Risk Control Bulletin
Dry Pipe Sprinkler Valve Heated Enclosure

RISK CONTROL

Data Sources: National Fire Protection Association

(NFPA) Codes and Standards:
NFPA 13 – Installation of Sprinkler Systems
NFPA 25 – Inspection, Testing and Maintenance of Water-Based Fire Protection Systems

Dry pipe sprinkler systems are designed for use inside buildings that are unheated, inadequately heated, or that must be open to outside cold temperatures for appreciable time periods. Under these conditions, it is clear that wet-pipe systems are likely to freeze up and burst their piping.

It is mandatory that water always be present in supply piping up to the clapper of the dry pipe valve - compressed air then fills the piping from the clapper on to the outermost sprinkler head. Therefore, arrangements must be made to prevent the water in the supply piping to the dry-pipe valve from freezing. The following guidelines should help you design and install a system to accomplish this.

Enclosure

The best arrangement is a dry-pipe valve enclosure, suitably heated at all times to at least 40°F. Such an enclosure is depicted but its size has been exaggerated for clarity of constructional detail. Actually, the enclosure need merely provide working room on all sides of the dry-pipe valve, such as 30 inches to all walls from the valve. This would provide an enclosure that is 6' x 6' x 6' in size.

The water supply pipe should come up through the floor in the center of the enclosure if possible. If the floor is concrete laid directly on earth, without air-space, the supply pipe will be adequately protected by ground best arrangement is a dry-pipe valve enclosure, suitably heated at all times to at least 40°F. Such an enclosure is depicted but its size has been exaggerated for clarity of constructional detail. Actually, the enclosure need merely provide working room on all sides of the dry-pipe valve, such as 30 inches to all walls from the valve. This would provide an enclosure that is 6' x 6' x 6' in size.

The water supply pipe should come up through the floor in the center of the enclosure if possible. If the floor is concrete laid directly on earth, without air-space, the supply pipe will be adequately protected by ground cover until it emerges in the valve enclosure. But if the floor of the enclosure is wood or any other material having appreciable air space beneath it, then the supply pipe must be enclosed beneath the floor and protected with insulation, sand or earth over its entire exposed portion until it enters the valve enclosure.

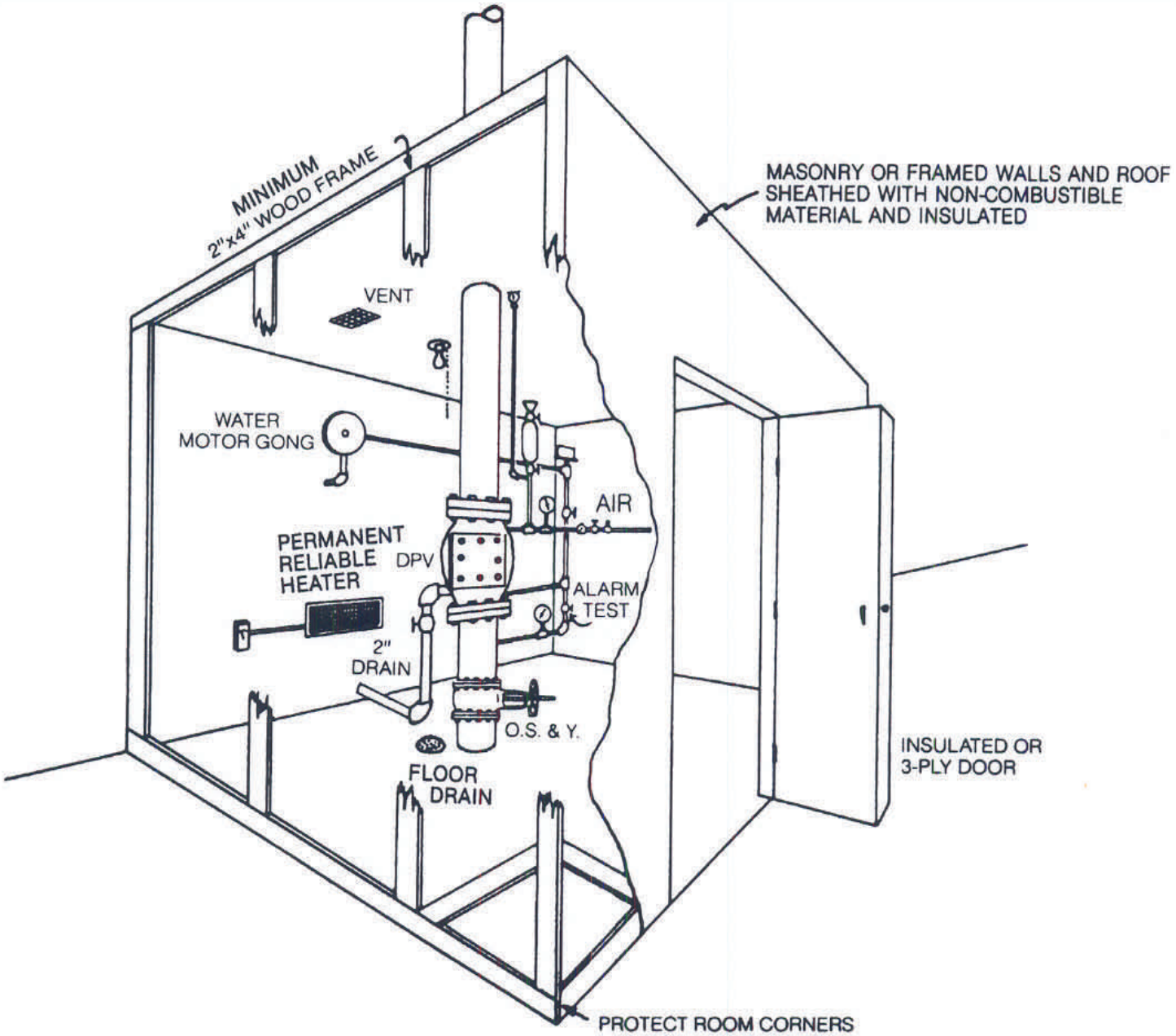
Wall studding should be sheathed on both sides with non-combustible material and the space between filled with insulation. The door to the room should be of equivalent construction and fit tightly so as to conserve room heat. Outer corners of the enclosure should be protected with 2" angle iron. Masonry construction of these enclosures makes for better closure and minimal heat loss. A small screened ventilator allows the room to "breathe" and thus minimize condensation. Automatic sprinkler protection should be provided in the enclosure.

Drainage

Since water spillage (or occasional leakage} may occur during valve maintenance work, it is desirable to have a small floor drain connected to the sewer. The floor should be sloped toward the drain.

Heating

Lighting can be ordinary electric. Heating can be electric from strip heater under thermostatic control (so that 40°F is always maintained). If steam is available on 24-hour basis from plant boilers, steam heat can be used. If central station alarm service is used on the property, the temperature within the valve enclosure can be supervised by it.



IF CONCEALED OR CRAWL SPACES EXIST BELOW FLOOR LEVEL, ADDITIONAL PROVISIONS ARE NEEDED TO PROTECT THESE AREAS FROM FREEZING TEMPERATURES