North Beach Water District

- Cross Connection Control
  - WAC 246-290-490 - It's the Law
  - Hydraulics
  - Terms & Applications
  - Backflow Assembly Assistance Program
  - Questions

North Beach Water District

- WAC 246-290-490 (1) (a) All community water system shall comply with the cross-connection control requirements specified in this section.
- WAC 246-290-490 (1) (c) The purpose of the purveyor's cross-connection control program shall be to protect the public water system, as defined in WAC 246-290-010, from contamination via cross-connections.
- WAC 246-290-490 (2) (a) The purveyor shall develop and implement a cross-connection control program that meets the requirements of this section, but may establish a more stringent program through local ordinances, resolutions, codes, bylaws, or operating rules.

North Beach Water District

- WAC 246-290-490 (2) (e) The Purveyor shall include a written description of the cross-connection control program in the water system plan required under WAC 246-290-100. The Cross Connection Control Program shall include the minimum program elements described in subsection (3) of this section.
- WAC 246-290-490 (2) (f) The Purveyor shall ensure that all cross-connections between the distribution system and a consumer's water system are eliminated or controlled by the installation of an approved backflow preventer commensurate with the degree of hazard. This can be accomplished by the implementation of a cross-connection program that relies on:

North Beach Water District

- WAC 246-290-490 (2) (f)(i) Premises isolation as defined in WAC 246-290-010 (*means a method of protecting a public water system by installation of approved air gaps or approved backflow prevention assemblies at or near the service connection or alternative location acceptable to the purveyor to isolate the consumer's water system from the purveyor's distribution system.*)
- WAC 246-290-490 (2)(h) The purveyor shall take appropriate corrective action as authorized by the legal instrument required by subsection (3)(b)("Board Resolution") of this section, when:

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- WAC 246-290-490 (2)(E)(h)(i) A cross-connection exists that is not controlled commensurate to the degree of hazard assessed by the purveyor; or
- WAC 246-290-490 (2)(E)(h)(ii) A consumer fails to comply with the purveyor's requirements regarding the installation, inspection, testing, maintenance or repair of approved backflow preventers required by this chapter.
- WAC 246-290-490 (2)(E)(h)(ii)(i) The purveyor’s corrective action may include, but is not limited to:

North Beach Water District

- WAC 246-290-490 (2)(E)(h)(ii)(i)(i) Denying or discontinuing water service to a consumer's premises until the cross-connection hazard is eliminated or controlled to the satisfaction of the purveyor;
- WAC 246-290-490 (2)(E)(h)(ii)(i)(ii) Requiring the consumer to install an approved backflow preventer for premises isolation commensurate with the degree of hazard; or
- WAC 246-290-490 (2)(E)(h)(ii)(i)(iii) The purveyor installing an approved backflow preventer for premises isolation commensurate with the degree of hazard.

