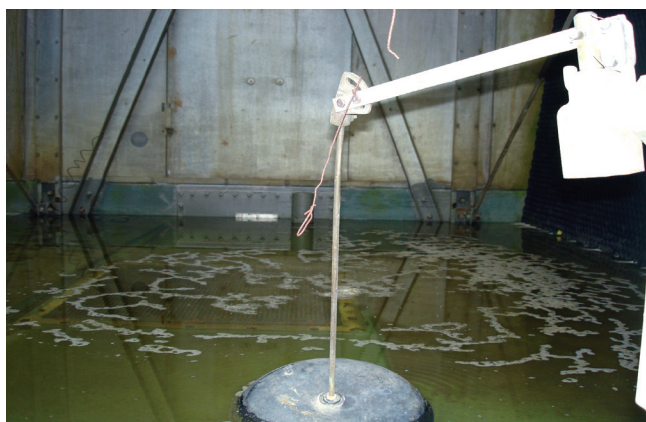


Cross Talk

Summer 2007

Cooling Towers

Cooling towers are used at a multitude of locations to cool fluids used in cooling systems. The recirculating water in the cooling tower is usually treated with chemicals to reduce corrosion in the system. Cooling towers typically operate by the water falling over a series of vanes or panels, the water collects into a reservoir and as the cooling



Inside the cooling tower reservoir

tower operates water will evaporate. In order to compensate for the loss of water a water make-up line is usually attached to the recirculating system, with cooling towers the make-up line normally goes to the reservoir.

The water make-up line to a cooling tower must be protected against backflow. If the make-up line is directly connected into the



Cooling Tower

pressurized portion of the recirculating system the level of backflow protection would need to be a reduced pressure principle assembly (RP), since the assembly would need to protect against backpressure and the degree of hazard is a health hazard.

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Foundation Membership

The Foundation's Membership Program provides many benefits to the Members of the Foundation. These include: a twenty-five percent discount on manuals, twenty percent discount on Foundation Training Courses for any employee of the Member company/organization, the *List of Approved Backflow Prevention Assemblies*, printed quarterly, and access to the up-to-the-minute version of the *List* for those Members with Internet access.

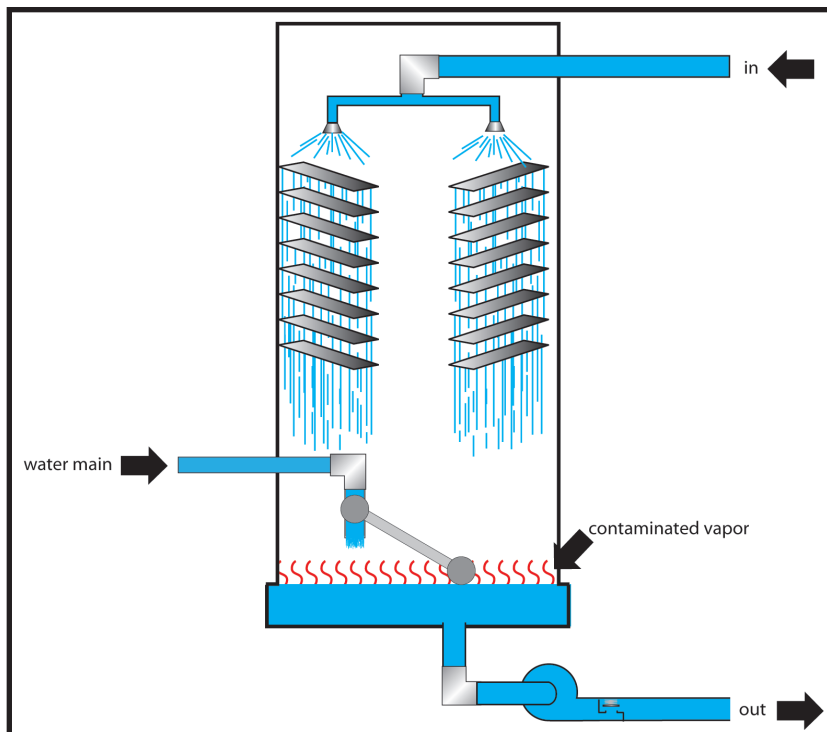
Below is a list of those who have become Members of the Foundation this past quarter:

