Year in Review

The SoCal ABPA Chapter had a great year in 2004. For the third consecutive year, we won a Presidential Award for Chapter Excellence (PACE Award) at the ABPA Annual International Conference in Long Beach in May. Our Chapter was very active in making the Long Beach Conference such a great success.

This year, the Chapter established the E. Kent Springer award in honor of Professor Springer’s many accomplishments in the field of backflow prevention. The first recipient was Paul Schwartz and the award was presented at the Long Beach Conference by Professor Springer’s son, Bruce. It was a tremendous surprise to Paul, and a well-deserved award.

In November, we held the Chapter’s 11th Annual Conference at the Lake San Marcos Resort. There were over 120 attendees, including 11 vendors. In addition to the great presentations, there was an awesome lunch that gathered rave reviews from all attendees. Jim Purzycki was presented with a small token of appreciation for all of his efforts in support of our Chapter.

Chapter Membership is currently at an all-time high. A current list of Southern California Chapter members is on page three. I encourage everyone who has not yet joined our Chapter or whose membership has expired to become a member. An application form is on page two. If you’re already a member, please consider recruiting a co-worker, associate or friend who would benefit from membership in the Southern California Chapter.

Let’s work together to ensure a great 2005!

Bill Laird
Chapter President
Calendar of Events

January 20, 2005   Oregon ABPA Seminar, Wilsonville, OR
February 24, 2005   SRC4 Seminar, Spokane, WA
March 22, 2005   Backflow Industry Product Fair, Los Angeles
April 12-15, 2005   CA/NV AWWA Spring Conference, City of Industry
May 9-11, 2005   ABPA International Conference; Orlando, Florida
June 12-16, 2005   AWWA Annual Conference & Exposition, San Francisco
Sept. 25-28, 2005   ABPA Western Regional Backflow Conference, Las Vegas, NV

Benefits of ABPA Membership

There is a genuine need for education, cooperation and organization in the changing and growing world of backflow prevention and cross connection control. That need is met by ABPA, a non-profit organization founded in 1984. Our goal is to provide education and technical assistance to ensure safe drinking water through effective cross-connection control.

Our members include both new and experienced plumbing contractors, backflow prevention assembly testers, regulators from health departments and water suppliers and others with an interest in maintaining water quality standards. Chapter members receive a quarterly newsletter, reduced rates at seminars, and can participate in special “member only” tours. Your $65.00 payment includes $50.00 for National dues and $15.00 for local Chapter dues. Join today!

Membership Application Form

Complete the application form and return with your payment (check or money order only made payable to Southern California Chapter ABPA) to:

Southern California Chapter ABPA
PO Box 712
Cypress, CA  90630

Your $ 65.00 ABPA annual membership includes $ 15.00 Chapter and $ 50.00 National dues (dues and contributions are tax deductible). Already a member of ABPA National? Just submit $ 15.00 SoCal Chapter dues.

Name:_______________________ Title:_____________ Company: _____________________________
Address: ____________________ City: ______________ State: ______ Zip Code:________________
Phone: _________________________ Fax: ______________ E-mail: ________________________
SoCal Chapter Membership

Here is a list of current ABPA Southern California Chapter members. Our quarterly newsletter is sent to members only. Don’t miss out! If you’re not a member and would like to join, there is an application on page two. For membership questions, contact any of the Directors/Officers listed on page one.