North Beach Water District

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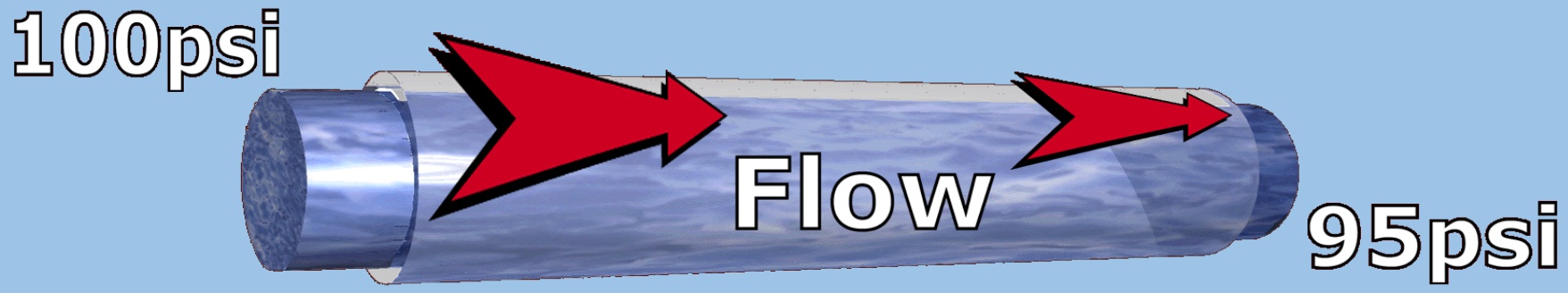
