

City of Kitchener Building Division

Requirements for Fire System Backflow Prevention

| Type of Cross Connection | Degree of Hazard | Source isolation device | Premise isolation device |
|--|------------------|--|--------------------------------------|
| Fire Hydrant | low | DCVA when used for temporary water supply | |
| Fire service main connected to more than one of the following sources of supply: a) municipal service main b) a private water supply system c) a source of non-potable water | severe | | RP |
| Wet Sprinkler System | moderate | | Listed alarm check valve or DCVA |
| Wet Stand Pipe System | moderate | | Resilient seated check valve or DCVA |
| Wet sprinkler or standpipe system containing anti-freeze loop with listed alarm check valve | moderate | DCVA upstream of antifreeze loop * (see general conditions) | |
| Wet sprinkler or standpipe system containing antifreeze loop <i>without listed alarm check</i> | severe | * (see general conditions) | RP + expansion tank/chamber |
| Dry sprinkler or standpipe system | low | | No protection required |

General Conditions for Fire Protection Systems

- 1) Antifreeze solutions must be water solutions of pure glycerin (C.P. or U.S.P., 96.5% grade) **OR** Propylene glycol conforming to Section 3-5.2.1. of NFPA-13 1194 Edition. These are best described as "food grade" chemicals.
- 2) Antifreeze solutions must be tested to verify compliance with the above conditions. Any other antifreeze solutions are considered a severe hazard and must be protected from backflow with an appropriate RP valve/drain from relief port/expansion chamber. This type of arrangement with an RP device has resulted in many false alarms due to the intermittent "dumping" of the antifreeze through the relief port so it is highly advisable to replace existing antifreeze solutions with the food grade equivalent and a DCVA BFP at the source.
- 3) Expansion Chambers shall be of an appropriate size to accommodate for the thermal expansion of the antifreeze.
- 4) An adequate amount of piping before or after the backflow prevention device shall be increased in size as to compensate for the pressure loss created by the particular device being installed. The flows of the fire system must not be compromised by the installation of the valve. Flow rates are to be in accordance with the NFPA-13 for the appropriate hazard classification in the area downstream of the backflow prevention device.

For more information contact 519-783-8773 or email bfpreports@kitchener.ca