Periodically, the USC Foundation receives an enquiry regarding the oversizing of backflow prevention assemblies in a system. Some think that installing a larger assembly into a system with smaller piping reduces the pressure loss across the assembly, but even though the assembly will continue to provide backflow protection in this type of installation the reasoning for the installation may not provide the desired results.

The term “oversizing,” means using a backflow prevention assembly of a larger size than the piping leading into and away from the assembly. For example, a water system with a two-inch water line installs a four-inch assembly in the two-inch line.

The reason for installing an oversized assembly usually starts from the desire to provide more flow or pressure to the customer. The thought is that if a larger assembly is used, the assembly does not have to work as hard, therefore the pressure loss will be less.

Looking at the example of the four-inch double check valve assembly versus the two-inch double check valve assembly (A similar comparison can be done with other types of assemblies), the respective pressure loss versus flow rate curves of these assemblies may look something like those in the figure on page six (flow characteristics of the two-inch assembly are shown in green and the four-inch assembly shown in blue).

Although the maximum allowable pressure loss of any sized double check valve assembly is 10 psi (Table 10-1, Manual of Cross-Connection Control, continued on page 6
New Members

Below is a list of those who have become members of the USC Foundation since the last Cross Talk.

$39.95 Backflow Valve Testing
Alex Berukoff
Allen Smith
Anthony Giddens
Aqua Backflow and Chlorination
Barry Pollock
Cal Valve Backflow Prevention & Valve Co.
Chris Duncan
Cimino Backflow Testing & Inspection
Columbia County Water Utility
Diego Del Real
Embassy Landscape Management
H B Bradshaw Construction
Hydro Backflow Solutions
Jim Jenkins
Justin Johnson
Kenneth Keesler
Kevin Bridgewater Plumbing Authority
Proserve Mechanical
Quail Valley Water District
Rogue Valley Backflow Service
Roy Kyser
Sprague Mechanical, LLC.
Tom Safreed
Vista Plumbing

What’s Included with a Foundation Membership

Membership Discounts
25% off Manual Orders
20% off Training Courses
Seminars/Webinars/Training Tools are also discounted

Other Benefits
Free copy of the Manual of Cross-Connection Control, each time a new edition is published
E-mail notification every time the electronic copy of the USC List of Approved Backflow Prevention Assemblies is updated
Updates to the USC List of Approved Backflow Prevention Assemblies mailed quarterly
Special Notice mailed as published
New Cross Talk mailed quarterly

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As this year draws to a close, the USC Foundation has announced its upcoming 2016 One Day Update Seminar schedule. The seminars offer backflow prevention assembly testers and cross-connection control program specialists an opportunity to be refreshed on current field test procedures and cross-connection control topics. All seminars, unless otherwise noted, are also made available via the Internet as live webinars, allowing attendees to participate from the comfort of their office or home.

The 2016 schedule will include new topics like, conducting cross-connection control surveys and a hands-on field test procedure refresher.

All attendees are eligible for continuing education units (CEU’s). Most seminars include six contact hours (0.6 CEU’s). The June 7th and June 9th seminar dates are shorter sessions and therefore include three contact hours (0.3 CEU’s). For those participating via the webinar each person viewing the webinar must register. Only register attendees will receive CEU certificates. For those attending any six-hour seminar in-person, lunch is included.

Remember, USC Foundation members receive a 20% discount on one day update seminars.

Hand-On Field Test Procedures, January 19
The hands-on seminar is ideal for those familiar with field-testing backflow preventers, but may need some review or to become familiar with changes in the Tenth Edition of the Manual of Cross-Connection Control. Discussions will include the differences between the Ninth and Tenth Edition field test procedures and diagnosis of scenarios that may be causing a backflow preventer to fail during the field test procedure. Attendees will have the opportunity to put into practice what they learn. Several backflow preventers will be set up for attendees to use. USC Foundation staff will be on hand to setup different scenarios, to guide attendees and answer any questions regarding the field test procedures found in the Tenth Edition.

*Because of the hands-on portion of this seminar, it will NOT be offered as a webinar.*

Advanced Field Test Procedures, January 21
For experienced backflow prevention assembly field testers that want to advance their skills by learning about multiple failure modes of backflow preventers. Attendees will learn how to correctly diagnose assemblies that are experiencing multiple simultaneous failures.

continued on page 6
Where did the 3.0 PSID Buffer Recommendation Go?

It is been almost six years since the *Manual of Cross-Connection Control, Tenth Edition* was published, however the USC Foundation still receives questions regarding why certain changes were made between the Ninth and Tenth Editions. One of the more common questions has to do with the elimination of the 3.0 PSID buffer recommendation for the reduced pressure principle backflow prevention assembly (RP).

The 3.0 PSID buffer recommendation was a part of the field test procedure for the RP in the Ninth Edition. To explain, the “buffer” is the difference in the reading of static pressure drop across the No. 1 check valve and the differential pressure at which the relief valve opens. For example, the first check reading on an RP is 5.7 PSID and the relief valve opens at 2.5 PSID; the buffer is the difference between the two readings, in this case 3.2 PSID. The buffer is there to minimize the nuisance created by water discharging when there are line pressure fluctuations.

Many administrative authorities took the Ninth Edition recommendation and made it a requirement in order for an RP to pass the field test. Other agencies did not see it as a requirement and did not make the buffer recommendation a mandatory requirement.