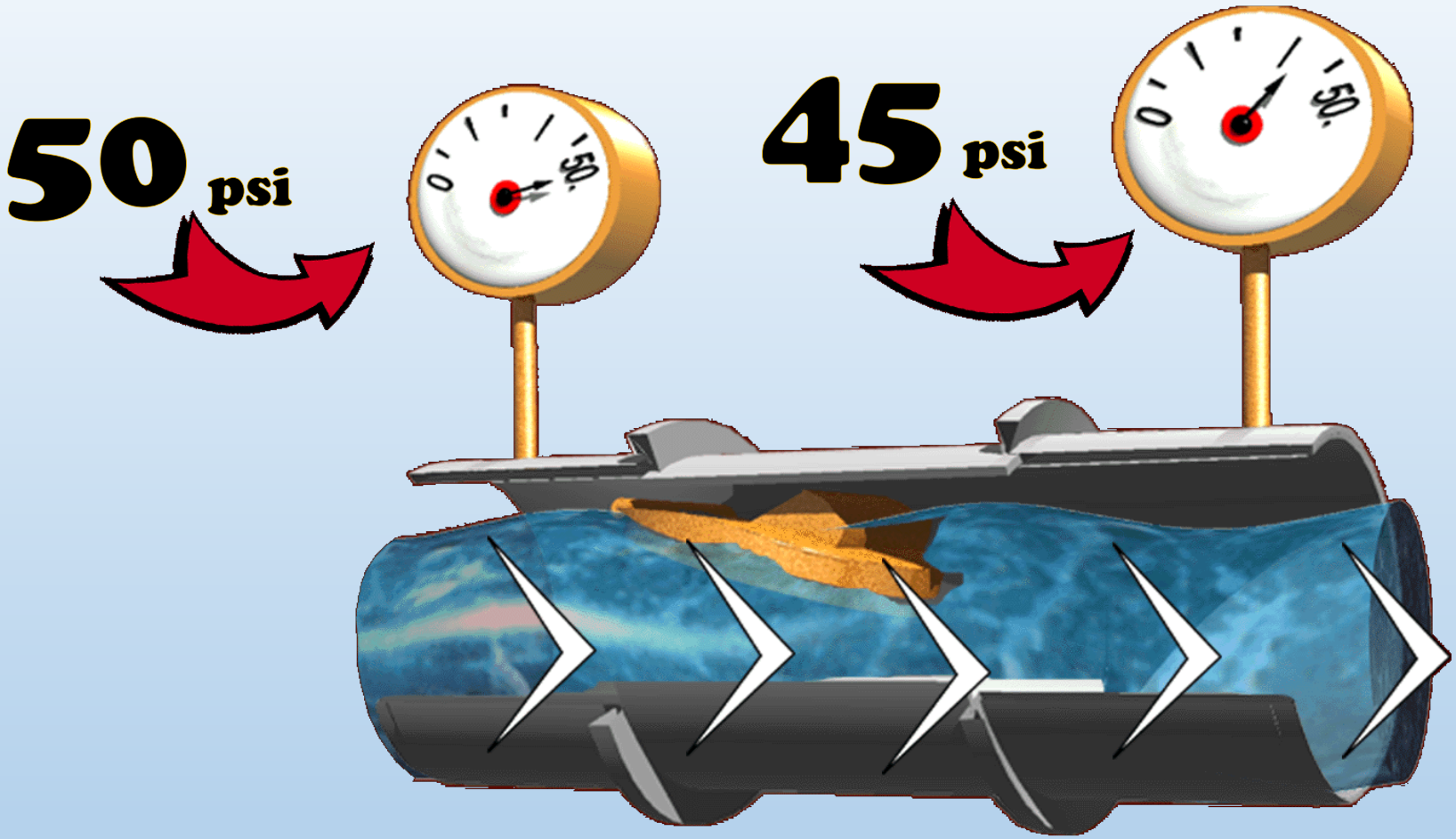
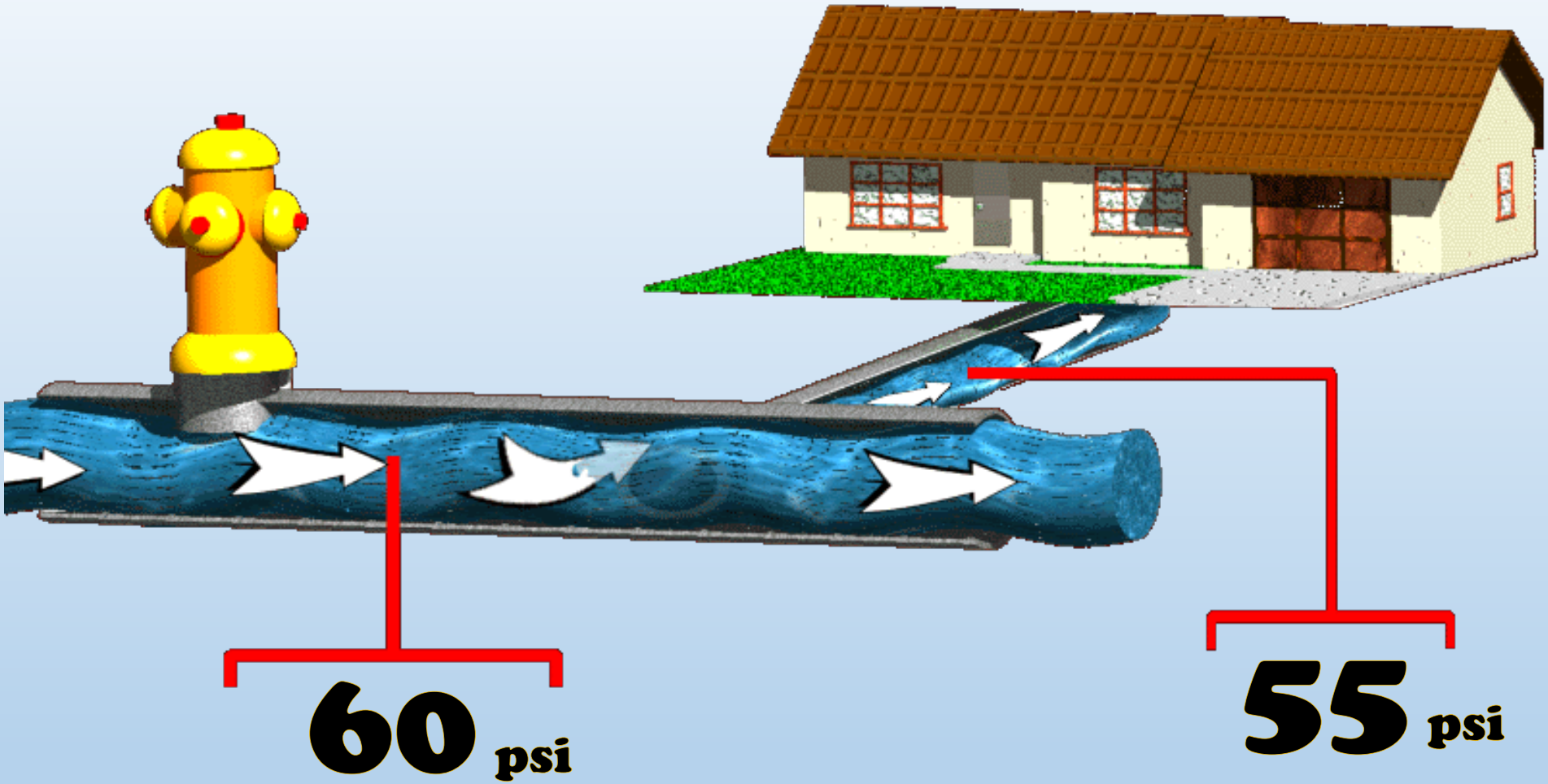
Water Pressure naturally tends to equalize

