CITY OF WINTER HAVEN
CROSS-CONNECTION CONTROL
AND
BACKFLOW PREVENTION
POLICY

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INTRODUCTION

A cross-connection is defined in the rules of the Department of Environmental Protection (DEP), of the State of Florida, as " Any physical arrangement whereby a public water supply is connected, directly or indirectly with any other water supply system, sewer, drain, conduit, pool, storage reservoir, plumbing fixture, or other device which contains or may contain contaminated water, sewage or other waste or liquid of unknown or unsafe quality which may be capable of imparting contamination to the public water supply as the result of backflow. By-pass arrangements, jumper connections, removable sections, swivel or changeable devices and other temporary or permanent devices through which or because of which backflow could occur are considered to be cross connections." Consequently, either cross-connections or the chance of backflow must be eliminated to prevent degrading the high quality of water that water purveyors strive to maintain. (Definition is taken from former Section 62-555.200).

Cross-connection control programs, as administered by the water purveyors, are relatively new to Florida, Initially, the primary responsibility for safeguarding water quality on private property was left to local health agencies and building and inspection departments. Then, beginning with the Safe Drinking Water Act, signed by President Ford on December 16, 1974, a chain of laws and regulations evolved that resulted in the State requirement (Florida Safe Drinking Water Act, Sections 403.850-403.864, Florida Statues) for all the public water systems to have a cross-connection control program. Contained within the Rules of Department of Environmental Protection (DEP), Chapter 17-22, (nka 62-555 the State of Florida, on November 9, 1977, adopted the following policy:

"Community water systems are required to establish a routine cross-connection program for the purpose of detecting and preventing cross-connections that create and imminent and substantial danger to the public health by and from contamination due to the cross-connection. Upon detection of a prohibited cross-connection, both community and noncommunity water systems shall either eliminate the cross-connection by installation of an appropriate backflow prevention device acceptable to the Department (DEP) or discontinue service until the contaminate source is eliminated." (62-610.360(3), Florida Administrative Code.)

This statement was later updated to include that "Such program shall be developed utilizing accepted practices of the American Water Works Association guideline as set forth in AWWA manuals m14, "Backflow Prevention and Cross Connection Control," 2nd Edition."

In compliance with this mandate, the following is the City of Winter Haven, Utilities Division's Policy on Cross-Connection Control.

We urge you to acquaint yourself with the policies and information presented in this manual. It is only through the education and commitment of persons like yourself that we can control the hazards presented by cross-connections within our public drinking water supply. The Utilities Division stands behind this policy and its enforcement and will offer its assistance to all who share the responsibility of safe water.

PART 1 DEFINITIONS

APPROVED: accepted by the Director of the Utilities Division as meeting an applicable specification of the Utilities Division and approved by the Department of Environmental Protection, State of Florida, or their designee.

APPROVED BACKFLOW PREVENTION DEVICE: Only the following are considered to be backflow prevention devices. They shall be installed in agreement with and under the supervision of the supplier of water or his designated representative at the consumer's meter, at the property line of the consumer when a meter is not used, or at a location designated by the supplier of water or the Department. The devices are:

(a) **Air gap separation** – A physical separation between the free-flowing discharge end of a potable water supply pipeline and an open or non-pressure receiving vessel. An "approved airgap separation" shall be at least double the diameter of the supply pipe measured vertically above the top of the rim of the vessel. In no case shall it be less than 1 inch.

(b) **Reduced pressure backflow preventer** – A device containing within its structure a minimum of two independently acting approved check valves, together with an automatically operating pressure differential relief valve located between the two check valves. The first check valve reduces the supply pressure a predetermined amount so that during normal flow and at cessation of normal flow the pressure between the checks shall be less than the supply pressure. In case of leakage of either check valve, the differential relief valve, by discharging to the atmosphere, shall operate to maintain the pressure between the checks less than the supply pressure. The unit shall include tightly closing shutoff valves located at each end of the device, and each device shall be fitted with properly located test cocks.

(c) **Atmospheric vacuum breaker** – A backflow prevention device which is operated by atmospheric pressure in combination with the force of gravity. The unit is designed to work on a vertical plane only. The one moving part consists of a poppet valve which must be carefully sized to slide in a pided chamber and effectively shut off the reverse flow of water when a negative pressure exists.

(d) **Pressure vacuum breaker** – A pressure vacuum breaker is similar to an atmospheric vacuum breaker except that the checking unit poppet valve is activated by a spring. This type of vacuum breaker does not require a negative pressure to react and can be used on the pressure side of a valve.

(e) **Double check valve assembly** – An assembly composed of two single, independently acting, check valves, including tightly closing shutoff valves located at each end of the assembly and suitable connections for testing the water tightness of each check valve. A check valve is a valve that is drip-tight in the normal direction of flow when the inlet pressure is one psi and the outlet pressure is zero.

The check valve shall permit no leakage in a direction reverse to the normal now. The closure element (e.g., clapper) shall be internally weighted or otherwise internally loaded to promote rapid and positive closure.

(f) **Residential Dual Check** - A compact unit manufactured with two independent spring actuated check valves. The residential dual check is acceptable only as added back-flow prevention in areas served by reuse systems defined in Chapter 62-610, Part 111, F.A.C., when the cross connection control program identifies activities specific to (5)(a) and (5)(b) of this section.

AUXILIARY WATER SUPPLY: Any water supply on or available to the premises other than the purveyor's approved public potable water supply. These auxiliary waters may include water from a private nonpotable water supply or any natural source(s) such as a well, lake, pond, spring, river, stream, harbor, etc., or "used waters" or "industrial fluids". These waters may be contaminated or they may be objectionable, and constitute an unacceptable water source over which the water purveyor does not have sanitary control.

BACKFLOW: The flow of water or other liquids, mixtures or substances under pressure into the distribution pipes of a potable water supply system from any source or sources other than its intended source.

BACKFLOW PREVENTION DEVICE: A backflow prevention device shall mean any effective device, method or construction used to prevent backflow into a potable water system. The type of device used should be based on the degree of hazard, either existing or potential.

BACKFLOW PREVENTION DEVICE TECHNICIAN / INSTALLER-CERTIFIED: The term certified backflow prevention device technician / installer shall mean a person who has proven his competency to the satisfaction of the City of Winter Haven, Utilities Division. Each person who is certified to make competent tests or to repair, overhaul and make reports on backflow prevention devices shall be conversant with applicable laws, rules and regulations and shall have attended and successfully completed the TREEO (Training, Research, and Education for Environmental Occupations) Certification Program for Backflow Prevention Device Testers at the University of Florida, or the Florida Section of the American Water Works Associaton or approved by the City of Winter Haven Utilities Division to perform installation and servicing of backflow prevention assemblies.

