

Section 5. Degree of Hazard and Type of Protection

5.1 Degree of Hazard

The type of backflow prevention device required shall depend upon the degree of hazard. Hazard definitions are defined below.

5.1.1 Non-Potable Water Supply

When an auxiliary water supply is present the public water system shall be protected by an approved air-gap separation device or an approved reduced pressure principle backflow prevention device.

5.1.2 Objectionable, but Not Hazardous

When water or a substance(s) is present that would be objectionable if introduced into the potable water system but not hazardous to public health, the public water system shall be protected by an approved double check valve assembly.

5.1.3 Actual or Potential hazard

Any material dangerous to health that is handled in such a fashion as to create an actual or potential hazard to the potable water system, the potable water system shall be protected by an approved air-gap separation device or an approved reduced pressure principle backflow prevention device.

5.2 Facilities Requiring Backflow Prevention Assemblies

"DC" indicates an approved double check valve assembly. "RP" indicates an approved reduced pressure principle backflow prevention assembly. NOTE: In all cases an approved physical air gap may take the place of Backflow Prevention Assembly.

| <u>TYPE OF FACILITY</u> | <u>MINIMUM TYPE OF PROTECTION</u> |
|---|-----------------------------------|
| Aircraft and Missile Storage/Mfg. Facility..... | RP |
| Automotive Repair or Manufacturing Facility..... | RP |
| Auxiliary Water Systems..... | RP |
| Beverage Bottling Facilities..... | RP |
| Breweries and Distilleries..... | RP |
| Canneries..... | RP |
| Car Wash Facilities..... | RP |
| Chemical Processing Storage or MFG. Facilities..... | RP |
| Chemically Contaminated Water Systems..... | RP |
| Civil Works - Governmental Facilities | |
| A.) Contamination Hazard..... | RP |
| B.) Pollutational Hazard..... | DC |
| Clinics..... | RP |
| Cold Storage Facilities..... | DC |

TYPE OF FACILITY

MINIMUM TYPE
OF PROTECTION

| | |
|--|----|
| Commercial Rental Units where use may vary with tenant..... | RP |
| Commercial Laundries..... | RP |
| Dairies..... | DC |
| Dentist Office..... | RP |
| Docks and Dockside Facilities..... | RP |
| Dry Cleaning Facilities..... | RP |
| Electrical Transmission or Generating Facilities..... | RP |
| Fertilizer Storage/MFG. Facilities..... | RP |
| Film Processing Facilities..... | RP |
| Fire Systems..... | DC |
| Food and Beverage Processing Facilities..... | RP |
| Hospitals..... | RP |
| Ice Manufacturing Facilities..... | RP |
| Irrigation Systems and Wells..... | RP |
| Laboratories..... | RP |
| Laundries and Dye Work..... | RP |
| Machine Tool Mfg. Facilities..... | RP |
| Manufacturing Facilities..... | DC |
| Medical Building..... | RP |
| Metal Mfg. Facilities Cleaning and Fabricating..... | RP |
| Morgues or Mortuaries..... | RP |
| Motion Pictures Studios..... | RP |
| Multiple Services - Interconnected | |
| A.) "Contamination Hazard"..... | RP |
| B.) "Pollutional Hazard"..... | DC |
| Multi Story Buildings, Up to 4 Floors..... | DC |
| Multi Story Buildings, 4 Floors or Higher..... | RP |
| Nursing Homes..... | RP |
| Packing Houses or Rendering Facilities..... | RP |
| Paper and Paper Products Facilities..... | RP |
| Pesticides - Exterminating Companies..... | RP |
| Petroleum Processing or Storage Facilities..... | RP |
| Pharmaceutical or Cosmetic Facilities..... | RP |
| Photo Processing Facilities..... | RP |
| Photograph Studios..... | RP |
| Plastic Injection and Molding Facilities..... | RP |
| Plating Facilities..... | RP |
| Pleasure Boat Marinas..... | RP |
| Power Plants..... | RP |
| Premises with Boilers..... | RP |
| Premises having a Water Storage Tank, Reservoir, Pond or Similar Appurtenance..... | RP |
| Premises where Inspection is Restricted..... | RP |
| Radioactive Material and/or Storage Usage at Premises.... | RP |
| Reclaim Water Usage at residential premises..... | DC |
| Reclaim Water Usage at all other premises..... | RP |
| Restaurants..... | RP |
| Restricted, Classified or Closed Facilities..... | RP |

TYPE OF FACILITY

MINIMUM TYPE
OF PROTECTION

| | |
|---|----|
| Rubber Processing Plants Natural or Synthetic..... | RP |
| Sand and Gravel Processing Facilities..... | RP |
| Schools and Colleges..... | RP |
| Sewage and/or Stormwater Collection, Pumping and Treatment Facilities..... | RP |
| Solar Heating Systems..... | RP |
| Steam Plants..... | RP |
| Swimming Pools..... | RP |
| Veterinary Establishments..... | RP |
| Warehouse and Storage Facilities..... | DC |
| Wastewater and Reuse Facilities..... | RP |
| Waterfront Facilities and Industries, Marinas..... | RP |

In addition, all fire service lines shall have an approved double detector check valve assembly installed in line and above ground just prior to connection point with potable water system.