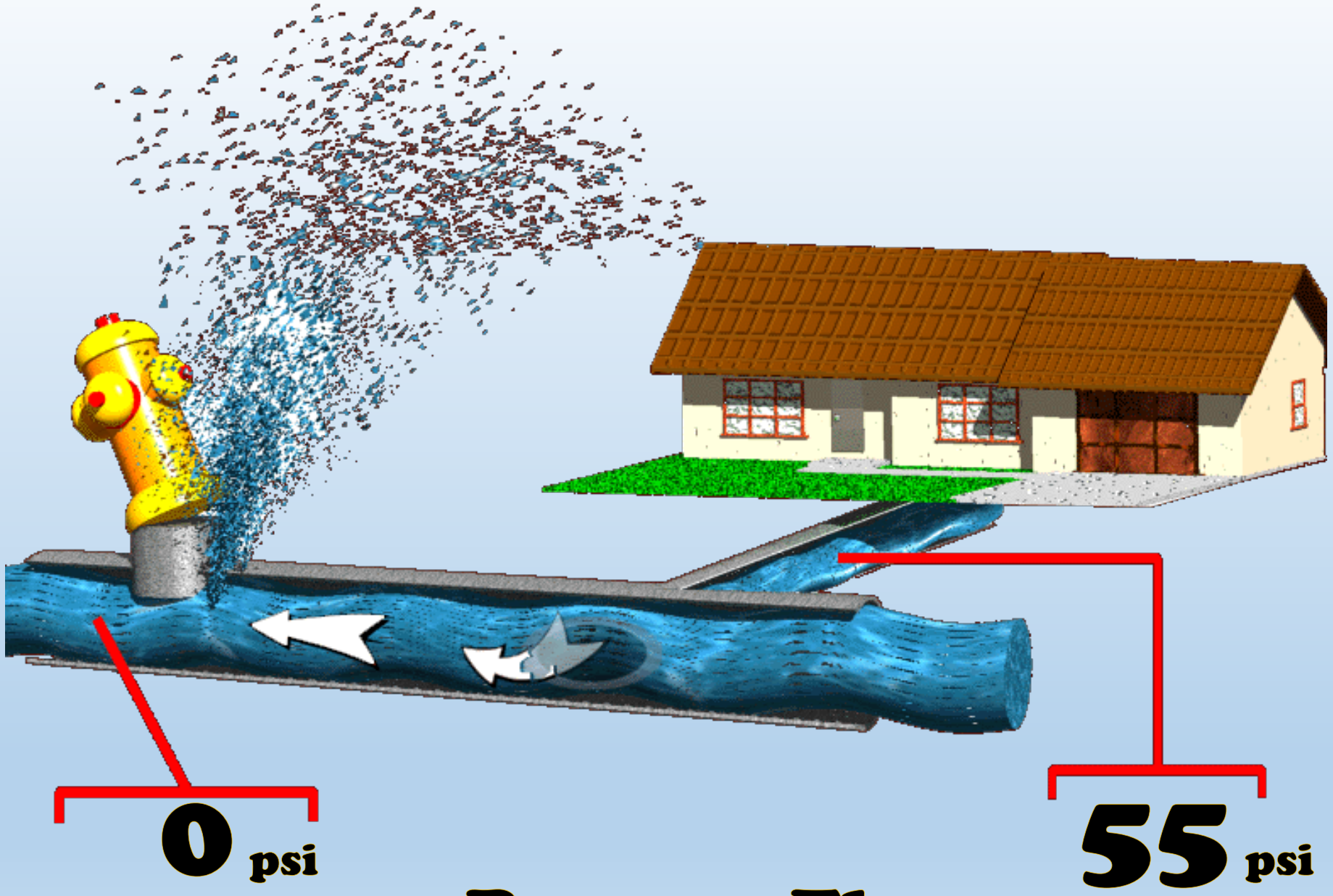


Therefore, water flows from high pressure regions to low pressure regions


50 psi
45 psi



Normal Flow



Reverse Flow

North Beach Water District

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Backflow

A reverse flow condition created by a difference in water pressures that causes water to flow back into the distribution pipes of a drinking water supply from any source other than the intended one. (EPA)

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Backpressure

A pressure that can cause water to backflow into the water supply when a user's water system is at a higher pressure than the public system. (EPA)

Backsiphonage

A reverse flow condition created by a difference in water pressures that causes water to flow back into the distribution pipes of a drinking water supply from any source other than the intended one. (EPA)

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Cross Connection

Any actual or potential connection between a drinking water system and an unapproved water supply or other source of contamination. (EPA)

- **Direct**: A cross connection that is subject to both backpressure and backsiphonage hydraulic conditions. (most dangerous)
- **Indirect**: A cross connection that is subject only to backsiphonage conditions.