BACK-SIPHONAGE: The flow of water or other liquids, mixtures or substances into the distributing pipes of a potable water supply system from any source other than its intended source caused by the reduction of pressure in the potable water system.

BACKPRESSURE: Backpressure shall mean any elevation of pressure in the downstream piping system (by pump, elevation of piping, or steam and/or air pressure) above the supply pressure at the point of consideration which would cause or tend to cause, a reversal of the normal flow.

CONTAMINATION: An impairment of the quality of the potable water by any solid, liquid or gaseous compounds or mixtures to a degree which would create an imminent danger to the public health, or would create an unacceptable taste, odor or color to the potable water.

CROSS-CONNECTION: Any physical connection or arrangement of piping or fixtures between two otherwise separate piping systems one of which contains potable water and, the other nonpotable water or industrial fluids of questionable safety, through which, or because of which, backflow or backsiphonage may occur into the potable water system. A water service connection between a public potable water distribution system and a customer's water distribution system which is cross-connected to a contaminated fixture, industrial fluid system or with potentially contaminated supply or auxiliary water system, constitutes one type of cross-connection. Other types of cross-connections include connectors such as swing connections, removable sections, four-way plug valves, spools, dummy sections of pipe, swivel or changeover devices, sliding multipart tube, solid connections, etc.

HAZARD-DEGREE OF: The term degree of hazard is a qualification of what potential and actual harm may result from cross-connections within a water using facility. Establishing the degree of hazard is directly related to the type and toxicity of contaminated that could feasibly enter the public water supply system and is determined by the Utilities Division.

HAZARD-HEALTH: The term health hazard shall mean an actual or potential threat of contamination or pollution of a physical or toxic nature to the public potable water system or the consumer's potable water system to such a degree or intensity that there would be a danger to health

INDUSTRIAL PIPING SYSTEM-CONSUMER'S: The term consumer's industrial piping system shall mean any system used by the consumer for transmission of or to store any fluid, solid or gaseous substance other than an approved water supply. Such a system would include all pipes, conduits, tanks, receptacles, fixtures, equipment and appurtenances to produce, convey or store substances which are or may be polluted or contaminated.

DIRECTOR, UTILITIES DIVISION: The Director of the Utilities Division of the City of Winter Haven is invested with the authority and responsibility for the implementation of and elective cross-connection program and for the enforcement of the provisions of this policy.

WATER PURVEYOR: The term water purveyor shall mean the owner or operator of the public potable water system supplying and approved water supply to the public. The utility shall be one that is operating under a valid permit from the Department of Environmental Protection. As used herein the terms water purveyor and City's Utilities Division may be used synonymously.

WATER SYSTEM: The term customer's water system shall include any water system located on the consumer's premises, whether supplied by a public potable water system or an auxiliary water supply.
The system or systems may be either a potable water system or an industrial piping system.

WATER-USED: Any water supplied by a water purveyor from a public potable water system to a customer's water system after it has passed through the point of delivery and is no longer under the sanitary control of the water purveyor.

PART 2 OVERVIEW

2.01 PURPOSE

The purpose of this Policy is to implement the City's Backflow Prevention Ordinance and protect the public potable water supply of the City of Winter Haven from the possibility of contamination. To promote the elimination or control of existing cross-connections, actual or potential, between its customers' inplant plumbing fixtures and industrial piping and the public water supply, and to provide for the maintenance of a continuing program of cross-connection control which will systematically and effectively prevent the contamination of the potable water distribution system. More exactly, the Policy is intended to prevent delivered water - water that has passed beyond the public water system and into the private distribution systems of consumers from re-entering the public distribution system and being subsequently delivered to consumers and to allow persons active in piping design and installation to incorporate and install appropriate backflow prevention devices correctly.

2.02 CAUSES OF BACKFLOW

The causes of backflow cannot usually be eliminated completely, since backflow is often initiated by accidents or unexpected circumstances. However, some causes of backflow can be partially controlled by good design and informed maintenance. Listed below are the major causes of backflow as outlined under the two types of backflow - backsiphonage and backpressure.

A. BACKSIPHONAGE - Backsiphonage is caused by reduced or negative pressure being created in the supply piping. The principal causes of backsiphonage are:

1. Line repair or break which is lower than a service point. This will allow negative pressures to be created by water trying to flow to a lower point in the system.

2. Undersized piping if water is withdrawn from a pipe at a very high velocity, the pressure in the pipe is reduced and the pressure differential created can cause water to flow into the pipe from a contaminated source.

3. Lowered pressure in water main due to high water withdrawal rate such as fire fighting, water main flushing, or water main breaks.

4. Reduced supply main pressure on suction side of a booster pump.

B. BACKPRESSURE - Backpressure may cause backflow to occur where a potable water system is connected to a non-potable system of piping, and the pressure in the nonpotable system exceeds that in the potable system. The principal causes of backpressure are:

1. Booster pump systems designed without backflow prevention devices.

2. Potable water connections to boilers and other pressure systems without backflow prevention devices.

3. Connections with another system which may, at times, have a higher pressure.

4. Water stored in tanks or plumbing systems, which by virtue of their elevation, would create head sufficient to cause backflow if pressure were lowered in the public system.

PART 3 RESPONSIBILITY

3.01 CROSS-CONNECTION PROGRAM

The responsibilities of the City are to comply with the requirements of the law including the Florida Safe Drinking Water Act, Florida Administrative Code Section 62-555.360, and to enforce its Backflow Prevention Ordinance No. 98-08. A copy of the Backflow Prevention Ordinance is attached hereto and made a part hereof.

3.02 CUSTOMERS

The customers responsibility starts at the point of delivery from the public potable water system and includes all of his water systems. Except for single-family dwelling units,the customer, at his own expense, shall install, operate, test and maintain approved backflow prevention devices, as directed by the City of Winter Haven Utilities Division. The customer shall maintain accurate records of tests and repairs made to backflow prevention devices and provide the Utilities Division with copies of such records. The records shall be on forms approved or provided by the Utilities Division. In the event of accidental pollution or contamination of the public or consumer's potable water system due to backflow on or from customer's premises, the owner shall promptly take steps to confine further spread of pollution or contamination within the customer's premises, and shall immediately notify the Utilities Division of the hazardous condition.The time of installation of the backflow prevention device, for customers with existing water service, shall be in accordance with the schedule set forth at Section 4 of the Backflow Prevention Ordinance.

3.03 BACKFLOW PREVENTION DEVICE INSTALLERS

The installer's responsibility is to make proper installation of backflow prevention devices in accordance with the manufacturer's installation instructions and any additional instructions approved by the City of Winter Haven, Utilities Division.