Mike Adkins
Michael Ahlee
Thomas Allingham, Jr.
Bruce Allyn
Ray Altmeyer, Jr.
Michael Alvarado
Mike Alvarado
Francisco Alvarez
Sabine Arweiler
Gabriel Asenas
Peggy Avila
Buster Backflow
Keith Bark
Steve Barlog
John Barry, Jr.
Frank Beach
Robert E. Beeson
Kip Bender
Patty Bevers
John Bietsch
Richard Bird
Dave Black
Ken Blair
Hans Borg
Katherine Brophy
Connie Brown
Fred N. Brown
Alan Bullen
Jay Burnett
Chris Camacho
Denise Carlson
Richard Carlson
Scott Carr
Luis Castillo
Doug Chandler
Henry Chang
Kathleen Congrove
Heather Conklin
Jim Cook
Bill Cooper
Eugene Cooper
Jim Corella
Dean Cornell
David Cossey
Bill Coulter
Chris Coulter
David Dawson
William Deem
Gary DeHart
Renette Denning
Richard Dierking
Thomas Dix
Larry Duenez
David P. Duran
Randy Engle
Antone W. Erickson
Larry Evans
Tony Ferronato
Jeffrey Flynt
Christopher Garcia
Charles Gettler
Eric Gibson
Kelly Gilfoyle
Alvaro Gomez
David Gonzales
Lorenzo Gonzales
Manuel Gonzales
Steve Gore
Anthony Gray
Tony Gring
Richard Guyer
Eleni Hailu
John Hamm
Eric Hancock
Ernest J. Havlina
Robert J. Hayward
Debra J. Healy
Gordon Hein
Charles Henry
Ramiro Hernandez
Tom Higham
Joe Holdren
Troy Holland
Mike Hornock
David Hutchins
Kevin Islander
Michael Jaimes
Pam James-Adams
Cheryl Jenkins
Bill Jones
Blake Jones
Ginger Kaufman
Dale Kawada
Michael Kidd
Mike King
Steve Klapp
Bill Kucher
Bill Laird
J.J. Lee
Curt Legerton
Anthony LoPresti
Thomas Luczak
Fred Lue
Bob Maddelein
David L. Hargrave
Heriberto Martinez
Wesley Mason
Mike Massey
George Mathews
Robert Mattson
Danny McBride
Michael McCammy
Matt McCoskey
Dennis McGhee
Douglas McIntosh
Max Mendoza
Alemayehu Mengesha
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Tom Miller
Terry Milliman
Fawwad Mohammad
Fred Molina
Tom Mortenson
John Murray
Mike Murray
Steven Nakauchi
Robert Navarro
Chris Nelson
Peter Neubauer
Philip Nichols
Robert Noffsinger
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John Sedlak
Jeff Seifert
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Francis Shea
Donald Sherman
Randy Siegmund
John Smith
Rose Smutko
Jed Spicer
Edward Starner
Fred Stauffer
Gary Stephens
Lee Sundquist
Mike Sutherland
Patrick Sylvester
Don Teemsma, Jr.
Johnnie Toler
Hans Tritten
Lawrence Tustison
Martin Vernola
John Villagran
John Watkins
Clark E. Wells
Cory Whitman
Erhard Wierschen
Robert Wilcox
Steven Wolverton
Fred Yamashiro
Pedro Ybarra
Ray Zierman
Cregg Zimmerman

If your name is not on this list, this is your last free issue of our newsletter.

Join today!
The hydraulic considerations of installing a backflow preventer must evaluate sizing, pressure and temperature. In most installations, the size of the piping and the backflow preventer has already been determined by an engineer who evaluated the fixture use of a piping system. If there has not been a hydraulic review of an existing or newly designed piping system, be sure the changes to flow and pressure by the installation of a backflow preventer are evaluated before it is installed. Installing a backflow preventer into an existing piping system can change the workings of some piping arrangements such as irrigation or fire systems.

Some installations will require a continuous water supply due to their water needs. Applications such as hospitals are considered critical services where water cannot be discontinued even for short periods of time. This type of critical service will require the installation of parallel backflow preventers to assure when one backflow preventer is shut off for servicing, the other preventer will allow water to flow to the piping system. When installing parallel installations, be sure the separate and combined flows of the backflow preventers meets the needs of the water user.

In some cases, piping systems may be improperly sized and subjected to sharp changes in pressure due to excessive demand or flows of water within a piping system. This sudden change to supply pressure of assemblies such as RP’s can lead to a discharge from the relief valve. The piping system must be evaluated to determine why the pressure fluctuations are occurring and to see if the pressure fluctuations can be minimized. If not, a resilient seated check valve at the inlet of the RP may help minimize the fluctuations and minimize any unwanted relief valve discharge.