5.3 Guide to the Assessment of Hazard and Selection of Assemblies for Internal Protection

| <u>Description of</u> <u>Cross Connection</u> | <u>Assessment</u> <u>of Hazard</u> | <u>+Recommended</u> <u>Assembly at Fixture</u> |
|---|---------------------------------------|---|
| Aspirator (medical) | Health | AVB or PVB |
| Bedpan Washers | Health | AVB or PVB |
| Autoclaves | Health | RPBA |
| Specimin Tanks | Health | AVB or PVB |
| Sterilizers | Health | RPBA |
| Cuspidors | Health | AVB or PVB |
| Lab Bench Equipment | Health | AVB or PVB |
| Autopsy and Mortuary Eqpt. | Health | AVB or PVB |
| Sewage Pump | Health | AG |
| Sewage Ejectors | Health | AG |
| Fire-fighting System (Toxic Liquid Foam Concentrates) | Health | RPBA |
| Connection to Sewer Pipe | Health | AG |
| Connection to Plating Tanks | Health | RPBA |
| Irrigation Systems with Chemical Additives or Agents | Health | RPBA |
| Connection to Saltwater Cooling System | Health | RPBA |
| Tank Vats or Other Vessels Containing Toxic Substances | Health | RPBA |
| Connection to Industrial Fluid Systems | Health | RPBA |
| Dye vats or Machines | Health | RPBA |
| Cooling Towers with Chemical Additives | Health | RPBA |

| <u>Description of Cross Connection</u> | <u>Assessment of Hazard</u> | <u>+Recommended Assembly at Fixture</u> |
|--|-----------------------------|---|
| Trap Primers | Health | AG |
| Steam Generators | Nonhealth* | RPBA |
| Heating Equipment | | |
| Commercial | Nonhealth* | RPBA |
| Domestic | Nonhealth* | DCVA |
| Irrigation Systems | Nonhealth* | DCVA, AVB or PVB |
| Swimming Pools | | |
| Public | Nonhealth* | RPBA or AG |
| Private | Nonhealth* | PVB or AG |
| Vending Machines | Nonhealth* | RPBA or PVB |
| Ornamental Fountains | Nonhealth* | DCVA, AVB or PVB |
| Degreasing Equipment | Nonhealth* | DCVA |
| Lab Bench Equipment | Nonhealth* | AVB or PVB |
| Hose Bibbs | Nonhealth* | AVB |
| Trap Primers | Nonhealth* | AG |
| Flexible Shower Heads | Nonhealth* | AVB or PVB |
| Steam Tables | Nonhealth* | AVB |
| Washing Equipment | Nonhealth* | AVB |
| Shampoo basins | Nonhealth* | AVB |
| Kitchen Equipment | Nonhealth* | AVB |
| Aspirators | Nonhealth* | AVB |
| Domestic Space-Heating Boiler | Nonhealth* | RPBA |

Note: AG = air gap; AVB = atmospheric vacuum breaker; DCVA = double check valve backflow-prevention assembly; PVB = pressure vacuum breaker; RPBA = reduced-pressure principle backflow prevention assembly.

+ AVBs and PVBs may be used to isolate health hazards under certain conditions, that is, backsiphonage situations. Additional area or premises isolation may be required.

* Where a greater hazard exists (due to toxicity or other potential health impact) additional area protection with RPBA is required.

5.4 Actual or Potential Cross-Connections

Any uncontrolled cross-connections, either actual or potential, to the potable water system shall be protected by an approved air-gap separation or an approved backflow prevention device at the service line meter connection.

5.5 Restricted Premises (Security)

Any premises where security requirements or other prohibitions or restrictions exist and it is impossible or impractical to make a complete in-plant cross-connection survey, the potable water system shall be protected against backflow or backsiphonage by the installation of an approved backflow prevention device in the service line meter. Maximum

protection will be required for restrictive premises. An approved air-gap separation or an approved reduced pressure principal backflow prevention device shall be installed in each service to these premises.

Section 6. Reclaimed Water Installation Program

6.1 Design Requirements

All reclaimed water systems shall be designed and constructed in accordance with Chapter 17-610 F.A.C. The City of Melbourne criteria for the construction of water and sewer systems shall, as a minimum, include those requirements specified in Chapter 17-610 F.A.C. If the criteria is found to be in conflict or less restrictive than the provisions of Chapter 17-610, then the provisions of 17-610 shall prevail and shall govern the design and construction of reclaimed water systems owned and operated within the City of Melbourne. More specifically, these requirements shall include, as a minimum, the following items.