Installer is also responsible to make sure a device is working properly when it is installed, and is required to furnish the following information to the Utilities Division immediately after a reduced pressure principle backflow preventer (RP). Double check valve assembly (DCVA) or pressure vacuum breaker (PVB) is installed: 1) service address where device is located, 2) owner, 3)

description of device's location and size 4) date of installation 5) type of device, 6) manufacturer, 7) model number, and 8) serial number. All RP, DCVA, and PVB are required to be tested following installation by a certified backflow prevention device technician.

PART 4 INSPECTIONS

4.01 FREQUENCY

Due to changes in models or components of equipment, methods of manufacturing and additions to plants, buildings, etc., water use requirements undergo continual change. As a result, new cross-connections may be installed and existing protection may be by-passed, removed, or otherwise ineffective; therefore, an annual detailed inspection by the customer of the backflow prevention device is required. Note, however, that the City shall inspect backflow prevention devices installed at single-family dwelling units.

4.02 PROPOSED CONSTRUCTIONS

All new construction plans and specifications for industrial commercial facilities shall be reviewed by the City of Winter Haven Utilities and Engineering Divisions to determine the degree of possible cross-connections hazard. At this time, backflow prevention requirements, including installation of backflow prevention devices in accordance with this policy will be determined. The review of plans and specifications by the City, does not relieve the customer of its independent obligation to comply with the requirements of this policy, and the Backflow Prevention Ordinance.

4.03 NEW AND EXISTING FACILITIES

In order to determine the degree of hazard to the public potable water system, a survey will be made of the consumer's presently installed water system. This survey need not be a detailed inspection of the location or disposition of the water lines, but can be confined to establishing the water uses on the premises, the existence of cross-connections, and the availability of auxiliary or used water supplies. On site inspections are made of new and existing facilities and should any devices or plumbing changes be required, a follow up inspection will be made of the same facilities at a later date. The time of installation of the backflow prevention device, for customers with existing water service, shall be in accordance with the schedule set forth at Section 4 of the Backflow Prevention Ordinance. The City does not relieve the customer of its independent obligation to comply with the requirements of this policy, and the Backflow Prevention Ordinance

PART 5 CROSS-CONNECTION HAZARDS AND REQUIRED PROTECTIONS

5.01 FACILITIES

TYPE OF BACKFLOW PROTECTION REQUIRED

An approved backflow prevention device of the type designated shall be installed on each water service connection, on the customer side of the water meter to the following types of facilities. This list is presented as a guideline and should not be construed as being complete.

Abbreviations used are as follows:
A.G. - Air Gap Separation
R.P. - Reduced Pressure Principle Backflow Preventer
D.C.V.A. - Double Check Valve Assembly
P.V.B. - Pressure Vacuum Breaker
A.V.B. - Atmospheric Vacuum Breaker

TYPE OF FACILITY	MINIMUM TYPE OF PROTECTION
Breweries, Distilleries, Bottling Plants	D.C.V.A.
Car Wash with recycling system and/or Wax Eductor	R.P.
Chemical Plants	R.P.
Dairies	D.C.V.A.
Dentist Office	R.P.
Fertilizer Plants	R.P.
Film Laboratory or Processing Plant	R.P.
Food or Beverage Plant	D.C.V.A.
Hospitals, Clinics, Medical Buildings	*R.P. (Parallel)
Irrigation Systems	D.C.V.A. or P.V.B.
Laboratories	**R.P.
Laundries & Dry Cleaning Plants	**R.P.
Machine Tool Plants (Health or System Hazard)	**R.P.
Machine Tool Plants (Pollutional Hazard)	**R.P.
Metal Processing Plant (Health or System Hazard)	**R.P.
Metal Processing Plant (Pollutional Hazard)	**R.P.
Metal Plating Plant	R.P.
Morgues or Mortuaries	**R.P.
Nursing Homes	R.P.
Packing Houses or Rendering Plants	R.P.
Paper Products Plant	R.P.
Pesticides (Exterminating Companies)	***P.V.B. Overhead fill or R.P.
Petroleum Processing Plant	R.P.
Petroleum Storage Yard (Health or System Hazard)	**R.P.
Petroleum Storage Yard (Pollutional Hazard)	**R.P.
Pharmaceutical or Cosmetic Plant	R.P.
Piers, Docks or Waterfront Facilities	R.P.
Power Plants	R.P.
Radioactive Material Plants	R.P.
Restaurants, with Soap Eductors and/or Industrial Type Disposal	R.P.
Sand and Gravel Plants	D.C.V.A.
Schools with Laboratories	A.V.B. at source
Swimming Pools with Piped Fill Line	A.G. at pool
Sewage Treatment Plants	R.P.
Sewage Pumping Stations	R.P.
Tall Buildings over three stories	*R.P.
Veterinary Establishments	R.P.

In addition to and including those types of facilities listed above, and approved backflow prevention device of the type designated shall be installed on each domestic water service connection to any premises containing the following real or potential hazards.

	MINIMUM TYPE OF PROTECTION
Premises having an auxiliary water system not connected to public water system. (i.e., reclaimed public or private, well)	R.P.
Premises having a water storage tank, reservoir, pond, or similar appurtenance.	R.P.
Premises having a steam boiler, cooling system, or hot water heating system where chemical water conditioners are used.	R.P.
Premises having submerged inlets to equipment	R.P.
Premises having self-draining yard hydrants, fountains, hose boxes or similar devices presenting a health or system hazard. (i.e., chemical storage plants, tank farms, bulk storage yards)	R.P.
Premises having self-draining yard hydrants, fountains, hose boxes or similar devices presenting a pollutional hazard. (i.e., parks, play fields, cemeteries)	D.C.V.A.
Others specified by the Utilities Division	

* INSTALLATIONS REQUIRING CONTINUOUS SERVICE: PARALLEL INSTALLATION

All backflow prevention devices with test cocks are required to be tested with a minimum frequency of once per year. Testing requires a water shutdown usually lasting five (5) to twenty (20) minutes. For facilities that require an uninterrupted supply of water, and when it is not possible to provide water service from two separate meters, provisions shall be made for a "parallel installation" of backflow prevention devices.

Multi-story buildings which have a number of flushometer toilets should be equipped with parallel devices. Experience has shown if the water supply is shut off to this type of building, flushometers may have to be manually reset.

During testing one device is left on while the other is being tested. Usually the two devices are sized one device size smaller than the service line, e.g. one 2 inch device or two 1'/2 inch devices, one 8 inch device or two 6 inch devices.

The Utilities Division will not accept an unprotected bypass around a backflow preventer when the device is in need of testing, repair or replacement.