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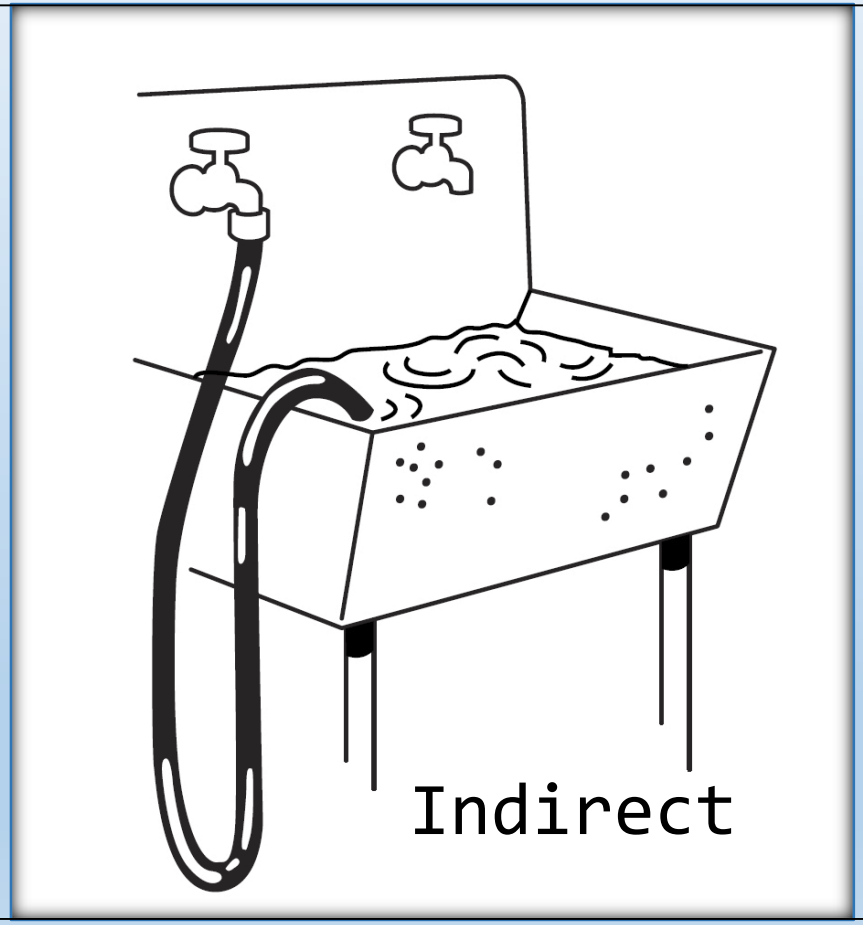