Pressure considerations must be observed when installing a backflow preventer. The pressure that is consumed by an assembly can be calculated by looking to the flow chart of the particular assembly. Be sure you are observing the flow chart for the orientation the assembly is being installed in. A flow chart for a horizontal or vertical orientation could be different. The other consideration is the incoming supply pressure in the piping system. The maximum working water pressure (MWWP) for an assembly is established by the manufacturer and confirmed in the approval process. The assembly should never be subjected to a pressure that exceeds its MWWP. Exceeding this pressure can void any warranties and also may render the preventer inoperative. The excessive pressures present in a piping system can exert an undue stress on the preventer or piping system. If the supply pressure is above the assemblies MWWP, a pressure regulator must be installed. Most plumbing codes do not allow excess pressure without the installation of a pressure regulator. The supply pressure to a piping system is not always constant. Inlet pressure can fluctuate due conditions such as, level of demand upstream of the point of service, or pumping schedules within the water system. On the upstream side of the assembly the MWWP must not be exceeded for any reason and the minimum amount of pressure must always be delivered which can be calculated by the flow chart.

Even if proper pressure parameters are achieved on the upstream side, the downstream side must also be evaluated. When a backflow prevention assembly is installed, a closed system is established on the downstream side. These means no pressure can escape past a working assembly. This assembly traps any pressure on the downstream side until it is relieved. Even if the normal line pressure is below the MWWP, excessive pressure can easily be created by pumps, thermal expansion, boilers and other conditions and equipment that can quickly create excess pressure beyond the MWWP on the downstream side. The use of quick closing valves such as electronic solenoids or ball valves, can create a water hammer which can lead to excess pressure being trapped on the downstream side unless some type of pressure and or temperature relief device is utilized. Proper pressure parameters must be evaluated on the upstream and downstream side of the assembly. Normal and abnormal pressure events must be evaluated to assure it does not adversely affect the installed assembly.
The working temperature range of a backflow preventer is established by the manufacturer. The approval agency will confirm the temperature range a backflow preventer can work at. The application of excessive temperature can cause the backflow preventer to not work properly. A temperature that is too high can affect the strength of some plastics and rubbers. A temperature that is too low can also cause the backflow preventer to become inoperative. The temperature evaluation is not just the fluid temperature but also the ambient temperature around the installation site which can change fluid temperature.

Any mechanical equipment can be fouled if water entering the backflow preventer is not free of particulate. When properties other than clean water flow through a backflow preventer, these pieces could lodge into a critical sealing area. To collect these particles, the installation of strainers may help to remove the particles from affecting the backflow preventer. A strainer cannot just be installed in any piping arrangement without proper evaluation of rules and hydraulics.

A strainer cannot be arbitrarily installed in front of any backflow preventer. If a backflow preventer is installed for service protection, many cross connection control program rules do not allow the installation of any connection before a backflow preventer. A strainer usually has a blowoff hole to remove the accumulated particles from the piping system. In some cases, this blowoff hole is improperly used as a connection to piping fixtures before the assembly, such as irrigation connections or hose bibbs. If a strainer is needed before a service protection assembly, be sure to consult with your local administrative authority before proceeding.

Strainers can usually be installed in front of internal protection backflow preventers. Strainers will affect the flow of water into a piping system. A strainer contains screens which will restrict the volume of water that can flow past it. Strainers cannot be installed where this reduction in effective area leads to a restriction that prohibits the working of the piping system in installations such as fire or irrigation systems. When strainers must be installed, be sure the piping system will still work properly.

Coming Next Issue: Mechanical Concerns

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WATER CONTROLS
How Do the PVB and SVB Work? Part Seven
Submitted by Jim Purzycki, Orange County Director

This is the seventh and final article in a series of articles explaining the workings of backflow preventers.

In our previous articles we have discussed how the RP and DC operate. It is important to understand how they operate in order to know how they are to be repaired. In this article we will discuss how the Pressure Vacuum Breaker (PVB) and the Spill Resistant Vacuum Breaker (SVB) operate.

The PVB (at right) consists of an inlet and outlet shutoff, two test cocks, a check valve and air inlet component. The normal flow of water goes from the inlet into the check valve. The check valve is designed to hold 1 PSI in the direction of flow similar to the check in a DC. The check valve opens and water travels past the check valve and cause a poppet to travel up an air inlet guide. The poppet will compress an air inlet loading (its not always a spring) which is designed to generate a load of at least 1 PSI. The air inlet is pressurized closed for the normal flow of water and is designed to open when the force from the air inlet (1.0 PSI Minimum) is greater than the water pressure in the area after the check valve. The PVB is designed to prevent backsiphonage only and requires the PVB to be installed 12" above the highest point of use or piping on the downstream of the assembly.