** HEALTH HAZARD; SYSTEM HAZARD; POLLUTIONAL HAZARD

"Health hazard" means any condition, device, or practice in a water system or its operation that creates, or may create, a danger to the health and well-being of users. The word "severe" as used to qualify "health hazard" means a hazard to the health of the user that could reasonably be expected to result in significant morbidity or death. "System hazard" means a condition posing an actual or potential threat of damage to the physical properties of the public water system or a potable consumer's water system. "Pollutional hazard" means a condition through which an aesthetically objectionable or degrading material not dangerous to health may enter the public water system or a potable consumer's water system.

*** EXTERMINATING COMPANIES

All tanks, tank trucks, and spraying apparatus used to convey pesticides in an exterminating process are required to use only designated-protected potable water fill locations. Filling with potable water at unspecified locations or private residences is prohibited. All filling locations will consist of overhead piping arrangements with correctly installed pressure vacuum breakers. If for any reason an overhead piping arrangement cannot be used, a reduced pressure backflow preventer must be installed on the fill line. All filling locations must be approved by the Utilities Division.

NOTE: Any device, equipment or situation not covered by this cross-connection policy where water is connected or used, which may constitute a potential health hazard will be handled at the discretion of the water purveyor or his authorized agent.

5.02 FIRE SYSTEMS

TYPE OF BACKFLOW PROTECTION REQUIRED - FIRE PROTECTION SERVICES

An approved backflow prevention device of the type designated shall be installed on each fire protection service to any premises where the fire protection system contains any of the following components unless the Utilities and/or Fire Prevention Division(s) determines that no real or potential health, pollutional, or system hazard to the public water system exists. Fire systems may be divided into six (6) general classes. The following are typical:

		MINIMUM TYPE OF PROTECTION
CLASS 1	a closed automatic fire system without pumper connection, i.e., a system having 20 heads or less;	NONE
CLASS 2	a closed automatic fire system with pumper connection;	D.C.V.A.
CLASS 3	a closed automatic fire system with pumper connection and an auxiliary water supply on or available to the premises; or an auxiliary water supply which may be located within 1700 feet of the pumper connection;	R.P.
CLASS 4	a closed automatic fire system with a closed pressure tank supply (this class may have a jockey pump interconnected with the domestic water supply and/or an air compressor connection);	R.P.
CLASS 5	a closed automatic sprinkler system interconnected with an auxiliary water supply;	R.P.
CLASS 6	fire system used for the combined purposes of supplying the automatic sprinklers, hose lines, fire hydrants and standpipes and of being used for industrial purposes.	R.P.
	(A) Self-Draining Fire Hydrants on premises presenting a health or system hazard (i.e., Chemical Plants, Petroleum Storage Plants, Bulk Storage Yards, Stock	R.P.

Yards, Sewer Plants, or similar facilities) where ground seepage of toxic materials may occur.

(B) Self-Draining Fire Hydrants on premises presenting a pollutional hazard (i.e., Apartment House, Office Complex, Fabricating Plants, or similar facilities) where ground seepage of pollutional but not toxic materials may occur. D.C.V.A

5.03 OTHER CROSS-CONNECTION HAZARDS

1. FIXTURE INLETS OR VALVED OUTLETS with hose attachments, which may constitute a cross-connection, shall be protected by the proper approved vacuum breaker (AVB, HBVB, etc.) installed at least six (6) inches above the highest point of usage and located on the discharge side of the last valve. Fixtures with integral vacuum breaker manufactured as a unit may be installed in accordance with their approved requirements.

2. AIR CONDITION COOLING TOWER - Potable water inlet shall have an AG separation of twice the inside diameter of the inlet line or a minimum of two inches above the flood level rim.

3. ASPIRATORS AND EJECTORS - Shall have an AVB or PVB, depending upon the degree of hazard, on the faucet from which these devices are attached or operated.

4. BOOSTER PUMPS - All booster pumps shall be provided with a low pressure cut-off unless other acceptable provisions are made to prevent the creation of low or negative pressures in the piping system.

5. PRIVATE WELLS - Shall not be interconnected unless the public supply is protected by an RP at the service connection, and approval is given by the Manager of the City's Utilities Division.

6. PORTABLE SPRAY AND CLEANING EQUIPMENT - Any portable pressure spray or cleaning units that have the capability of connecting to any potable water supply, and do not contain a built-in approved air gap, shall be fitted with a reduced pressure backflow device or double check valve assembly depending on the degree of hazard.

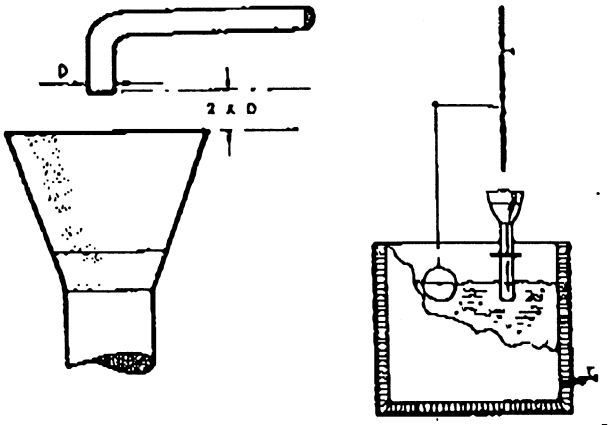
7. MISCELLANEOUS USES OF WATER FROM FIRE HYDRANTS - The operation of fire hydrants by other than authorized personnel is prohibited. The department may permit the use of water from a fire hydrant for construction or other purposes provided the applicant shall properly apply for, and adhere to backflow requirements on hydrant permit.

NOTE: Any device, equipment, or situation not covered by this cross-connection policy, which may constitute a potential health hazard, will be examined for appropriate treatment by the Utilities Division.