A & A Pump and Well	Merritt, City of
Alpine Springs County Water District	Murfreesboro Water & Sewer Dept.
Azmo Mechanical Inc.	Navajo Nation EPA
B.C. Backflow Prevention	Navajo Tribal Utility Authority
B3 Backflow	PDQwater.com
Brent Chester	Pearl Engineering Corporation
Benbrook Water Authority	Plumb Perfect Plumbing
California Institution for Men	PMG Services, Inc.
Chihuahua Plumbing, Inc.	PPS, Inc./Mr. Backflow, Inc.
Cupertino Backflow	Quadrant 2
Del Monte Corporation	Ray Binner Backflows
Engelstein Plumbing	Redlands Plumbing Htg & Air
Fire Safety First	Rickman's Backflow Testing
Florence, City of	Salt Lake City International Airport
Frank Howell	Santa Paula, City of
Holyoke, City of	Sea Ranch Water Company
IAPMO	T.R. Holliman and Associates
Irrigator Technical School	Vancouver Fire & Security
KSL Services	Vogel's Plumbing Backflow
Lynwood City Hall	Water Systems Mgt., Inc.
Malcolm Plumbing & Mechanical	Western States Fire Protection
McVicker Ranch	

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Cooling Towers: continued

One of the most common places for adding makeup water to a cooling tower is into the reservoir (basin). The water level in the basin is normally controlled by a mechanical float ball, or an electric water level probe connected to a solenoid valve. The make up water can be protected by an air gap, RP or a pressure vacuum breaker (PVB or SVB). As long as a backflow preventer is installed, the end of the water line may be submerged into the reservoir.



NOT ADEQUATE PROTECTION

An air gap installed inside the cooling tower enclosure could allow the air gap to siphon contaminated vapor into the water line.

sure. This would allow adequate protection of the water line without contamination from the water or the atmosphere contaminated by the water vapor.

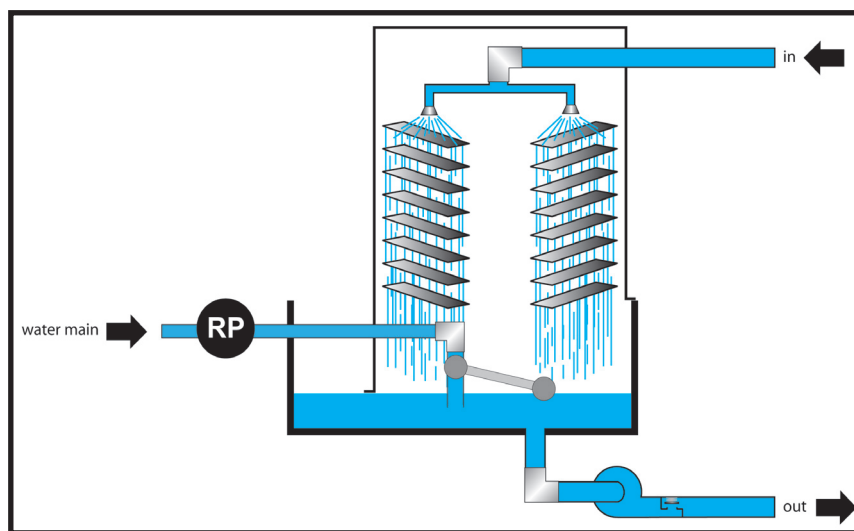
The concern with the air gap would be the same with the RP, PVB, or SVB. All of these assemblies have the potential to siphon the contaminated atmosphere or treated water into the drinking water or treated water line. Therefore, it is important that the assembly is not installed inside the enclosure of the cooling tower. ■

the reservoir. If an air gap is used it is important that the air gap is at least twice the diameter of the supply line to the overflow rim of the reservoir.

Due to the warm moist oxygen-rich conditions inside of a cooling tower, slime and algae formations may occur which could harbor harmful organisms such as Legionella. Biocides are normally added to the cooling water to reduce biological contamination.

