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# Cross Talk

Winter 2011

It has come to the attention of the USC Foundation that there has been much misinformation regarding an "Industry Most Stringent Standard" for backflow prevention assemblies. At the request of several water and health agencies, the Foundation would like to clarify its approval process compared to others in the industry.

There are several different standards for backflow prevention assemblies that are ac-

evaluation in accordance with their respective performance standards but none require a field evaluation. The ASSE and CSA standards offer an optional field evaluation but it is not required to gain their respective listing.

The USC Foundation for Cross-Connection Control and Hydraulic Research is the only approval or listing agency that requires a field evaluation prior to an assembly being listed or approved.

## The Foundation Approval Program

ceptable for different applications and different jurisdictions throughout North America. Some of the more commonly mentioned listings are IAPMO (International Association of Plumbing and Mechanical Officials), ASSE (American Society of Sanitary Engineering), CSA (Canadian Standards Association), UL (Underwriters Laboratory) and FM (Factory Mutual). These listings require a laboratory



The laboratory testing for ASSE, CSA, IAPMO and USC are fairly similar. The main difference is the requirement for a one-year field evaluation that only the USC standard requires.

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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 ALL EMPLOYEES of the Member company/organization, the *List of Approved Backflow Prevention Assemblies* with access to the up-to-the-minute version on the Foundation's website.

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

5th Bomb Wing	Hydronic Supply	Rural Water Association of Utah
ABPA- Big Sky Chapter	lapmo - Ontario, CA	Seasons
Advanced Backflow Certification Training	Indian Springs Water Co.	Service Pro Fire Protection
Aecom - Ontario CA	Irrigation Design Plus	Snider Water Quality
Allied Meter Service, Inc.	JLB Backflow	Southern Nevada Maintenance Engineers
Allstate Backflow Testing	KB Engineering, Inc.	Southwood Plumbing & Heating, Inc.
Applied Water Science	Kennco Plumbing, Inc.	Stallion Springs CSD
Apprentice & Journeyman Training Trust Fu	La Habra, City of	Thompsons Backflow
Arctic Precision Backflow Services	Laird's B & B Maintenance	UA L.U. 1 Trade Ed. Fund
ASAP Plumbing & Htg	Lee & Ro, Inc.	Verne's Plumbing
Associated Backflow Services	Leslie D. McKenzie	Water Protection Services Ltd.
Badger Landscape	Mendoza III Construction, Inc.	Wayne Biser
Bassett Unified School District	Mike Walker	Western Municipal Water District
Chapman University-Facilities Management	Murrieta Development Co., Inc.	
Cook's Backflow Prevention	New England Backflow, Inc.	
Dillon Transfer And Supply, SBDVOB	Nielson Engineering, Inc.	
Dymek's Freedom Plumbing, Inc.	Ochoa's Backflow Service	
Elsinore Valley Municipal Water District	Pacific NW Sales Company	
Environmental Management & Development	Palo Alto, City of	
Fire Protection Design, Inc.	Parker & Parker Plumbing	
Fire Systems Service	Payne Mechanical Services	
Flowcheck, Inc.	Ray L. Hellwig Plumbing and Heating	
Frasca Plumbing Co.	Ron Goff	
GSD Building Maintenance	Rubio Canon Land & Water Association	

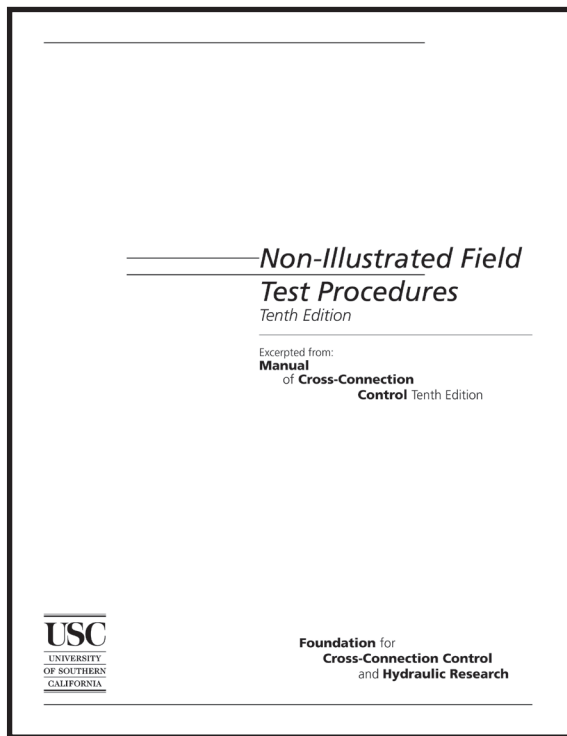
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# Non-Illustrated Field Test Procedures

