DRY SPRINKLER FREEZE ALERT

Due to the recent sub-zero weather, Futrell Fire Consult & Design, Inc. (FFCDI) has received numerous calls regarding frozen sprinkler systems and related water damage. We have noted two installation scenarios in particular where the proper installation of dry pendent and sidewall sprinklers may have avoided the problem. We have also included a third issue related to dry sprinkler installations in general. We feel strongly that these items must be addressed during plan reviews these problems may be avoided.

Issue #1

The barrel on the dry pendent or sidewall sprinklers is not long enough to prevent the conduction of cold from reaching the wet portion of the system. Each sprinkler manufacturer has specific requirements on the length of the dry sprinkler barrel depending on the temperature the sprinkler head is exposed to. According to one manufacturer's literature, the minimum recommended length is:

- 12 inches when the temperature is –20°F
- 18 inches when the temperature is –40°F
- 24 inches when the temperature is –60°F

As we are all aware temperatures below –20°F are very likely and the installation of a 12 inch dry pendent may not be long enough to prevent freezing in our climate. Please note that the required length must be in the heated space (the insulation does NOT count as heated space – therefore, the minimum length starts after the insulation) as shown in the figure below. Note this applies to horizontal sidewall sprinklers also.

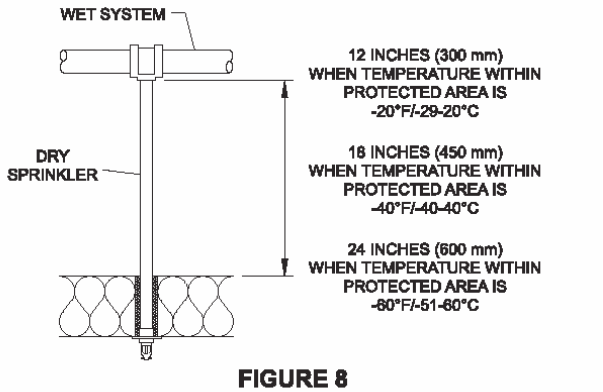

FIGURE 8
MINIMUM EXPOSURE LENGTH

Issue #2

The transition between the dry sprinkler and the wet system is required to be in a heated space. In some cases the area/space is heated, but is filled with blown-in or another type of insulation surrounding the pipe. In these cases the insulation is actually insulating the water-filled pipe from the heat and allowing the extreme cold to conduct in the pipe and freeze the system at or near the fitting.

Issue #3

Dry type sprinklers must be installed in tees according to the manufacturers. Most of us are aware by now that the installation into an elbow is not acceptable as the take-out of the elbow may bottom out the dry sprinkler and bind against the seat. Please note, however, that the installation into a coupling is also not acceptable for the same reason.

Summary

Information in this article was obtained from Tyco Fire Products/Central Sprinkler Corporation and should only be used as a guide. Please obtain and review the data sheets from the specific manufacturer for each installation. If you have any questions on these installation issues or are aware of any other similar problems, please feel free to call Scott, Phil or Ken at 763-425-1001.