Conditions that can cause the check in a PVB to perform below its optimum level are many. The cause of check failure is due to the failure of the disc to seal with adequate pressure against the check seat. The most common causes of failure is dirt and debris between the disc and seat. Another common problem is disc degradation where the disc will not seal against the check seat. The third common cause of failure has to do with the alignment of the check spring. Many models require the spring to be installed with a spring retainer that if not properly installed will exert a side pressure on the spring causing it not to deliver the proper load to the check valve.

The normal causes of failure of the air inlet happens when the air inlet will not fully unseat itself when the water pressure in the body past the check valve is below 1.0 PSI. One cause of air inlet failure happens when the air inlet disc adheres to the air inlet seat. The disc can adhere to the air inlet seat when temperature conditions or water quality conditions cause a bonding. Many times the canopy that covers the bonnet is missing which can also cause direct sunlight onto the air inlet also causing a problem with deterioration from the ultra violet rays of the sun. On some models of PVB’s the air inlet spring can easily be removed or inserted in such a way as to lower its loading below the 1.0 PSI minimum requirement. There is one brand of PVB that does not use a mechanical spring in the usual sense but rather a fold of rubber on the poppet generates the load and if you are not familiar with this brand you could erroneously assume the spring is missing.

Sometimes the air inlet poppet will not seal on the air inlet seat completely and will leak. This unwanted discharge from the air inlet can be caused by several reasons. The usual is when some dirt or debris is located between the air inlet poppet disc and the air inlet seat. If the disc becomes damaged from this debris or becomes worn for other reasons, it could inhibit its ability to seal. Another cause of leakage can happen if the air inlet guide is damaged in such a way as to not allow the air inlet poppet to seat squarely on the air inlet seat.
There is a variation of the PVB called an SVB (at right). The SVB has an inlet and outlet shut off, a check valve and an air inlet valve, a single test cock and a bleed screw. The SVB performs similarly to the PVB except when the SVB is initially pressurized. The normal path of water for a PVB is for water to enter the body, then open the check valve, proceed past the check valve and seal the air inlet. The SVB is a little different. Water enters the SVB and instead of causing the check valve to open first, as in a PVB, the air inlet closes before the check valve opens. This is accomplished by the air inlet having a lighter loading (1.0 PSI minimum) than the check valve. Water does not have to travel past the check valve to pressurize the air inlet as it does in the PVB. For this reason the SVB will not discharge from the air inlet on initial start up. Once the SVB is pressurized, the SVB will perform similar to a PVB. The cause of failure of a SVB are similar to those of a PVB as we discussed above.

In order to repair any assembly RP, DC, PVB or SVB, it is important that the repair technician first understand how the assemblies are supposed to work so that when they are not working the problem can be properly identified. The purpose of the repair process is to return the assembly back into its original factory specifications.

Thanks to Jim Purzycki for this excellent series. Visit our web site at http://www.socalabpa.org for articles 1-6 covering how the RP and DC work.
Chapter News

The Chapter will be hosting a Backflow Industry Product Fair on March 22, 2005 in Los Angeles. This event will have concurrent sessions on Field Testing demonstrations, repair and an open house/tour of the USC laboratory. The exhibitors of backflow preventers, test kits, enclosures and software will be providing a lunch prepared by In-N-Out Burger for the first 400 people registered. Flyers will be mailed in January 2005 as well as being posted on the SoCal ABPA web site. We hope to see you there!

The ABPA 21st Annual International Conference will be held May 9-11, 2005 at the Hilton in the Walt Disney World Resort in Orlando, Florida. For more information, visit the ABPA web site at http://www.abpa.org.

Thank you to our newsletter advertisers BAVCO, Blair-Martin (Midwest Instrument), Danfoss/Flomatic Valves, Delco Sales (Watts), EngSoft Solutions Software (XC²), Mid-West Instrument, O’Connor Sales (Febco), Specification Sales (Conbraco) and Wilkins.