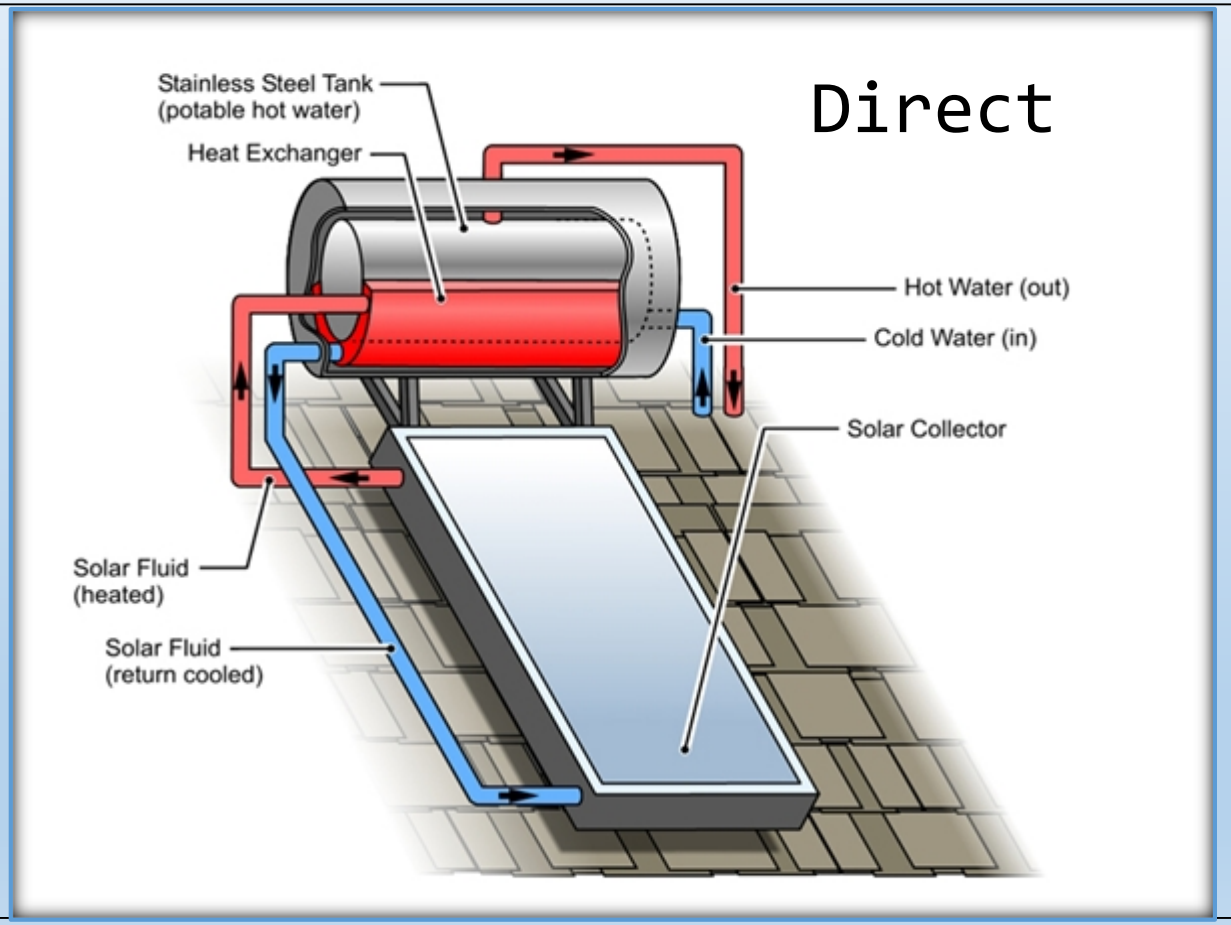

Indirect Cross Connection

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Degree of Hazard

- Low-Cross-Connection Hazard
  - A cross-connection that could impair the quality of potable water to a degree that does not create a hazard to the public health, but does adversely and unreasonably affect the aesthetic qualities of such potable waters for domestic use. Examples:

- ✓ Underground Sprinkler System
- ✓ Boiler (hot water or heating)
- ✓ Utility Sink
- ✓ Pond or Fountain
- ✓ Hot Tub or Pool
- ✓ Stock Watering Tub
- ✓ Pumped water (any kind)
- ✓ Pipes of Unknown Purpose
- ✓ Solar Panels

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Degree of Hazard

- High-Health Cross-Connection Hazard
  - A cross-connection which could impair the quality of potable water and create an actual public health hazard through poisoning or spread disease by sewage, industrial liquids or waste. Examples:

- ✓ Axillary Water Supplies (interconnected)
- ✓ Piers and docks
- ✓ Mortuaries
- ✓ Laboratories
- ✓ Access denied
- ✓ Laundromats
- ✓ Wastewater Treatment Plants
- ✓ Veterinary or Kennels
- ✓ Medical & Dental Offices

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Degree of Protection

- Low Cross Connection Hazard:
  - Double Check Valve
  - Reduced Pressure Backflow Assembly
  - Air Gap
- High Health Cross Connection Hazard
  - Reduced Pressure Backflow Assembly
  - Air Gap

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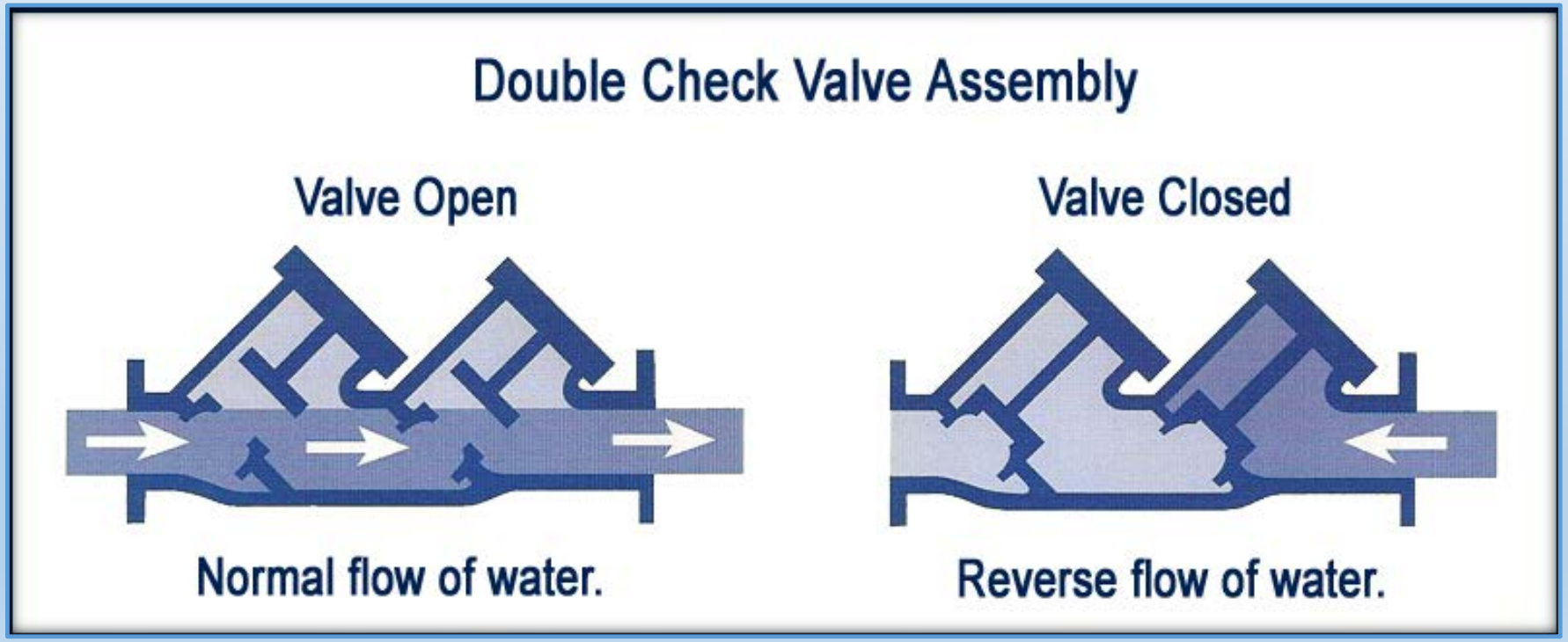
Double Check Valve Assembly