5.05 BACKFLOW PREVENTION DEVICES (ILLUSTRATED)

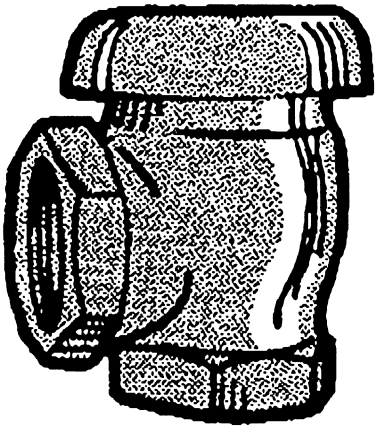
AG - Approved Air-gap

- good for toxic and non-toxic substances
- good against backpressure and backsiphonage
- a distance of 2-times the diameter of supply pipe, never less than a 1" gap
- best protection against backflow provided it is installed properly and not circumvented
- ANSI Standard No. A112.1.2



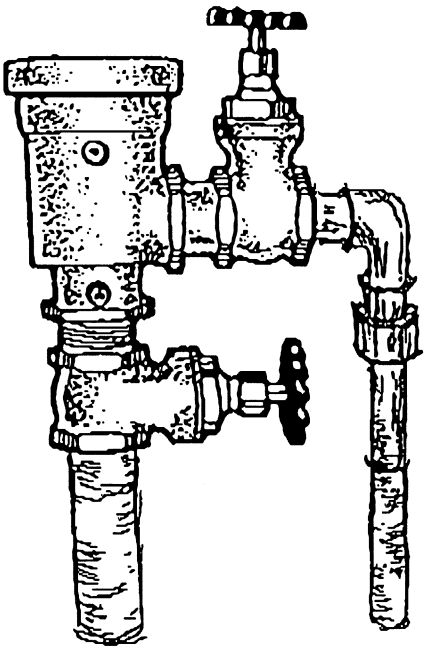
AVB Approved Atmospheric Vacuum Breaker

- good for most toxic and all non-toxic substances
- good for backsiphonage ONLY
- no control valves on discharge side of device
- minimum of 6" between base of device and highest outlet
- no more than 12 hours continuous service in a day
- sizes available: 1/4" - 3"
- ASSE Standard No. 1001



PVB Approved Pressure Vacuum Breaker

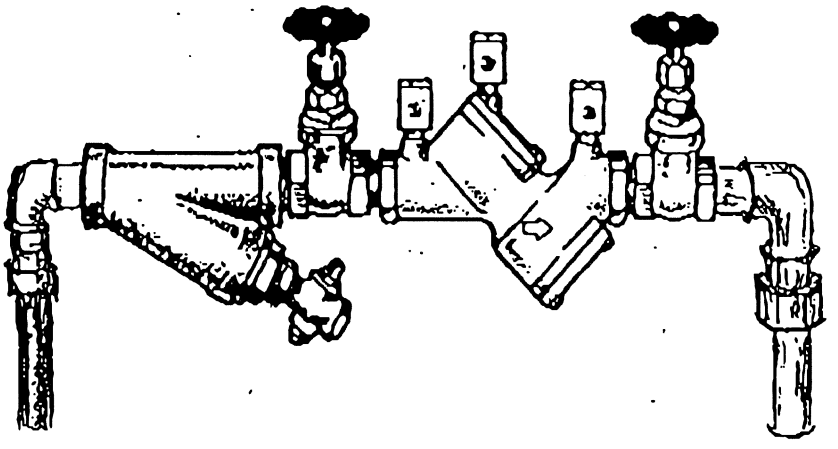
- good for toxic and non-toxic substances
- good for backsiphonage only
- can be installed under continuous pressure (valves downstream)
- minimum of 12" between base of device and highest outlet
- must be tested annually
- sizes available: ½" - 2" (2 ½" - 10" not normally used)
- ASSE Standard No. 1020



MUST BE GALVANIZED ABOVE GROUND WITH A UNION ON ONE SIDE

DCVA - Approved Double Check Valve Assembly

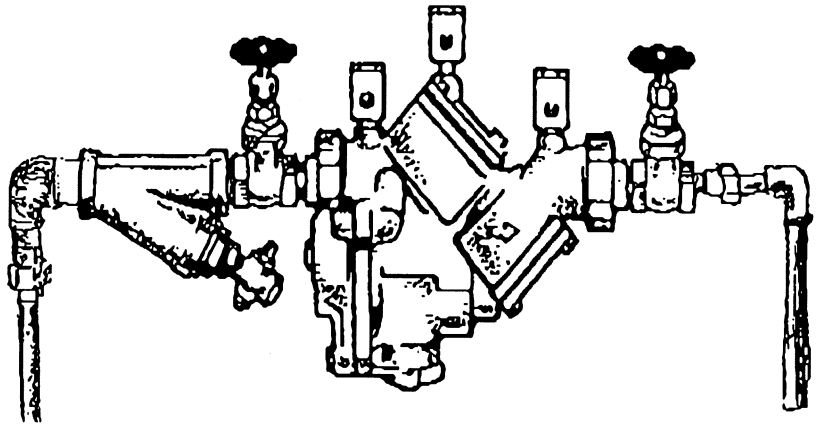
- good for non-toxic substances such as steam, air, food, beverages
- good against backsiphonage and backpressure
- installed minimum of 12" above ground or flood level
- must be tested annually
- sizes available: 3/4" - 10"
- ASSE Standard No. 1015 or AWWA Standard C506-78



MUST BE GALVANIZED PIPE ABOVE GROUND
MUST HAVE A UNION ON EACH SIDE

RP - Approved Reduced Pressure Principle Backflow Preventer

- good for toxic and nontoxic substances
- good against backsiphonage and backpressure
- installed minimum of 12" above ground or flood level
- must be tested annually
- sizes available: 1/4" - 10"
- ASSE Standard No. 1013 or AWWA Standard C506-78

