USC Foundation’s CCC Tools
Paul H. Schwartz, Chief Engineer

USC Foundation’s Cross-Connection Control Tools

Paul H. Schwartz, P.E.
Chief Engineer

USC Foundation’s CCC Tools

• At the Foundation’s laboratory

USC Foundation’s CCC Tools

• Field Tools

USC Foundation’s CCC Tools

• Field Tools

USC Foundation’s CCC Tools

• Different Tools Needed
  • Water Suppliers
  • Health Agencies
  • Backflow Prevention Assembly Testers

• Scum sucking salesmen.....
USC Foundation’s CCC Tools
Paul H. Schwartz, Chief Engineer

USC Foundation CCC Tools
- Manual of Cross-Connection Control, Tenth Edition
- Laminated field test procedures
- Field testing backflow preventers instructional video
- Webinars On Demand
- Working Together for Safe Water informational brochure

USC Foundation CCC Tools
- Cross-Connections in Household Plumbing informational brochure
- Essentials of Cross-Connection Control PowerPoint presentation
- Working Together for Safe Water informational video

Training Tools
Tenth Edition Manual
- 2009

Training Tools Laminated Field Test Procedures

Training Tools FTBP Instructional Video
USC Foundation’s CCC Tools
Paul H. Schwartz, Chief Engineer

2019 TREEO Conference
27-28 February 2019

Training Tools
Working Together for Safe Water Brochure

Training Tools
Cross-Connections in Household Plumbing Brochure

Training Tools
Essentials of CC Control Presentation

Training Tools
Working Together for Safe Water Video
youtube.com/uscfccchr

• Tester Training Course
• Program Specialist Course
• Webinars
Training Tools
Tester Training Course
- Since 1969 – 5 day format (“short” course)
- Background, theory
- Testing procedures
- Diagnostics/Troubleshooting

Training Tools
Program Specialist Course
- Since 1988 – 5 day format
- Policies and Procedures
- Rules and Regulations
- Record Keeping
- Public Relations
- Site Surveys
- Plan Checks

Training Tools
Live Webinars
- Opportunity to be refreshed on backflow prevention and cross-connection control topics
- Modifications voiding Approval
- Recycled Water Shutdown tests
- Different Facilities, Different Cross-Connections
- and many more……
- Attendees eligible for CEU's
The USC Foundation

- Research Projects

USC Foundation Research Projects

- Assessment of Cross-Connections in North America – AWWARF
- Survey to 4,500 water agencies
- ~800 respondents
- Cross-connection control programs
- Backflow incidents

USC Foundation Research AwwaRF Project

38-Which of the following customer complaints has your agency received as a result of conducting/administering your cross-connection control program?

- 82% Cost
- 60% Unneeded (no perceived risk)
- 41% Reduction in water pressure due to backflow preventer
USC Foundation Research
AwwaRF Project

16-Do you conduct site surveys to determine the extent of cross-connections on a premise as part of your cross-connection control program?
- 80% Yes
- 20% No

USC Foundation Research
AwwaRF Project

F-19 If not, what is done in lieu of site surveys?
- 78% Blanket programs
- 6% Surveys by another administrative authority
- 3% Surveys by third party
- 2% Mail in questionnaire
- 1% Surveys by phone
- 4% other
- 6% Nothing is being done

USC Foundation Research Projects

• Prevalence of Cross-Connections in Household Plumbing Systems – USEPA
  - ~200 Residential surveys
  - 95% - Direct or indirect cross-connection to a health hazard
  - 91% - Unprotected hose bibs

PDF available at fccchr.usc.edu

USC Foundation Research Projects

• Vulnerability Project – AWWARF
  • Real-time sensors in distribution system
  • Backflow detecting water meters

USC List of Approved Backflow Prevention Assemblies

- Make
- Model
- Size
- Edition of Manual under which assembly was approved
- Approval/renewal date
USC List of Approved Backflow Prevention Assemblies

- Acceptable shutoff valves
- Water Meters
- Orientation
- ≤ 0.25% Pb
- Spare Parts Only

USC List on Mobile Devices

usclist.com
The USC Foundation
Approval of Backflow Prevention Assemblies

Approval of Backflow Prevention Assemblies
Laboratory Evaluation
- Submission of working drawings
- Head loss vs. flow rate
- Elastomer specifications
- Spring specifications
- Thermal loop
- Cycle test

Approval of Backflow Prevention Assemblies
Laboratory Evaluation
- Not a rating system
- Two part process
  - Laboratory evaluation
  - Field evaluation

Approval of Backflow Prevention Assemblies
Laboratory Evaluation
- Submission of working drawings
- Failure to comply with Design Requirements
Approval of Backflow Prevention Assemblies
Laboratory Evaluation

- Submission of Working Drawings
- Failure to comply with Material Requirements

Approval of Backflow Prevention Assemblies
Laboratory Evaluation

Pressure loss vs. flow rate

Approval Program Laboratory

- Pressure Loss vs Flow Rate Protocol
- NOT only a single point
- At rated flow
Approval Program Laboratory

RP – Backsiphonage / Backpressure Test

Vertical up (VU) orientation

Approval of Backflow Prevention Assemblies Laboratory Evaluation

Elastomer specifications

Approval of Backflow Prevention Assemblies Laboratory Evaluation

Spring specifications
Approval of Backflow Prevention Assemblies
Laboratory Evaluation

Thermal loop

Approval of Backflow Prevention Assemblies
Field Evaluation

Field Evaluation

Approval of Backflow Prevention Assemblies
Field Evaluation

- Twelve months trouble-free service
- Three sites for each make, model, size and orientation
- Initial field test and inspection
- Monthly field tests
- Final field test and inspection

Approval of Backflow Prevention Assemblies
Field Evaluation

- Approximately 30% of the assemblies passing the USC laboratory evaluation do not pass the field evaluation the first time
- Of those that fail the field evaluation, approximately 70% fail in the last three months

The USC Foundation
Foundation Membership
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USC Foundation Membership

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Questions?