When installing an air gap or any of the above assemblies as protection on a cooling tower, the location of the protection is very important, and should not be installed inside the enclosure of the cooling tower. If backsiphonage would occur, the contaminated water vapor could be siphoned into the water supply line.

The air gap could be installed above the reservoir, and yet still outside of the enclosure.



ADEQUATE PROTECTION

An RP installed outside the cooling tower enclosure preventing any contaminated vapor from being siphoned back into the water line.

10th Edition - Equipment

When conducting site surveys the cross-connection control program specialist may come across pieces of equipment with which they are not familiar. One may wonder how, or if water is used with the piece of equipment. Chapter Seven of the Tenth Edition of the Manual of Cross-Connection Control is all about equipment. There are several pieces of equipment listed. An illustration is given along with the answer to three questions:

What is it?

How does it work?

Where is it used?

Here are some examples from the soon-to-be-published 10th Edition of the Manual of Cross-Connection Control.

Boiler

A boiler is a closed system in which water and/or other fluids are heated under pressure. The heated fluid or steam is then circulated out of the boiler for use in various processes and heating applications.

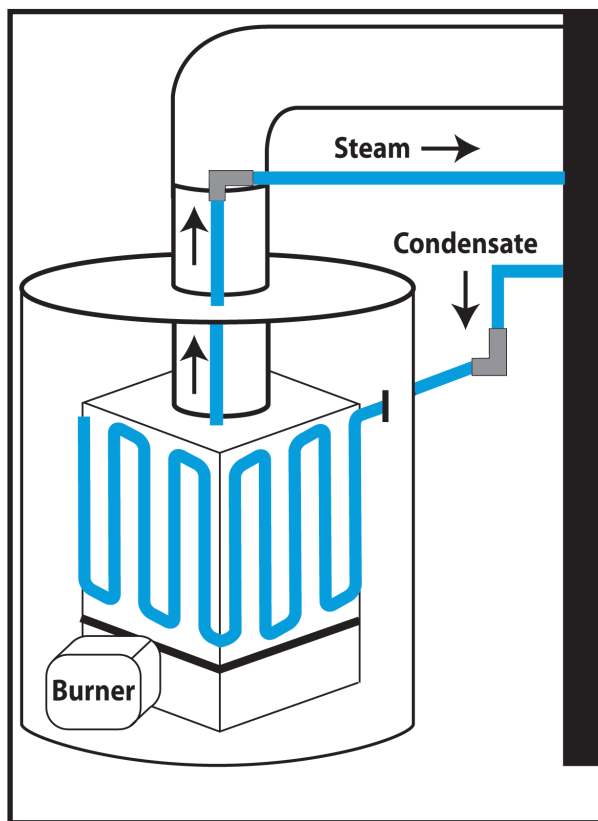
How does it work?

As the water flows into the boiler, the water flows through various bends of tubes and fins. While the water is flowing through the tubes and fins, a source of heat is used to heat the water. This source of heat can vary from wood, coal, oil, natural gas, nuclear fission or electricity. Once the water is heated, it is then circulated and used for various processes and heating applications. Because the water is being heated the water may become more corrosive or the minerals in the water may build up in these tubes or fins. Corrosion and/or these mineral deposits may act as a thermal insulator that may restrict the flow of heat or these mineral deposits may act as a flow restrictor that may restrict the flow of water through the boiler. In order to control the corrosion and this build up of deposits from the water; the water may need to be treated. Treatment of the water may include softening the water with a water softener; addition of chemicals for anti-corrosion and chemicals for anti-scaling. Chemical pumps

or chemical feed pots are used to introduce these chemicals into the boiler. Additionally, as the water is heated it evaporates. A make-up water line is needed to re-supply the water that has been evaporated as a result of the heating process.

Where is it used?

A boiler may be used anywhere heating processes or applications are used.



