Auxiliary Drain – Dry System

To prevent freezing, dry system auxiliary drains shall be provided where a change in piping direction prevents drainage of system piping (trapped piping) through the main drain valve. The type of a dry system auxiliary drain, its size, and its arrangement depend on the capacity (volume) of trapped piping.

In a dry system where the capacity of trapped section of pipe is 5 gallons or less, the auxiliary drain shall consist of a valve ½-inch or larger and a plug (Exhibit 1) or a nipple and cap (Exhibit 2).

Dry system auxiliary drains are not required for pipe drops supplying dry-pendent sprinklers provided the water-filled pipe above the dry-pendent sprinkler is not subject to freezing and where the length of the dry-pendent sprinkler has the minimum exposure length as listed by the manufacturer. An auxiliary drain is also not required when pendent sprinklers located in heated areas are supplied by piping that is also in a heated area.

In a dry system where the capacity of trapped section of pipe is more than 5 gallons, the auxiliary drain shall consist of two 1-inch valves (A) and one 2-inch by 12-inch nipple (B), (Exhibit 3). This type of auxiliary drain is commonly known as a “drum drip” (refer to the June 2011 edition of Quick Response).

An auxiliary drain called “tie-in drains” is utilized when two or more adjacent branch lines in a dry system are trapped. The ends of the branch lines are to be piped together and run to a low-point drain. The piping for tie-in drains shall only be 1-inch in size and be pitched at a minimum of ½-inch per 10-feet. Tie-in drains should be avoided if possible because their use in effect creates a dry gridded system (dry gridded systems are prohibited). The gridded pipe arrangement slows the evacuation of air from the dry system and delays a steady flow of water to operating sprinklers. As such, the 1-inch pipe size restriction helps minimize delays.