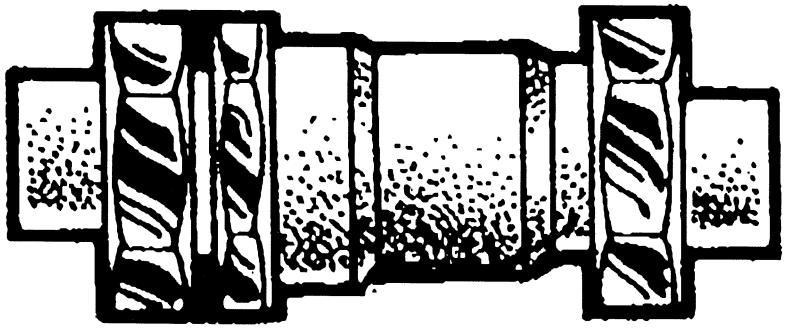


MUST BE GALVANIZED PIPE ABOVE GROUND
MUST HAVE A UNION ON EACH SIDE

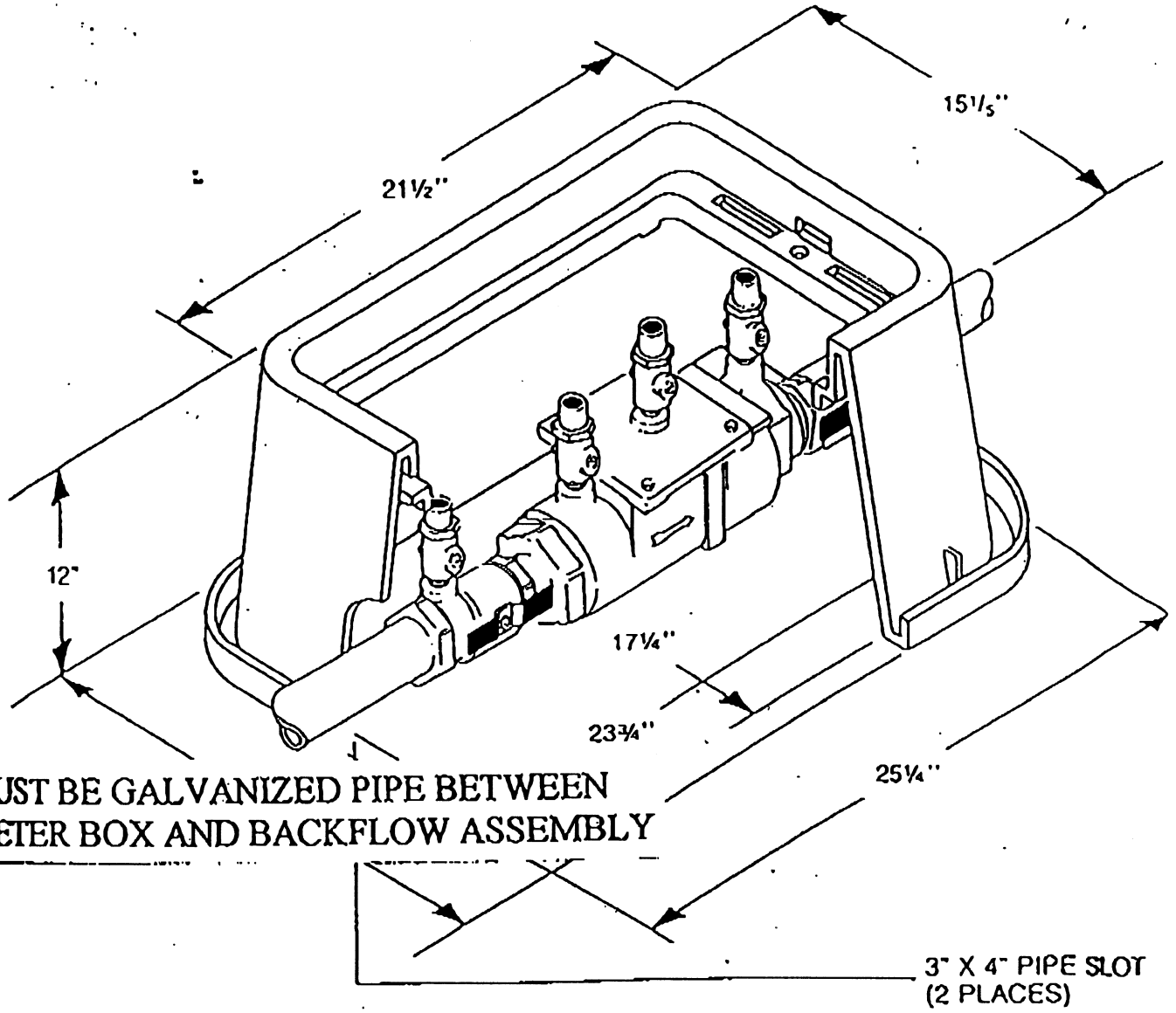
Dual Check Valves

ASSE Standard No. 1024 suited particularly for installations immediately downstream from residential water meters where potential pollutants from residences could enter the water mains.

(APPROVED FOR RESIDENTIAL USE ONLY)



Meter Box Installation



MUST BE GALVANIZED PIPE BETWEEN
METER BOX AND BACKFLOW ASSEMBLY

DC: FOR UNDERGROUND USE ARE AS
FOLLOWS: ZURN, 950XLT,
WATTS: 007, FEBCO: 850,
CONBRACO: 40-100
THESE CAN ONLY BE USED FOR
LOW HAZARD APPLICATIONS: SEE
ATTACHMENTS

PART 6 TESTING OF BACKFLOW PREVENTERS

Except for single-family dwelling units, it shall be the duty of the customer/user at any premises where reduced prevention devices (R.P.), double check valve assemblies (DCVA), and pres (PVB) are installed to have thorough Inspections and operational tests made at least once a year or more often in those Instances where inspections indicate a need. Non single-family dwelling units inspections and tests shall be at the expense of the water user and be performed by the device manufacturer's representative, by Utilities Division personnel, or by a certified device technician. The water purveyor will notify the customer-user when tests are required and supply the necessary test forms and instructions. These forms will be completed and returned to the water purveyor by the date indicated.

PART 7 PENALTIES FOR NON COMPLIANCE

7.01 PENALTIES: Failure to comply with the provisions of this division shall result in termination of water service by the city. Water service shall not be reinstated until such time as the customer in compliance with this division and the provisions of chapter 19 of the Code of Ordinances of the City of Winter Haven, Florida, as those provisions apply to water service. This penalty is supplemental and in addition to any other penalty provided by law, or in equity, for the enforcement of this division.

7.02 CUSTOMER OPTION: For connections, aside from single-family dwellings, which utilize an assembly consisting of a dual check valve, the customer shall have the option of utilizing the city for assembly installation, inspection, and maintenance. If the city is utilized, the customer shall pay the city for the particular service in accordance with the Schedule of Fees on ffle with the city clerk's office. Services performed by the city pursuant to this section shall be billed as part of the customer's next utility bill.

REFERENCES

American Water Works Association (AWWA)
Backflow Prevention and Cross-Connection Manual m14
Cross-Connections and Backflow Prevention, 2nd Edition

American Water Works Association (AWWA) Online @ WWW.AWWA.ORG

U.S. Environmental Protection Agency (EPA)
Guide to Federal Water Quality Programs and Information

Professional Backflow Prevention Association (PBPA)
Guide to Cross-Connection Prevention

University of Florida - Training, Research, and Education for Environmental Occupations (TREEO)

University of Southern California - Foundation for Cross-connection Control and Hydraulic Research (USC-FCCC)

University of Central Florida - Environmental Research

Florida Department of Environmental Protection (FDEP)
Chapter 62-555 F.A.C.- Permitting and Construction of Public Water Systems
Chapter 62-610 F.A.C.- Reuse of Reclaimed Water and Land Applications

Florida Department of Environmental Protection (FDEP) Online @ WWW.FDEP.COM

State of Florida
Statutes 403.850 - 403.864 Florida Safe Drinking Water Act

CCBFF.WPD
CWH 10/01/98

Sec. 19-43. Notification of quality change.

Upon request from any industrial water customer, the city will notify the customer if any significant change in city water quality occurs or is anticipated.
(Code 1959, § 24-28)

Secs. 19-44—19-50. Reserved.

DIVISION 2. BACKFLOW PREVENTION REGULATIONS AND PROCEDURES

Sec. 19-51. Short title.