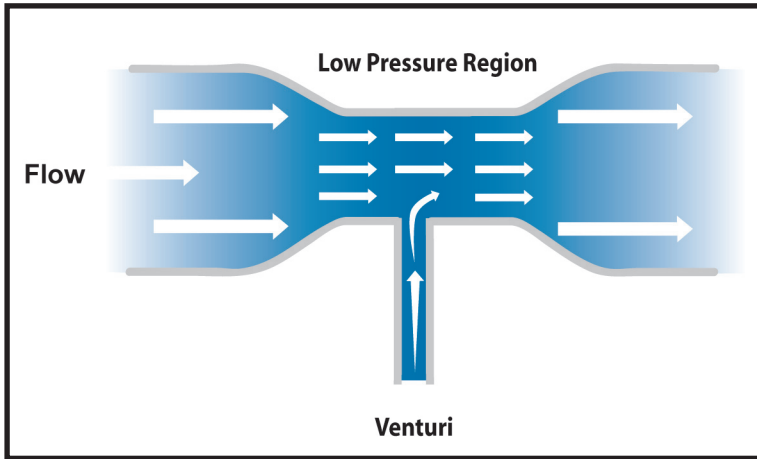
Boiler

Dental Vacuum Pumps

Dental vacuum pumps create a vacuum used for conducting dental examinations and dental work. These pumps are used to siphon a patient's saliva and particles as a result of the dental work away from the mouth. There are different designs of the dental vacuum pump. Some are stand alone dry type designs and some use water flow in an aspirator condition.

How does it work?

Dental vacuum pumps that are of an aspirator design use water flow to create the vacuum condition. The water aspirator dental vacuum



Aspirator produces a vacuum when the tube narrows and the fluid's speed increases creating a Venturi effect.

pump is essentially a pipe with a narrowing area. As water flows through that narrowing area, it speeds up and its pressure drops. A tiny opening in the side of the narrowing area allows water to enter the high velocity of flow. Since the pressure in that high velocity of flow is very low, atmospheric pressure pushes fluids through the tiny opening and into the flow. The flow siphons fluids through the opening and into the water stream. Some of these aspirator dental vacuum pumps may be equipped with reverse flow capabilities to clear any clogging which may occur. It should be noted

that many modern dental facilities will use a mechanical vacuum pump with no water connection at all.

Where is it used?

Dental vacuum pumps are found in dental offices.

Photographic film processing machines

What is it?

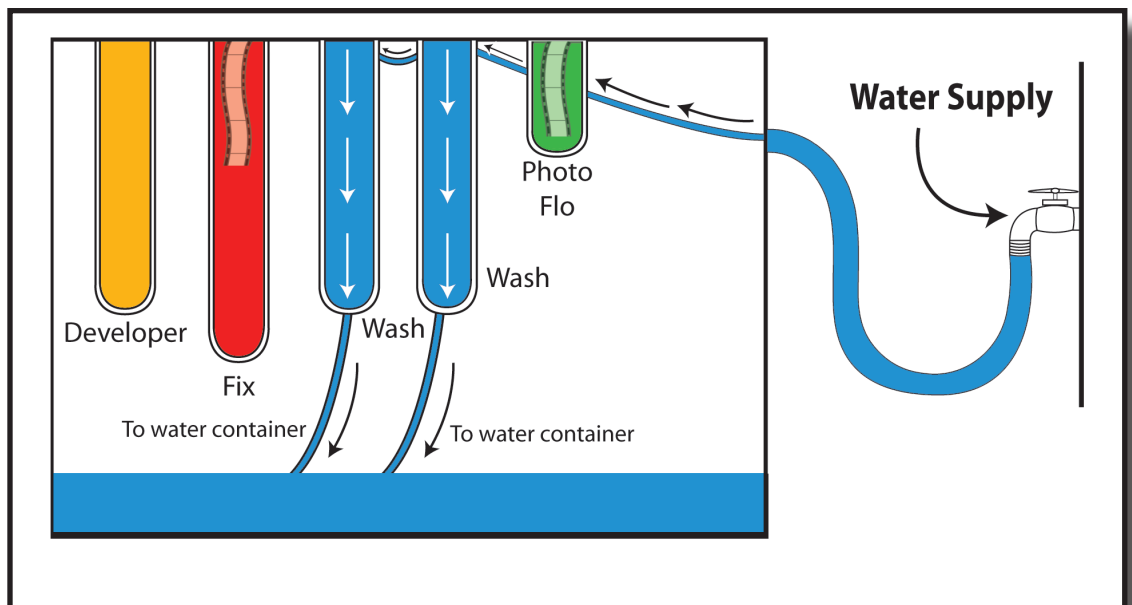
A machine used to process photographic film, including x-rays.

