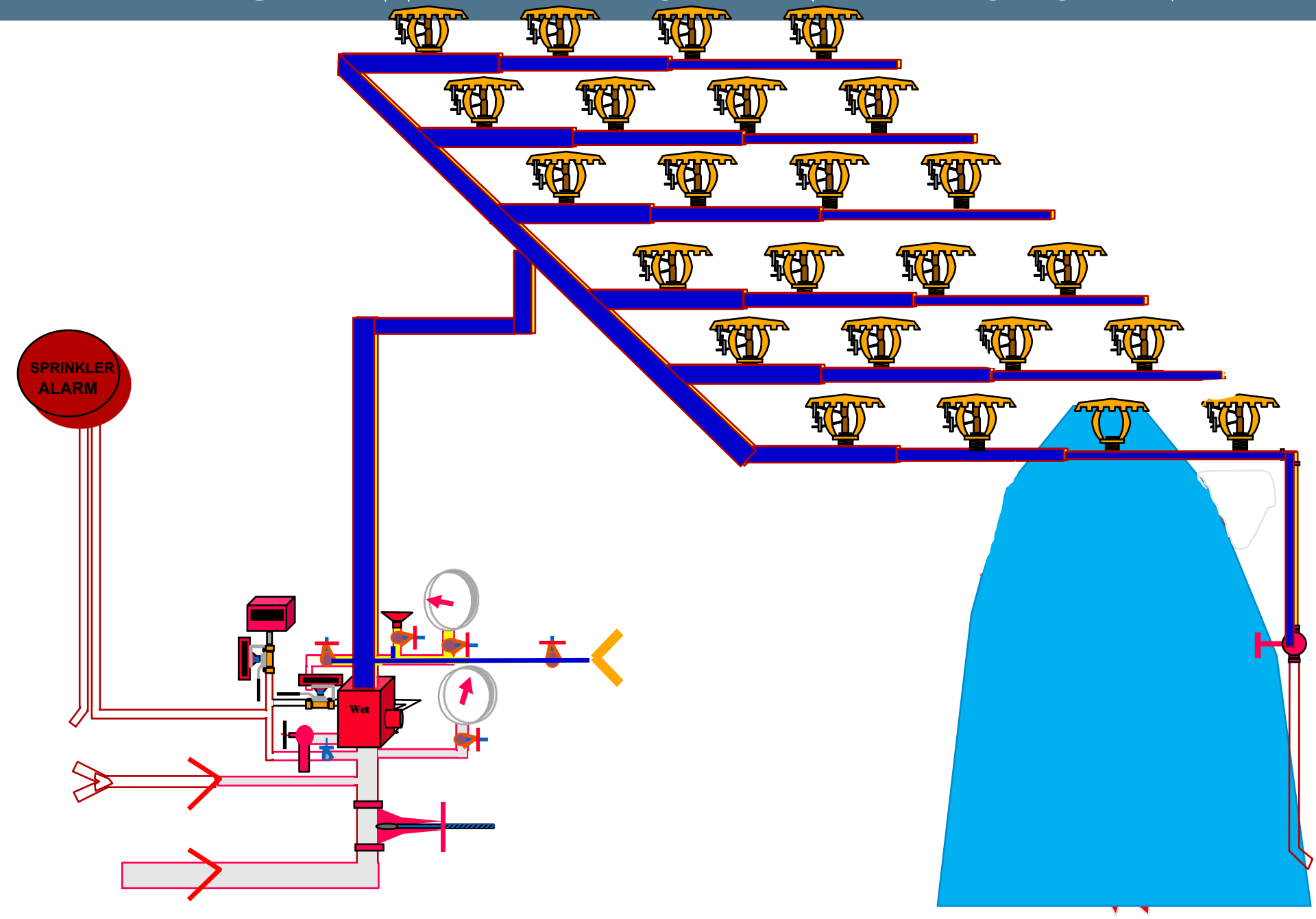
WET PIPE FIRE SPRINKLER SYSTEMS

Piping and components

Easily maintained, reliable less costly



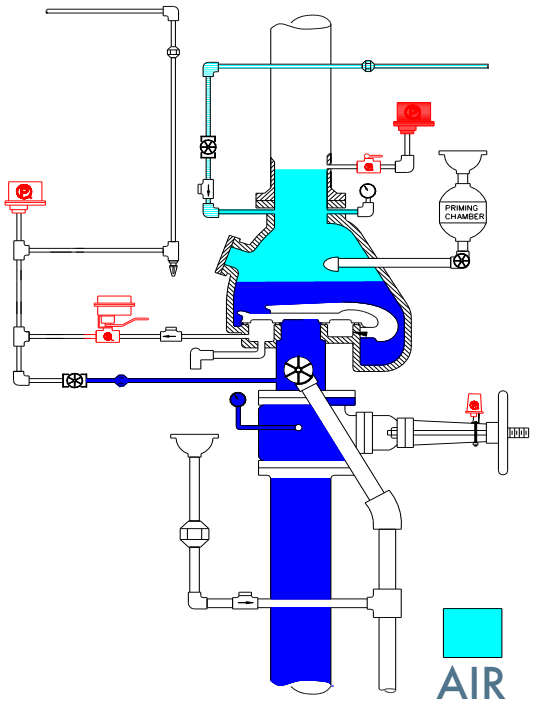
TYPICAL WET PIPE SPRINKLER SYSTEM



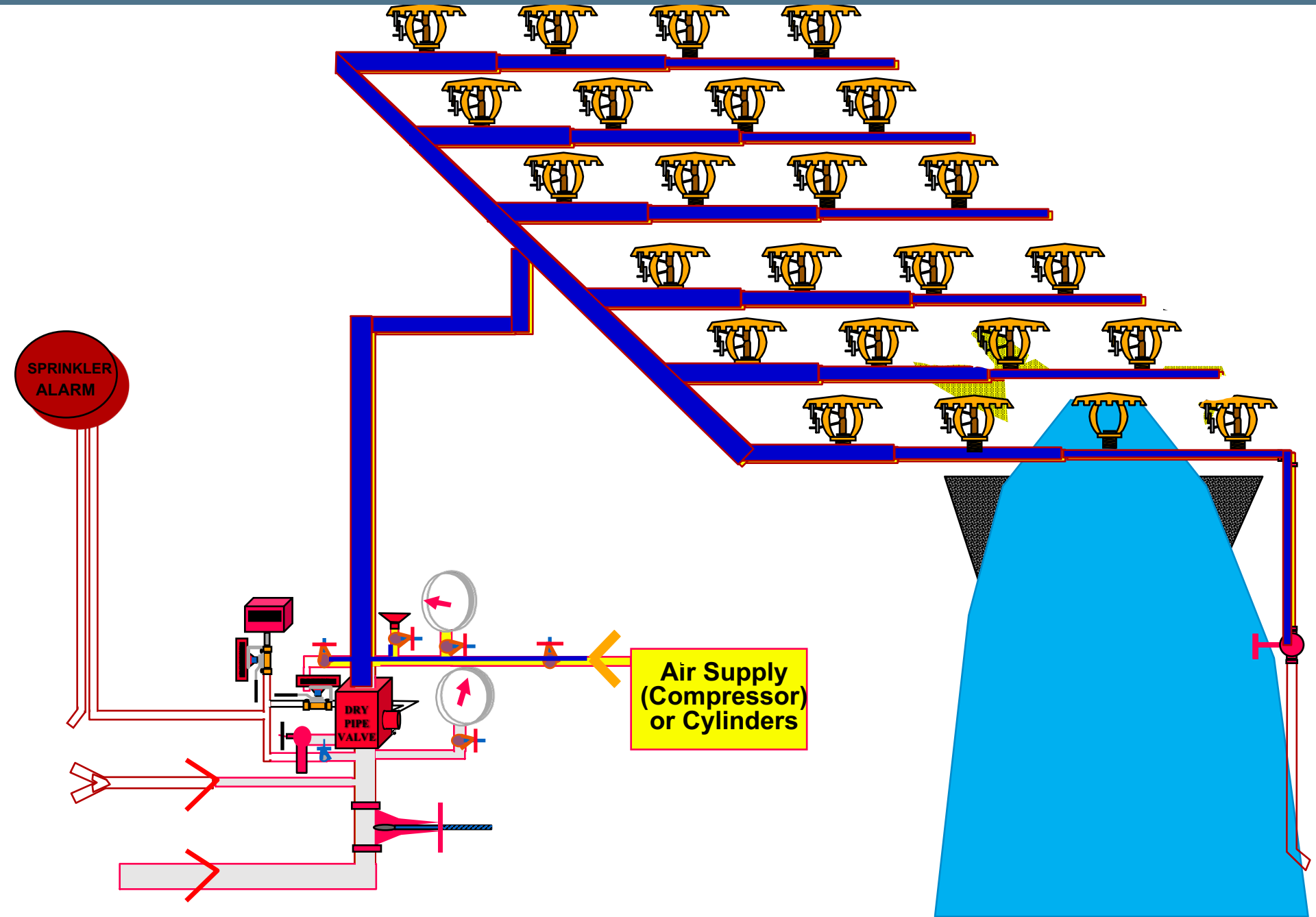
DRY PIPE FIRE SPRINKLER SYSTEMS

Piping and components

Not applicable for museums



TYPICAL DRY PIPE SPRINKLER SYSTEM



PRE-ACTION FIRE SPRINKLER SYSTEMS

Like dry systems except they also use smoke detection to activate

Used when water damage is a concern

Utilized in data centers, computer rooms, “911” centers, museums