Since the recommendation caused confusion the Manual Review Committee (MRC) decided to eliminate the buffer recommendation from the Tenth Edition’s RP field test procedure. It was decided that the buffer recommendation was not an indication of the RP’s ability to prevent backflow.

Although the 3.0 PSID buffer recommendation was eliminated from the field test procedure in the Tenth Edition it is still part of the Standard in Chapter 10 of the Tenth Edition. All RP’s must have a 3.0 PSID buffer in the laboratory and field evaluation phases of the USC Foundation’s *Approval Program*.

For questions about the elimination of the buffer recommendation in the RP’s field test procedure or other field test procedure issues please contact the Foundation office.
The USC Foundation’s membership program and its benefits have evolved over the years. It is through the membership program the Foundation has been able to maintain its leadership position in backflow prevention and cross-connection control. The Foundation strives to maximize the value of membership constantly by adding new benefits.

As of 2014 the Foundation has made Special Notices an exclusive benefit for members in their first year of publication. A Special Notice is a way the Foundation notifies its members of important information regarding backflow prevention assemblies. Members will receive all Special Notices via mail immediately upon release.

Last year the USC Foundation mailed out three Special Notices to its members. Special Notice 13-001 mailed in January and 14-001 mailed in February notified members of issues with Wilkins and Apollo/Conbraco backflow prevention assemblies respectively. Special Notice 14-002 was issued in September of last year clarifying model designations as indicated on the casting of some Wilkins assemblies.

Members are free to pass on the notice within the member organization to coworkers. If members require additional copies of the Special Notice please contact the Foundation office.

A Special Notice that is regarded as being critical to public health will be posted on the Foundation’s website for the general public to view immediately. But, aside from that, all other Special Notices will remain available exclusively to USC Foundation members for a 12-month period before being posted on the Foundation website.

E-mail notification every time the USC List of Approved Assemblies is updated is a member-exclusive benefit. The USC List is updated several times a year and checking the list often enough to keep up-to-date with the latest changes may be cumbersome. Therefore, the notification is a convenient tool for Members.

Aside from adding Special Notices and USC List notification to the benefits of being a member, the Foundation continues to offer discounts to its members on Tenth Edition manuals, training courses and training tools purchases. In addition, all members continue to receive Cross Talk along with printed updates of the List on a quarterly basis.

Any members who may have a question about their membership or its benefits are encouraged to contact the Foundation office for more information. ■
oversizing a backflow prevention assembly: continued

continued from page 1

Tenth Edition, p. 331), the flow characteristics (i.e., the shape of the curve) vary with the different models and sizes.

For our example, the customer is designing their water use at a nominal flow rate of 100 gpm (gallons per minute). As shown in the figure, the pressure loss of the two-inch assembly is two psi less than the four-inch assembly. The four-inch assembly only provides a lower pressure loss when the rate of flow exceeds the 160 gpm rated flow of the two-inch. Two-inch water meters typically have a safe maximum operating capacity of 160 gpm, so if flow rates greater than this are needed, then a larger service line and water meter should be used.

Although the specifics may vary with each manufacturer; assemblies, in general, behave in the manner shown on these curves. At the lower flow rate the four-inch check valves may just be in the opening phase of the flow (signified by the rising slope in the flow curve), thus having a higher-pressure loss. In addition, should the check valves only open a small amount, there is a higher likelihood of high velocity erosion of the seats.

So, although oversizing an assembly may not affect the ability of the assembly to prevent backflow, it may not provide the performance benefit a user is looking for.
Everyday equipment like boilers and carbonators may create cross-connections to the potable water lines. So, it is crucial that the Cross-Connection Control Specialist understand which equipment may create a cross-connection. Equipment found in hospitals, car washes, laboratories and many other facilities all have a risk of creating cross-connections. Understanding how these pieces of equipment work will help the Specialist be able to find, identity, isolate and provide protection against cross-connections.

* 3-Hour Seminars. Attendees are eligible for 0.3 CEU's which is equivalent to 3 contact hours.

Cross-Connection Control Surveys,
August 11
Attendees will review various types of facilities in order to determine which type of backflow protection, if any, is necessary for meter protection. The seminar will evaluate and determine the degree of hazard, if adequate backflow protection is present and, if not, what would be necessary to adequately protect against backflow.

Assembly Repair and Lead Free Issues, November 15
Attendees will learn about the general concepts of repair for backflow prevention assemblies. Although, it is impossible to go over every repair scenario with every type of backflow preventer the concepts discussed will help in identifying and resolving many of the issues. This seminar will also discuss the 2014 change in the EPA’s definition of lead free. The issue of spare parts for both lead free and non-lead free assemblies will be covered.
Upcoming Training Courses

all course in Los Angeles, CA unless noted

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Seminars

- 19 January  
  Hand-On Field Test Procedures

- 21 January  
  Advanced Field Test Procedures

- 25 February  
  Los Angeles/California Codes and Regulations

- 21 April  
  Grey Water Systems & Recycled Water Shutdown Test

- 7 June  
  Different Facilities; Different Cross-Connections

Upcoming Events

Tennessee Chapter
ABPA Annual Conference
Memphis, TN
15-16 October 2015

AWWA California-Nevada Section
2015 Annual Fall Conference
Las Vegas, NV
26-29 October 2015

Florida Suncoast Chapter
ABPA Annual Conference
Tampa, FL
6 November 2015

Hawaii Chapter
ABPA Annual Conference
Honolulu, HI
2 December 2015

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