BUREAU OF WATER & SEWER OPERATIONS

NEW YORK CITY
CROSS-CONNECTION CONTROL PROGRAM
HANDBOOK

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NYC-DEP

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19. The RPZ assembly can be positioned at an elevation high enough in the basement/cellar/etc. (below grade level) so that the RPZA discharge nozzle clears the sidewalk exterior grade so that there is no possibility of the discharge water ever blocking the RPZA discharge nozzle.

20. The RPZ assembly can be positioned at an elevation high enough in the basement/cellar (or any underground level) so that the RPZA discharge nozzle clears the house sewer connection before the house trap so that there is a possibility of the discharge water flowing by gravity to the NYC sewer.

21. The submersion calculation is required for all installations of RPZ/RPD assemblies below grade level. It is an 8-hours calculation as a backup to add a fails-safe to guarantee the RPZA relief valve won't end up under water.
Note: The high-water level alarm shall not be used as a substitute for the required submersion calculations.

22. Air Gap Fitting (AGF) and drain pipe sizes (for RPZ/RPD assemblies):
The AGF is designed to funnel moderate discharges from a RPZ's relief valve due to line pressure fluctuations and/or minor check valve fouling, into the drainage system or terminating above a floor drain. It reduces the amount of water splashing in the area around RPZ assemblies. Under certain conditions relief valves can discharge water at rates greater than the drain capacity. The air gap drain is not designed to catch the maximum discharge possible from the relief valve. It will handle any normal discharge or nuisance spitting through the relief valve. However, floor drain size should be designed to prevent water damage caused by a catastrophic failure condition. DOB's plumbing code should be followed.

Drain piping is easily attached to the air gap device threaded bottom (NPT Thread).
The size of the drain line from the AGF shall not be reduced or closed off.
Relief vent drains shall be sized for discharge as recommended by the manufacturers. Relief vent (port) shall not be solidly connected to any sump/ejector or sanitary sewer.

Notes:

- The AGF is NOT designed to collect the full discharge capacity of the relief valve. Additional drainage capacity may be required to accommodate a catastrophic relief valve failure. Refer to the manufacturers' charts for RPZ relief valve full discharge rates. The appropriate AGF should be selected for each specific make and model # of RPZ assembly as outlined by manufacturers.
- The design of the air gap allows water to overflow through the cutouts on the side if the flow through the attached drain pipe is not able to satisfy the drainage requirements.
- AGF or drain funnel is not designed to support the drainpipe weight. The drain piping should be supported by other appropriate means.
- Alternative funnel-drain and drain piping can be utilized applying same stipulation of AGF modules' sizes.

M. Status of BFP Assemblies

1. The status of a BFP assembly is determined by a performance evaluation in which the assembly meets all minimum standards set forth by the approved testing procedures as prescribed by manufacturers, AWWA-M14 or USC-FCCCHR relevant standards:

- RPZA:
  a. Relief valve must have an opening point of 2.0 psid or greater.
  b. Backpressure on 2nd check valve must hold tight.
  c. Static pressure drop across 1st check valve must be 5.0 psid or greater (3.0 psid or greater than relief valve opening point).
  d. Outlet shut-off valve must hold tight.
  e. Static pressure drop across 2nd check valve must be 1.0 psid or greater.

- DCVA:
  a. Static pressure drop across 1st check valve must be 1.0 psid or greater.
  b. Backpressure on 2nd check valve must hold tight.
  c. Outlet shut-off valve must hold tight.
  d. Static pressure drop across 2nd check valve must be 1.0 psid or greater.

2. RPZA/RPDA shall provide a minimum of: A 5.0 PSI static pressure drop across 1st check valve and 2.0 PSI static pressure drop across relief valve.

3. A RPZA uses a stiffer 1st check valve spring in the main line assembly than is utilized in a DCV assembly. This is to create enough of a pressure drop across the check valve for proper operation of the relief valve. Therefore, the 1ST check valve spring will not be interchangeable with the 2nd check valve spring, contrary to the normal practice for a double check valve assembly.

4. Once a containment assembly (external only) has been approved and installed, the plumber should review the initial testing requirements with each customer, including frequency of testing (a yearly test shall be considered a minimum), and how to report the testing results. The NYC Test and Maintenance of Backflow Prevention Assembly Form GEN215B shall be used. [http://www.nyc.gov/html/dep/pdf/water_sewer/10.pdf]

5. BFP assemblies shall be tested immediately after installation and at least once a year thereafter. If a serious defect is detected at the time of the first installation, the assembly should be promptly repaired or replaced. BFP assemblies should be rebuilt or overhauled every five (5) years, after the initial installations, as per DOH recommendation. All new metering shall be filed with BCS prior to testing any BFP assembly. Pending or rejected plans shall render the initial test report(s) unacceptable when utilizing previously approved plans.

6. BFP assemblies required to be tested annually (on the due date) will be at the customer's expense and results forwarded to DEP on a NYC Form GEN215B. A BFP assembly that fails a test or does not meet the standards is required to be repaired or replaced by the property owner/customer to correct any deficiencies or problems with the assembly. The customer shall be responsible for any and all repairs/overhauls/replacement necessary to maintain proper working condition of BFP assembly. All tests shall be performed by a NYS certified BFP assembly tester who holds all proper licensing under NYS law regarding backflow testing.

7. Existing containment BFP assemblies shall be allowed to remain in service provided that they:
   - Meet the definition of assembly and the installation criteria required by NYS-DOH and DEP. See P.38.
   - Are deemed adequate and effective for the on-premises degree of assessed hazard and legalized by DEP.
   - Are in good working condition and functioning properly with cut valves in a workable position.
   - Maintain approved setting up, size and clearances, along with metering fixtures (if deemed acceptable).
   - Are testable and readily accessible in a safe location with drainage system, and not subject to flooding.
   - Have information readable (size, type, make and model #; in full; and serial #).
   - Have records of all periodic testing and maintenance (deemed passed) available with DEP.

   Note: installation of BFP assembly inside of a locked property or in an unconventional location is prohibited.

8. Any existing backflow preventer shall be allowed to remain in service unless the degree of hazard is such as to supersede the effectiveness of the present BFP or result in an unacceptable risk to the public health. Where the degree of hazard has increased, as in the case of a residential installation converting to a hazardous business establishment, any existing BFP assembly shall be upgraded to RPZ assembly, or RPZ assembly shall be installed in the event that no BFP assembly is present.

9. Decommission/Swap of RPZ assembly:
   In General: BFP assemblies shall not be by-passed, made ineffective/inoperative, or removed without prior authorization from DEP. Renovation that may lead to swapping the RPZA shall be justified in detail.
   A property having no auxiliary (untreated) water system is eligible to decommission the containment RPZ assembly that may not be required by current DEP regulations and local codes provided that:
   - A PE/RA shall inspect the customer's plumbing system(s), to confirm that no cross-connections are present, and submit an elaborated decommission report and plans on the BFP assembly will be physically replaced with proper containment that is deemed adequate and effective for the ongoing degree of hazard.
   - The property shall be surveyed by DEP authorized inspectors to determine the presence and prevalence of potential hazards to ensure the water system protection is in accordance with the Program requirements.

10. All BFP assemblies have been evaluated with a specific set of shut-off valves, on both ends, as an integral part of the assembly. The use or replacement of BFP shut-off valve other than those USC listed, invalidates the USC-FCCCHR approval. BFP assembly's inlet and outlet shut-off control valves are not interchangeable.