The Manual of Cross-Connection Control, Tenth Edition, is an excellent tool for anyone involved in backflow prevention and cross-connection control. Various training facilities use the field test procedures found in Chapter 9 of the Tenth Edition to train students in testing backflow prevention assemblies. Additionally several administrative authorities have adopted the Tenth Edition field test procedures as their official testing method for their tester certification. It is often necessary for a certifying agency to be able to provide the required field test procedures to those applicants for certification. In these cases, the certifying agency may enter into an agreement with USC to use non-illustrated field test procedures in certain circumstances. One of the more valuable sections of the



Tenth Edition is the field test procedure for testing backflow prevention assemblies. The chapter includes field test procedures for the double check valve assembly, reduced pressure principle assembly, pressure vacuum breaker assembly and the spill-resistant vacuum breaker assembly.

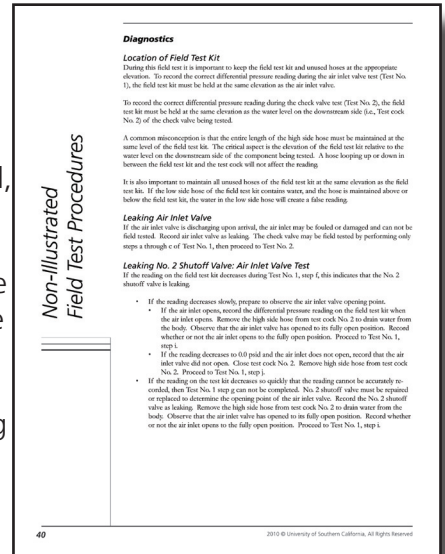
It is the sales of the Tenth Edition along with the other trailing tools that help maintain the day-to-day operations of the Foundation. Therefore, it is impractical for the Foundation to give away the field test procedures to training providers.

On the other hand, the Foundation compromised and has made available for many years the *Non-Illustrated Field Test Procedures* for certifying entities.

With the latest release of the Tenth Edition many training providers have enquired about the *Non-illustrated Field Test Procedures*. But training providers do not meet the specific criteria to receive the *Non-Illustrated Field Test Procedures*.

The non-illustrated procedures are only made available to certifying entities. Be it water districts, counties, states or national organizations. Any certifying entity that requires that the applicant be tested on the field test procedures found in the Tenth Edition for certification may meet the criteria and be eligible to provide copies of the *Non-Illustrated Field Test Procedures* to their applicants.

Once a written request is made to the Foundation for the *Non-Illustrated Field Test Procedures*, the USC Foundation will review the request and if granted the non-illustrated procedures are made available for a nominal fee. The Foundation requires all certifying entities wishing to use the *Non-Illustrated Field Test Procedures* to sign an agreement assuring that the procedures will only be made available to those applicants for certification who request it.



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## the foundation approval program: continued

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The USC Foundation's current standards for backflow prevention assemblies are contained in Chapter 10 of the *Manual of Cross-Connection Control*, Tenth Edition. These performance standards require that backflow prevention assemblies successfully complete both a laboratory and field evaluation under the direct supervision of the USC Foundation's staff. There are currently no other standards that require both a laboratory and field evaluation in order for the assembly to become approved or listed.



The USC field evaluation requires three of every size and model backflow prevention assembly to provide twelve months of simultaneous trouble-free service. While the twelve-month field evaluation does make the approval process longer than a standard that only requires a laboratory evaluation, the field evaluation provides information that is not obtainable through a laboratory evaluation only.

Even though the 12-month period does lengthen the process, an assembly's time in the program depends on the performance of the assemblies themselves.

Many assemblies fail during initial and subsequent submittals.

Once the Foundation staff documents the assembly's failure to comply with a laboratory test (i.e., hydrostatic, head loss vs. flow rate, etc.), the manufacturer is immediately notified of the non-compliance. Many failures require that the manufacturer modify the design of the assembly and then the modified assembly must restart the laboratory evaluation process before beginning the field evaluation. So the overall time required to successfully complete the laboratory evaluation may be significantly increased due to repeated failures to comply with each of the tests.

Backflow prevention assemblies that are submitted must initially complete a battery of laboratory tests that evaluate an assembly's performance against objective pass/fail criteria. Upon successful completion of the Laboratory Evaluation Phase of the USC Foundation's Approval Program, the assembly is released to the Field Evaluation Phase.