6.1.1 Cross-Connection Control

The cross-connection of reclaimed water systems with any other water system is specifically prohibited (ref. 17-610.470 F.A.C.).

An approved backflow prevention device shall be installed on any potable water line serving property also served by reclaimed water

6.1.2 Setback Requirements

Plans for subdivisions and commercial sites that include provisions for reclaimed water service shall include a survey of all surrounding property for the purpose of identifying the existence of potable water wells within 200 feet of the boundary of any potential reclaimed water wetted surface. Reclaimed water application systems will not be considered or permitted within 75 feet of an existing or FDER/FDHS permitted future potable water supply well (ref. 17-610.471 (3) F.A.C.).

A minimum horizontal separation of five (5) feet (center to center) or three (3) feet (outside to outside) shall be maintained between reclaimed water lines and potable water lines or sewage lines (ref. 17-610.471 (3) F.A.C.).

Minimum vertical separations between reclaimed water lines, potable water lines and sewage lines shall be maintained in accordance with Chapter 17-604.400 (g-j) F.A.C.

Reclaimed water irrigation systems located within 100 feet of public eating, drinking or bathing facilities shall utilize low trajectory spray heads, or methods approved by the administrator to reduce aerosol drift.

Reclaimed water irrigation systems shall be constructed and operated so as to minimize over-spray onto impervious surfaces.

6.1.3 Signage and Coding

Subdivisions and commercial sites installing reclaimed water systems shall be required to provide public notice signs at entrances identifying the area as a reclaimed water use area. Non-irrigation users of reclaimed water shall provide similar notification signage at the point of reclaimed water use (ref. 17-610-468 F.A.C.).

All reclaimed water transmission lines shall be color coded purple and labeled to specifically identify said piping as reclaimed water lines (ref. 17-610.470 (4) F.A.C.).

All new subdivisions and site plans shall specify the use of purple colored pipe as the standard material for reclaimed water service lines or other materials approved by the administrator. All reclaimed water service lines shall include a locking curbstop and tag/label identifying the use of reclaimed water (reference: Reuse Ordinance).

6.1.4 Prohibited Uses

Reclaimed water shall not enter any residential dwelling for any purpose.

All reclaimed water irrigation systems shall be permanent, in-ground systems.

There shall not be above ground hose bibb connections to the reclaimed water system. All hose bibb connections must be located in below grade, locked vaults clearly labeled as being non-potable.

Reclaimed water cannot be applied to the ground within 75 feet of a potable water well.

New potable water well construction is prohibited within 75 feet of a reclaimed water irrigation area.

Reclaimed water shall not be used to fill swimming pools, hot tubs, wading pools, spas or similar appliances.

Tanker trucks used for transporting products intended for human consumption are prohibited from transporting reclaimed water.

Use of reclaimed water for any purpose other than those allowed by Chapter 17-610 F.A.C. is expressly prohibited.

Failure to comply with the regulations governing the use of reclaimed water shall be cause for the discontinuation of reclaimed water service, and other penalties as appropriate.

6.1.5 Other Uses

Reclaimed water to be used for purposes other than urban

landscape irrigation requires specific authorization by the administrator.

Reclaimed water shall not be designated as the source of fire protection without a specific, independent agreement between the administrator and the applicant. Said agreement shall include verification of compliance with the provisions of Chapter 17-610.477 F.A.C.

If the use of reclaimed for fire protection is approved, the following restrictions/conditions shall apply:

6.1.5.1 Reclaimed Water Fire Hydrants

Reclaimed water fire hydrants shall be color coded purple to differentiate them from hydrants connected to potable water; shall have tamper proof hold-down nuts; shall be capable of being operated only with a special wrench; and, shall not be connected to the potable water supply.

6.1.5.2 Reclaimed Water Fire Sprinkler Systems

Fire sprinkler systems supplied with reclaimed water shall be color coded purple; shall not be connected to the potable water supply; and shall be installed in a manner that limits access to the sprinkler system plumbing to unauthorized individuals.

6.1.5.3 Fire Protection System Regulations

Reclaimed water fire protection systems shall be designed and operated in accordance with all applicable fire protection codes, ordinances and regulations.

6.2 Installation Requirements

Main lines for reclaimed water shall be DR18/C-900 PVC. The pipe shall be purple in color, or shall be wrapped with a 3/4" wide plastic, self adhesive labeling tape with the words "Reclaimed Water, DO NOT DRINK" printed on it. All valve boxes for reclaimed water shall have a lid size smaller than the standard potable water valve box lid. These lids shall have the words "reuse" or "reclaimed" in raised letters on outside top and painted purple.