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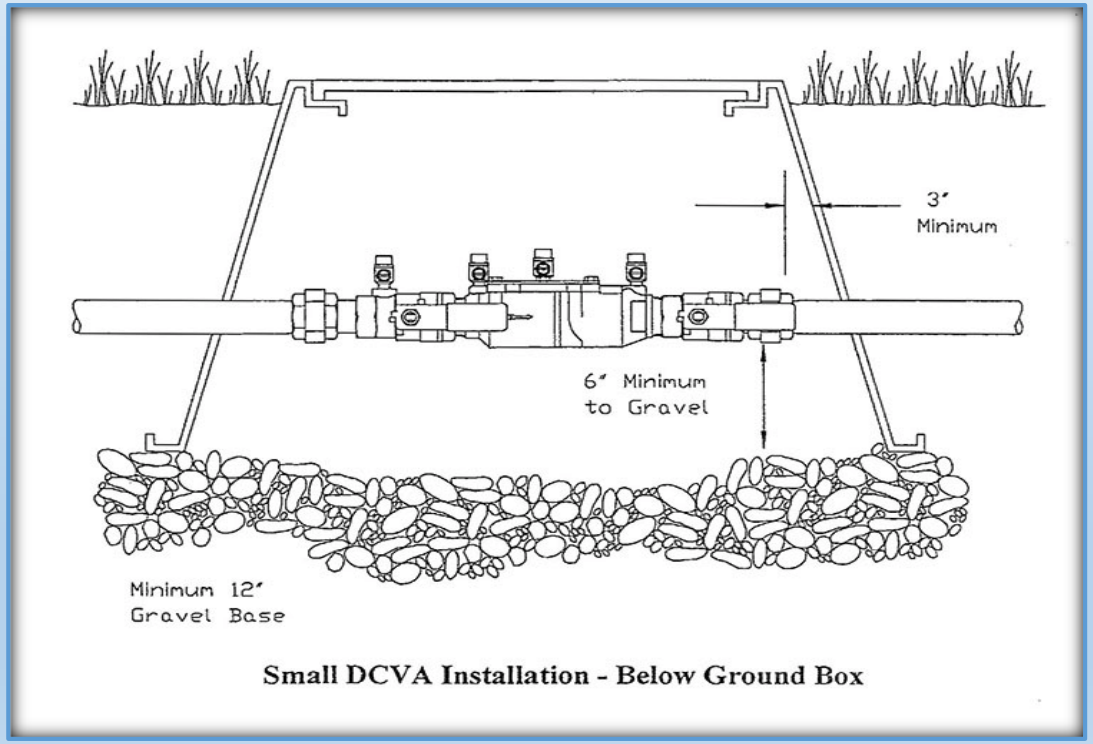
Double Check Valve Assembly