The same thing is true during the field evaluation process. Should a product fail during the field evaluation, the manufacturer may have to modify or redesign the product and the modification would have to be resubmitted for laboratory evaluation. Once the modified assembly complies with all portions of the laboratory evaluation, the field test sites must be updated with the modified components or assemblies, and the field evaluation started at the beginning again.

The manufacturer is responsible for locating suitable field sites in compliance with the field site criteria contained in Chapter 10.1.2.1.3, Selection of Field Locations of the *Manual of Cross-Connection Control*, Tenth Edition. All potential field test sites must be submitted to the USC Foundation for review to ensure that they conform to the criteria. The manufacturer is then notified which of the submitted field test sites comply and the manufacturer may then proceed to get the assemblies installed at these locations.

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A common misconception is that the Foundation only allows field test sites in the general Southern California area but there is no such limitation in the Standard. The manufacturer is free to select field sites anywhere. However, to minimize the amount of travel time necessary for the Foundation's staff to field test each location on a monthly basis, the manufacturers tend to locate the field sites within a 500-mile radius of the greater Los Angeles area. Within this range of field sites there are widely varying water conditions, pressures and applications.



The manufacturer does not have to wait until the conclusion of the laboratory evaluation to begin looking for the field sites. The manufacturers are encouraged to start looking for field sites in parallel with the submittal to the laboratory. If the field sites are identified and accepted early in the process, then there is a minimal delay between the conclusion of the laboratory evaluation and the initial field test of the field evaluation.

As noted above, all of the laboratory and field-testing to the USC Standard is conducted under the direct supervision of the USC Foundation's Engineering Staff.

The laboratory testing performed for some of the other standards may be conducted by recognized laboratories. Most of the backflow prevention assembly manufacturers have their own research and development laboratories, and some of them have laboratories that have been recognized to test under various standards.

This means that a manufacturer may test their own products in their own lab and submit the testing data to the listing organization, thus gaining the listing or approval based on their own in-house testing.

Manufacturers of backflow preventers have, over the years, sought alternative testing to the USC Foundation field evaluation to shorten the time needed to gain approval and thus the time to reach the market.

Although, some laboratory testing may be helpful in determining if an assembly will work well in the field; no laboratory testing compares with testing the assembly in actual field conditions.

Of the assemblies that successfully complete the USC Laboratory Phase of the Approval Program, roughly 30% do not pass the field evaluation the first time through. This means that the assembly has completed the laboratory evaluation and is, most likely, listed by other listing or approving agencies when it fails to comply with the USC Field Evaluation Phase of the Approval Program. This assembly, as mentioned previously, will need to be modified and resubmitted for both laboratory and field evaluations. Meanwhile, the assembly that failed the USC field evaluation may be sold in areas that require a different listing or approval.

The USC Foundation believes that any claims of any standard being the "Industry Most Stringent," which do not refer to the USC Foundation's standard should be examined closely. If you have anymore questions feel free to contact the Foundation office. ■

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that the use of the non-illustrated procedures for the Tenth Edition is much more restricted than for the Ninth Edition. However, the policies and agreements for the two editions of the manual are essentially the same. Many training providers have been copying the Ninth Edition *Non-Illustrated Field Test Procedures* for use in their training course, thinking that this was acceptable. However, this was not permitted with the Ninth and is not permitted with the Tenth Edition.

With the Tenth Edition *Non-Illustrated Field Test Procedures* becoming available, many training providers have complained that they are not available for them to use in their training courses. Although it would be wonderful to provide the procedures freely to training providers; it is not possible for the USC Foundation to do this and be fiscally responsible.

The USC Foundation, although part of the University of Southern California, is a non-profit entity. Funds are not received from the State, Federal agencies, or the University of Southern California for Foundation operations. The USC Foundation must generate the funds for continued operation. It is self-sufficient through its training courses, training tools and approval program. The sales of the Tenth Edition are a large part of what helps the Foundation maintain its strong leadership in cross-connection control.

Provision of the *Non-Illustrated Field Test Procedures* to certifying entities requiring the USC Field Test Procedures is the only way the USC Foundation can help certifying entities meet legal requirements to provide the procedures to applicants while still allowing the USC Foundation to continue to operate responsibly.

Entities that may be interested in the Non-Illustrated Field Test Procedures are welcomed to contact the Foundation office.



## Who Develops the Standards

The USC Standards are developed by the Manual Review Committee. The USC Foundation for Cross-Connection Control and Hydraulic Research was set up in 1944 when an anonymous group, believing that the general public would be best served by an unbiased educational entity, approached the University of Southern California asking that a Foundation be set up to study the phenomena of backflow and cross-connection control.