How does it work?

Chemicals used in film processing may be mixed with water. Water may also be used as a rinse in the process. The water may be directly connected to the processing machine with automatic solenoid valves or there may be an indirect connection to a reservoir where the mixing takes place.

Where is it used?

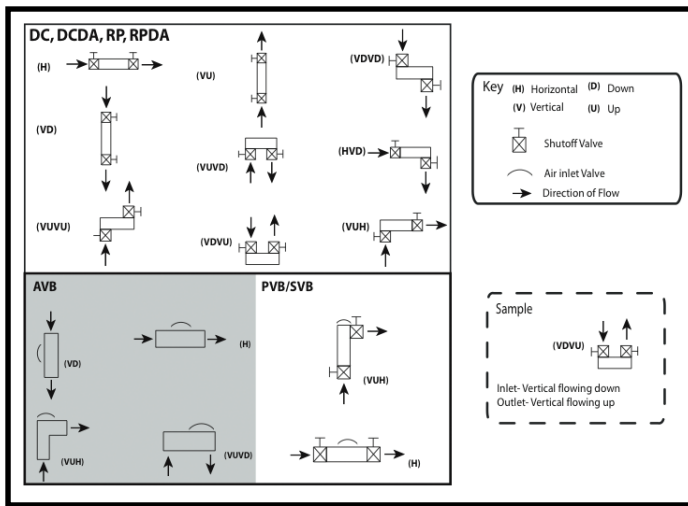
Found in photo processing laboratories and medical facilities. ■



Photographic Film Processing Machines - The water supply is directly connected to hazardous chemicals which may be siphon back into the potable water system.

Orientation of Assemblies

The List of Approved Backflow Prevention Assemblies has become a valuable tool for anyone involved in cross-connection control. And, it is important to the Foundation that all its members have a clear understanding on how to interpret all its information. Most inquiries relate to the Orientation of Assemblies legend located on the first page of the List.



Orientation of Assemblies Key

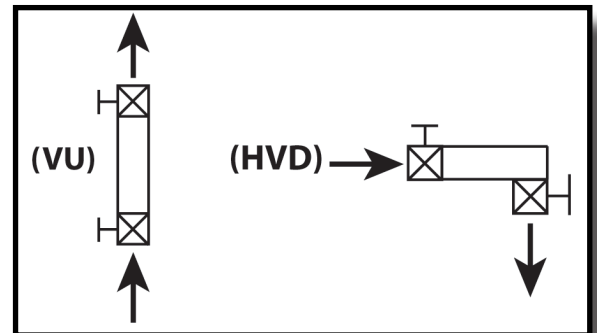
example, an assembly with the designation "HVD" means that the assembly is approved in the inlet-horizontal flow and outlet-vertical flowing down position (see figure below).

Keep in mind that an assembly, which is approved in a vertical position, needs to adhere to its specific flowing condition. A misconception is the fact that once it is approved in a vertical orientation any assembly in that orientation can have flow running up or down and that is incorrect. The Foundation has different designations for that very reason. Assemblies can be approved in a "VU" orientation, "VD" or both.

Some have commented that the Foundation does not approve assemblies in certain orientations. Actually, the Foundation will approved an assembly in any orientation as long as the manufacturer requests it and the assembly successfully completes both the laboratory and field evaluation. ■

The Foundation's policy is that assemblies are approved for installation in the orientation under which they were evaluated only. Installing an assembly in any other orientation other than the orientation(s) listed on the List of Approved Assemblies will invalidate the Foundation's Approval. Depending upon the type of assembly, there are several orientation possibilities.