This division shall be known as the "Backflow Prevention Ordinance."
(Ord. No. 98-8, § 1, 2-23-98)

Sec. 19-52. Definitions.

For the purpose of this division the following terms, phrases, words, and their derivations shall have the meaning given herein. The word "shall" is always mandatory and not merely directory.

Annual service certification shall mean a form, as approved by the backflow officer, by which proper notification is made to the city of any assembly service as may be required under the provisions of this division.

Assembly shall mean a backflow prevention assembly, which includes all necessary valves and test ports, approved by the backflow officer which shall be designed solely for the purpose of preventing water flowing from a nonapproved source into the water system. The criteria employed by the backflow officer for approval of the type of assembly, as well installation, inspection, and repair thereof, shall be accordance with the standards adopted by the state, as set forth in Florida Administrative Code, Section 62-555.360.

Backflow officer shall mean that person designated the city manager to enforce the provisions of this division.

Customer shall mean any consumer of water provided the water system.

Installation certification shall mean a form approved by the backflow officer by which proper notification is made to or by the city of the installation of any assembly as may be required under the provisions of this division.

Installer shall mean any person or firm certified by the University of Florida Training, Research, and Education for Environmental Occupations (TREEO) or the Florida Section of the American Water Works Association, or approved by the City of Winter Haven, Florida, to perform installation or servicing of backflow prevention assemblies.

Service shall mean the inspection and maintenance necessary to ensure the proper operation of the backflow prevention assembly.

Water system shall mean the potable water system of the City of Winter Haven, Florida. (Ord. No. 98-8, § 2, 2-23-98)

Sec. 19-53. Installation requirements, new connections.

It is hereby required that all customers making connection to the water system shall have installed an approved assembly. The assembly shall be installed by an installer on the customer side of the water meter and in such a manner as specified by the city. Notification that the assembly has been installed shall be presented to the city prior to providing service. (Ord. No. 98-8, § 3, 2-23-98)

Sec. 19-54. Installation requirements, existing service.

It is hereby required that all customers with existing water service shall have installed an approved assembly. The assembly shall be installed by an installer on the customer side of the water meter and in such a manner as specified by the city. The time for installation of the assembly shall be in accordance with the following schedule. Notification that the assembly has been installed shall be presented to the city.

Schedule of Assembly Installation for Existing Customers

A. By the first day of January, 1999.

1. Known actual or potential cross connections to non-approved sources. (Including but not limited to irrigation or other wells)
2. New commercial and residential construction (includes major renovation and/or any renovation requiring a plumbing permit).
3. Commercial involving chemical products. (Including medical providers, funeral homes, photo processing, etc.)
4. Industrial processes. (Including but not limited to manufacturing facilities, laboratories, testing, research and development facilities)

B. By the first day of January, 2000.

1. Agricultural and horticultural.
2. Fire suppression systems.
3. Large irrigation - with injection ports.

C. By the first day of January, 2001.

1. Commercial other than specified in year 1.
2. Existing high rise construction with a floor elevation exceeding forty (40) feet above base floor elevation.
3. Residential with home occupations.

D. By the first day of January, 2002.

1. Irrigation other than as specified above.

2. Master metered multiple-family residential

E. By the first day of January, 2003.

1. All other connections to water system not otherwise specified above.

(Ord. No. 98-8, § 4, 2-23-98)

Sec. 19-55. Service requirements.

It is hereby required that the customer shall cause each assembly to be inspected by an installer no less frequently than every twelve (12) months commencing with the first anniversary of the date of installation. The annual service shall include any repair or maintenance necessary to ensure proper operation of the assembly. Notification of the annual service shall be provided to the city.

In cases where an inspection by authorized personnel of one city determines that the assembly is not functioning properly, the customer shall be notified and shall effect repair to the assembly by an installer within fourteen (14) calendar days. Notification of the repair shall be provided to the city. In cases where a repair is made, the requirement for subsequent annual inspection shall be based on the date of repair.

(Ord. No. 98-8, § 5, 2-23-98)

Sec. 19-56. Notification.

(1) *Installation.* The customer shall notify the city of the installation of the assembly by the submission of an installation certification to the city. Said certification form shall be made available by the city.

(2) *Annual service.* The city shall notify the customer of the due date of the annual service. Customer shall notify the city that the annual service has been performed by submission of an annual service certification to the city. Said certification forms shall be made available by the city.

(3) *Repair when notified by the city.* The city reserves the right to inspect assemblies. Where the city determines repairs are necessary, the city shall notify the customer of required repair. The customer shall notify the city of the repair of the assembly by submission of an annual service certification to the city.

(Ord. No. 98-8, § 6, 2-23-98)

Sec. 19-57. Exception, single-family dwellings; customer option.

(1) *Single-family dwellings.* Notwithstanding any other provision of this division, the city shall install, inspect, and maintain assemblies for single-family dwelling units connected, or to be connected, to the water system.

ORDINANCE NO.: 0-98-08

AN ORDINANCE OF THE CITY OF WINTER HAVEN, FLORIDA ESTABLISHING BACKFLOW PREVENTION REGULATIONS AND PROCEDURES FOR THE CITY WATER SYSTEM; ESTABLISHING ENFORCEMENT PROCEDURES FOR THESE REGULATIONS; PROVIDING FOR CONFLICTS, SEVERABILITY, AND AN EFFECTIVE DATE.

WHEREAS, it is the intent of the City of Winter Haven, Florida, to protect the potable water system of the City by establishing regulations and procedures to prevent contamination of said system as mandated by the State of Florida; and,

WHEREAS, an effective means of preventing such contamination is by proper installation and maintenance of approved backflow prevention assemblies.

NOW, THEREFORE, BE IT ENACTED BY THE PEOPLE OF THE CITY OF WINTER HAVEN, FLORIDA:

Section 1: Short Title.

This Ordinance shall be known as the "Backflow Prevention Ordinance."

Section 2: Definitions.

For the purpose of this Ordinance the following terms, phrases, words, and their derivations shall have the meaning given herein. The word "shall" is always mandatory and not merely directory.

1. ANNUAL SERVICE CERTIFICATION shall mean a form, as approved by the Backflow Officer, by which proper notification is made to the City of any assembly service as may be required under the provisions of this Ordinance.

2. ASSEMBLY shall mean a backflow prevention assembly, which includes all necessary valves and test ports, approved by the Backflow Officer which shall be designed solely for the purpose of preventing water flowing from a nonapproved source into the Water System. The criteria employed by the Backflow Officer for approval of the type of assembly, as well as installation, inspection, and repair thereof, shall be in accordance with the standards adopted by the State of Florida, as set forth in Florida Administrative Code, Section 62-555.360.