All connections to the reclaimed water system for single family, multi-family and general commercial/retail properties shall be below ground, through the standard "reclaimed water meter box". The meter box shall be appropriately colored and labelled as approved by the administrator.

All connections to the reclaimed water system shall have an isolation valve labeled with a stainless steel, brass or plastic tag stating "Reclaimed Water, DO NOT DRINK".

6.3 Activation

All applications for reclaimed water service must receive a site inspection by the administrator prior to activation.

All sites receiving reclaimed water must have an approved backflow prevention device on the incoming potable water supply line as referenced in this Cross-Connection Control Manual. No reclaimed water service shall be activated without an approved backflow prevention device properly installed.

All reclaimed water connections will be tested by the administrator to help verify the absence of a cross-connection. The consumer shall bear all costs associated with testing procedures.

Upon activation of the reclaimed water system, the administrator shall request permission to test the separation of the potable and reclaimed water systems. Said test shall include the "turn-off" of the potable supply valve and the opening of hose bibs and faucets. Any noted flow of water from any such faucet shall result in the immediate disconnection of the reclaimed water system. The reclaimed water system shall not be reactivated without demonstration that the possible cross-connection has been eliminated.

Approval for activation shall be given only after all inspection items have been completed and approved in writing by the administrator.

Section 7. Approval, Testing and Repairs of Backflow Prevention Devices

7.1 Approved Backflow Prevention Device

Any backflow prevention device required herein shall be of a manufacture approved by the administrator. The term, approved backflow prevention device shall mean a device that has been manufactured in full conformance with the standards established by the American Water Works Association entitled: *AWWA C506-69 Standards for Reduced Pressure Principle and Double Check Valve Backflow Prevention Devices*, or later adopted version.

Backflow prevention devices must have the laboratory and field performance specifications of the Foundation for Cross-Connection Control and Hydraulic Research of the University of Southern California, or other approved testing laboratory.

All approved backflow prevention devices that are recognized by the administrator shall be in compliance with the standards set forth by the following agencies:

Melbourne City Code - Chapter 8, Article 7

State of Florida Department of Environmental Regulation

AWWA - American Water Works Association - C506

ASSE - American Society of Sanitary Engineers - #1011, #1013, #1015 and #1020, or latest revised additions

University of Southern California, USC Foundation for Cross-Connection Control and Hydraulic Research

SBBC - Southern Building Code Congress - (Standard Plumbing Code)

7.2 Testing of Backflow Devices

It shall be the duty of the consumer at any premise where backflow prevention devices are installed to have certified inspections and operational tests made at least once per year at the consumer's expense. In those instances where the administer deems the hazard to be exceptional; additional certified inspections may be required at more frequent intervals. These inspections and test shall be at the expense of the consumer and shall be performed by a certified tester approved by the administrator. Reference the form letter in the Appendix.

7.3 Repairs of Backflow Devices

It shall be the duty of the consumer to conform to scheduled testing. If deficiencies are noted during the test, such devices shall be repaired, overhauled, or replaced at the expense of the consumer. Records of such test, repairs and overhauls shall be furnished to and be maintained for the administrator by the consumer.

7.4 Records, Test and Repair Reports

Copies of all test reports, repair summaries, or other

communications relating to this cross-connection control program shall be kept by the administrator for a period of not less than ten (10) years (ref. Chapter 17-550.740 F.A.C.).

Section 8. Installation of Backflow Prevention Devices

All backflow prevention devices will be installed in strict accordance with the manufacturer's installation instructions and the following guidelines. Standard Drawings in the Appendix will further depict installation of specific backflow prevention devices. In addition, all installations shall conform to the following minimum requirements:

8.1 Location

The device shall always be installed in an accessible location to facilitate testing and servicing. This location shall be within a minimum of 12" and a maximum of 24" from the water meter unless otherwise approved by the administrator.

8.2 Position

The device shall be placed in the horizontal position unless otherwise specified by manufacturer's instructions and authorized by the administrator.

8.3 Height

The device shall be installed with the lowest point at a minimum of 12" above ground or maximum flood level, whichever is highest, in order to prevent any part of the device from becoming submerged.

8.4 Support

The device shall be adequately supported to prevent the assembly from sagging.

8.5 Shut off valves

If not already provided, approved shut off valves should be installed at each end of the device for testing and servicing purposes.

8.6 Test cock

A test cock shall be located up stream of the first upstream valve for testing.

8.7 Flushing

Pipe lines shall be thoroughly flushed to remove foreign material and debris before installing the device.

8.8 Standards

The device shall meet the latest adopted standards of the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research of the Southern Standard Plumbing Code, ASSE Standard, and AWWA Standard.