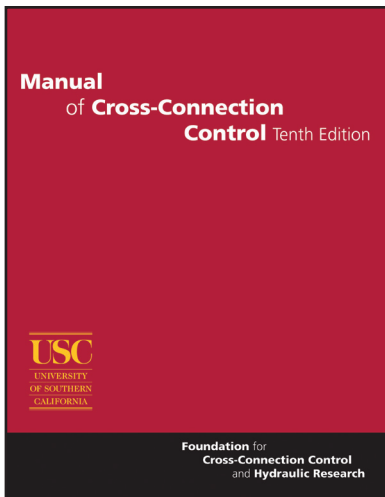
Since the first Manual Review Committee was formed, the USC Foundation has not permitted backflow prevention manufacturers to sit as voting members of the committee. Representatives of water agencies, health agencies, backflow prevention assembly testers and specialists along with USC Foundation staff comprise the Manual Review Committee.

With the Tenth Edition of the Manual, a non voting representative from the Backflow Prevention Manufacturers Association attended the Manual Review Committee. The role of the representative was to express concerns of

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# Abbreviated Field Test Procedures

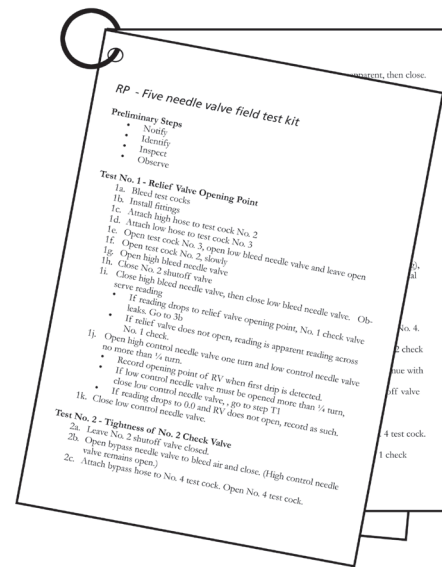
With the release of the *Manual of Cross-Connection Control*, Tenth Edition, the USC Foundation presented a manual with topics ranging from definitions to site surveys to hydraulics and much more. One of the more valuable chapters found in the Tenth Edition details the field test procedures for four different types of backflow prevention assemblies; the double check valve assembly, reduced pressure principle assembly, pressure vacuum breaker assembly the spill-resistant pressure vacuum breaker assembly. Testers, in the field, testing backflow preventers and trainers in the classroom constantly reference the chapter. And, now the USC Foundation has assembled a way for testers and trainers to take the chapter with them without having to carry the Manual.



The Foundation is making available an abbreviated version of the field test procedures for purchase with every purchase of the Tenth Edition. The abbreviated version is made up of six sheets measuring 5" x 7" held together with a ring to bind the sheets together for easy carrying. The sheets are laminated to prevent any accidental water drops, during testing, from damaging the sheets. These are ideal for students of tester training during their sessions in the wet lab area.

The abbreviated field test procedures include the shortened steps of the field test procedures and diagnostics found in the Tenth Edition. The exact same abbreviated procedures are found in Appendix A.6 of the Manual.

The abbreviated version does not have any illustrations or in-depth diagnostic procedures. It is meant to give testers a short bullet point list of the steps to complete field tests for the four backflow prevention assemblies. The abbreviated field test procedures will be available for purchase to anyone who purchases a Tenth Edition for an additional \$10. The abbreviated procedures will not be made available as a standalone product.



The Foundation understands that being able to carry around the procedures in abbreviated form will be of great use for students and testers alike. If you have any questions regarding the abbreviated procedures feel free to contact the Foundation office. ■

## who develops the standards: continued

the backflow prevention association manufacturers to the manual review committee to take under consideration.

All actions taken by the Manual Review Committee were posted on the USC Foundation's website for all interested parties to review. Drafts of the standards were sent to the backflow prevention industry manufacturers for comment. All comments were deliberated on and the consensus approved standards were included in chapter 10 of the Tenth Edition. ■

# Training Courses

## Tester Course

Los Angeles, CA  
11-15 July 2011

## Specialist Course

Los Angeles, CA  
25-29 July 2011

# Upcoming Events

CA-NV AWWA  
2011 Spring Conference  
Long Beach, CA  
28-31 March 2011

ABPA Annual Education Conference  
and Tradeshow  
San Antonio, TX  
23-25 May 2011

ABPA Western Regional  
Backflow Conference  
Las Vegas, NV  
26-28 September 2011

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