3. BACKFLOW OFFICER shall mean that person designated by the City Manager to enforce the provisions of this Ordinance.

4. CUSTOMER shall mean any consumer of water provided by the Water System.

5. INSTALLATION CERTIFICATION shall mean a form as approved by the Backflow Officer by which proper notification is made to or by the City of the installation of any assembly as may be required under the provisions of this Ordinance.

6. INSTALLER shall mean any person or firm certified by the University of Florida Training, Research, and Education for Environmental Occupations (TREEO) or the Florida Section of the

American Water Works Association, or approved by the City of Winter Haven, Florida, to perform installation or servicing of Backflow Prevention assemblies.

7. SERVICE shall mean the inspection and maintenance necessary to ensure the proper operation of the Backflow Prevention assembly.

8. WATER SYSTEM shall mean the potable water system of the City of Winter Haven, Florida.

Section 3. Installation Requirements, New Connections.

It is hereby required that all customers making connection to the water system shall have installed an approved assembly. The assembly shall be installed by an installer on the customer side of the water meter and in such a manner as specified by the City. Notification that the assembly has been installed shall be presented to the City prior to providing service.

Section 4. Installation Requirements, Existing Service.

It is hereby required that all customers with existing water service shall have installed an approved assembly. The assembly shall be installed by an installer on the customer side of the water meter and in such a manner as specified by the City. The time for installation of the assembly shall be in accordance with the following schedule. Notification that the assembly has been installed shall be presented to the City.

SCHEDULE OF ASSEMBLY INSTALLATION
FOR EXISTING CUSTOMERS

A. BY THE FIRST DAY OF JANUARY, 1999.

1. KNOWN ACTUAL OR POTENTIAL CROSS CONNECTIONS TO NON-APPROVED SOURCES. (INCLUDING BUT NOT LIMITED TO IRRIGATION OR OTHER WELLS)

2. NEW COMMERCIAL AND RESIDENTIAL CONSTRUCTION (INCLUDES MAJOR RENOVATION AND/OR ANY RENOVATION REQUIRING A PLUMBING PERMIT).

3. COMMERCIAL INVOLVING CHEMICAL PRODUCTS. (INCLUDING MEDICAL PROVIDERS, FUNERAL HOMES, PHOTO PROCESSING, etc.)

4. INDUSTRIAL PROCESSES. (INCLUDING BUT NOT LIMITED TO MANUFACTURING FACILITIES, LABORATORIES, TESTING, RESEARCH AND DEVELOPMENT FACILITIES)

B. BY THE FIRST DAY OF JANUARY, 2000.

1. AGRICULTURAL AND HORTICULTURAL.

2. FIRE SUPPRESSION SYSTEMS

3. LARGE IRRIGATION - WITH INJECTION PORTS

C. BY THE FIRST DAY OF JANUARY, 2001.

1. COMMERCIAL OTHER THAN SPECIFIED IN YEAR 1.

2. EXISTING HIGH RISE CONSTRUCTION WITH A FLOOR ELEVATION EXCEEDING FORTY (40) FEET ABOVE BASE FLOOR ELEVATION.

3. RESIDENTIAL WITH HOME OCCUPATIONS.

D. BY THE FIRST DAY OF JANUARY, 2002.

1. IRRIGATION OTHER THAN AS SPECIFIED ABOVE.

2. MASTER METERED MULTIPLE FAMILY RESIDENTIAL

E. BY THE FIRST DAY OF JANUARY, 2003.

1. ALL OTHER CONNECTIONS TO WATER SYSTEM NOT OTHERWISE SPECIFIED ABOVE.

Section 5. Service Requirements.

It is hereby required that the customer shall cause each assembly to be inspected by an installer no less frequently than every 12 months commencing with the first anniversary of the date of installation. The annual service shall include any repair or maintenance necessary to ensure proper operation of the assembly. Notification of the annual service shall be provided to the City.

In cases where an inspection by authorized personnel of the City determines that the assembly is not functioning properly, the customer shall be notified and shall effect repair to the assembly by an installer within fourteen (14) calendar days. Notification of the repair shall be provided to the City. In cases where a repair is made, the requirement for subsequent annual inspection shall be based on the date of repair.

Section 6. Notification.

1. INSTALLATION. The customer shall notify the City of the installation of the assembly by the submission of an Installation Certification to the City. Said certification form shall be made available by the City.

2. ANNUAL SERVICE. The City shall notify the customer of the due date of the annual service. Customer shall notify the City that the annual service has been performed by submission of

an Annual Service Certification to the City. Said certification forms shall be made available by the City.

3. REPAIR WHEN NOTIFIED BY THE CITY. The City reserves the right to inspect assemblies. Where the City determines repairs are necessary, the City shall notify the customer of required repair. The customer shall notify the City of the repair of the assembly by submission of an Annual Service Certification to the City.

Section 7. Exception, Single Family Dwellings; Customer Option.

1. Single Family Dwellings. Notwithstanding any other provision of this Ordinance, the City shall install, inspect, and maintain assemblies for single family dwelling units connected, or to be connected, to the water system.

2. Customer Option. For connections, aside from single family dwellings, which utilize an assembly consisting of a dual check valve, the customer shall have the option of utilizing the City for assembly installation, inspection, and maintenance. If the City is utilized, the customer shall pay the City for the particular service in accordance with the Schedule of Fees on file with the City Clerk's Office. Services performed by the City pursuant to this section shall be billed as part of the customer's next utility bill.

Section 8. Penalties.

Failure to comply with the provisions of this Ordinance shall result in termination of water service by the City. Water service shall not be reinstated until such time as the customer is in compliance with this Ordinance and the provisions of Chapter 19 of the Code of Ordinances of the City of Winter Haven, Florida, as those provisions apply to water service. This penalty is supplemental and in addition to any other penalty provided by law, or in equity, for the enforcement of this Ordinance.

Section 9. Saving Clause.

If any section, clause, provision, or a portion of this Ordinance shall be held to be invalid or unconstitutional by any Court of competent jurisdiction, such holding shall not affect any other section, clause, provision, or portion of this Ordinance which is not in and of itself invalid or unconstitutional.

Section 10. Conflicts.

Any ordinances or parts thereof in conflict with the provisions of this ordinance are hereby repealed to the extent necessary to give full force and effect to this Ordinance.

Section 11. Effective Date.

This Ordinance shall take effect on the first day of August, 1998.

INTRODUCED AND PASSED on first reading on this 9th day of February, 1998.

PASSED on second reading on this 23rd day of February, 1998.

CITY OF WINTER HAVEN, FLORIDA

MAYOR - COMMISSIONER

ATTEST:

CITY CLERK

Approved as to form:

CITY ATTORNEY

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