Small DCVA Installation - Below Ground Box

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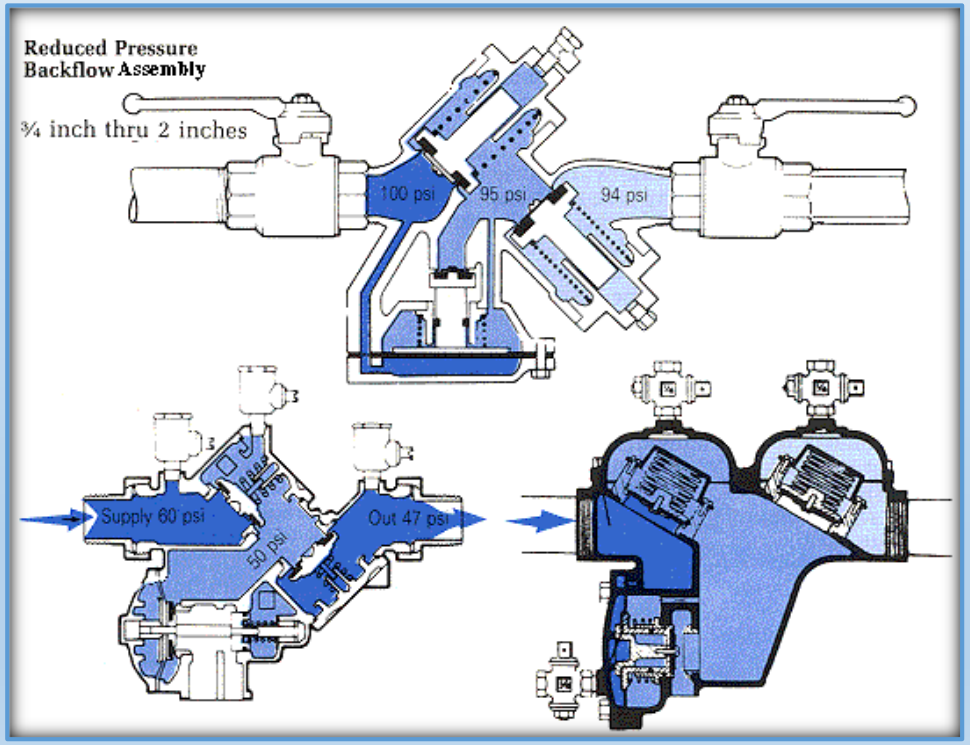
Reduced Pressure Backflow Assembly



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Reduced Pressure Backflow Assembly

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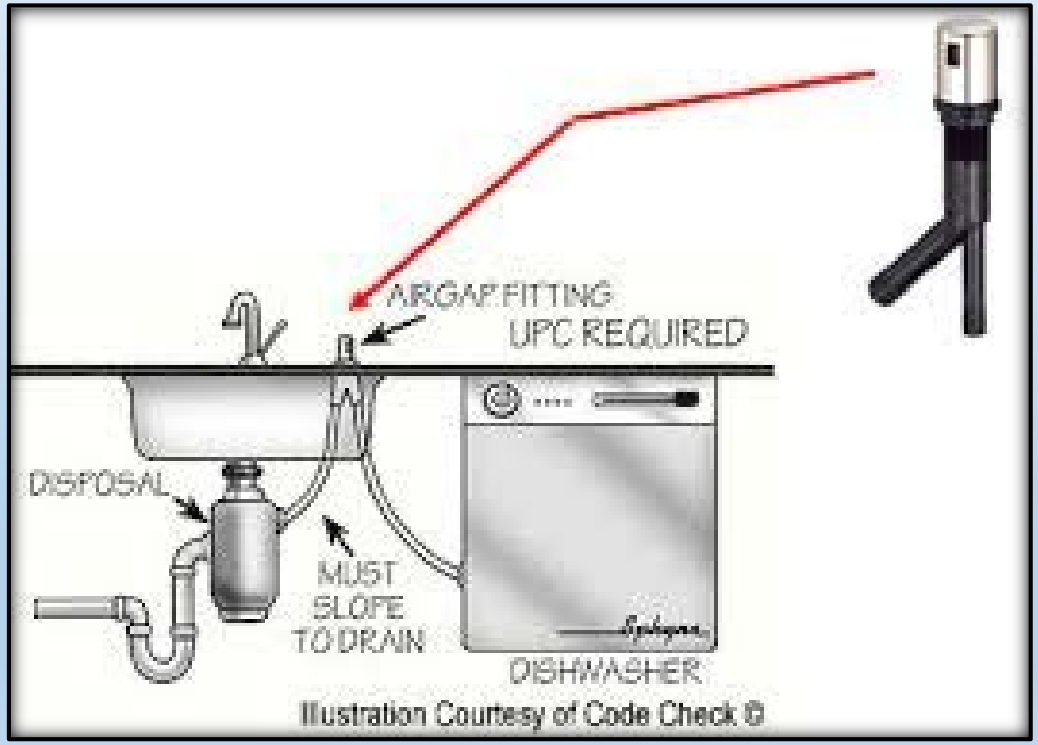
Air Gap



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North Beach Water District

Backflow Preventer Assistance Program

- First of its kind in Washington State.
- Developed as a service for ratepayers.
  - District will own, test, maintain, and replace required Backflow preventers.
  - Ratepayer will pay a fee set by the Board for the service.
  - The fee will be designed to cover the cost of the program only.
  - The district will be purchasing backflow preventers and appurtenances at wholesale and passing the saving on to the ratepayer.
  - District will keep track of testing schedules and maintenance records as a service for the owner.
  - Customers must request the service and sign an agreement with the district.

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