For example, any assembly with the designation "VU" means the assembly is approved in the vertical up orientation (with water flowing vertically upward). Another



(VU)- Vertical up orientation (with water flowing upward)
(HVD)- Inlet: Horizontal flow, Outlet: Vertical flowing down

Backflow Industry Product Fair

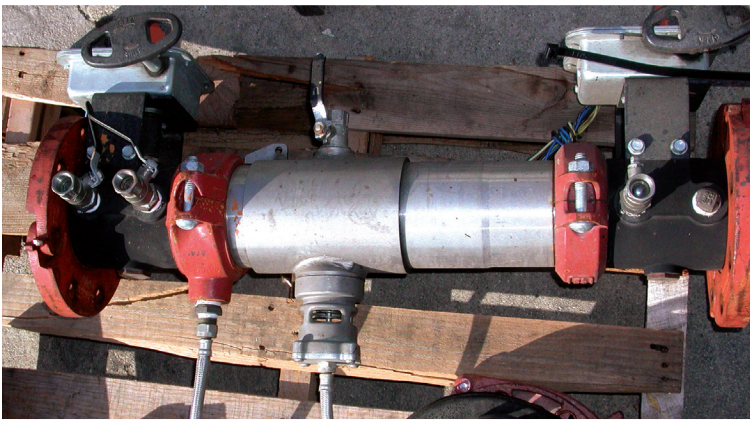
In August, many had an opportunity to see the Foundation's laboratory at the Seventh Annual Backflow Industry Product Fair presented by the Southern California chapter of the American Backflow Prevention Association (ABPA).

On August 14, attendees had an opportunity to interact with Foundation staff along with getting an up-close look at the work done at the Found-



Painting Assemblies

The aesthetics of backflow prevention assemblies have always been a concern; camouflaging them from view helps keeping an attractive neighborhood atmosphere. Cities around the country have taken different approaches to camouflaging the assemblies. For example, some cities have taken an artistic approach to hiding the assemblies from view. The city places enclosures on top of backflow preventers and then encourages local artists to paint on them to camouflage the enclosures. In most cases, local agencies just simply paint over the body of the backflow preventer.



The cover sleeve of the assembly in the photo above provides access to internal check valves for maintenance purposes. By sliding the cover towards the downstream portion of the assembly it will uncover an opening to gain access to the tubular portion of the valve assembly. It is important to note that the body of the assemblies carry a DO NOT PAINT warning. Painting the assembly will impede any possibility that the tester has to gain access to the internal check valves.

The reason for the DO NOT PAINT warning lies in the clearance between the cover and the tubular portion of the assembly. That cover must be able to move freely downstream and upstream of the assembly. Any paint on the assembly will hamper the cover's movement and therefore not allow the tester any access to it.

If the body of an assembly is painted, care must be taken not to affect the operation of the assembly. If the painter sticks the paint brush into the opening of the relief valve of an RP, or the air inlet of a vacuum breaker (AVB,PVB,SVB), the moving parts of the respective assembly may be painted shut. Rendering the assembly inoperative.

It is also important, when painting backflow preventers, to avoid painting the ID tag. This could hinder the ability of the tester to properly identify the assembly. Also, avoid getting paint on the threads of the test cocks since this could make it difficult or impossible to install the proper fittings for testing. The Foundation encourages everyone to adhere to all notes and warnings on any backflow prevention assembly. ■



ation laboratory. In addition, field-testing and repair demonstrations were conducted at the event. Exhibitors from various areas relating to backflow prevention were in attendance. The Foundation was also in attendance and thanks everyone who came by with questions. ■

Training Courses

Tester Course

Los Angeles, CA
8-12 October 2007

Los Angeles, CA
14-18 January 2008

Los Angeles, CA
5-9 May 2008

Specialist Course

Los Angeles, CA
7-11 January 2008

Los Angeles, CA
28 July-1 August 2008

Upcoming Events

ABPA Western Regional
Backflow Conference
Las Vegas, NV
1-2 October 2007

CA-NV AWWA
Fall Conference
Sacramento, CA
22-25 October 2007

ABPA Pacific Rim Conference
Honolulu, HI
30-31 October 2007

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