AMERICAN SOCIETY OF SANITARY ENGINEERING ILLINOIS CHICAGO CHAPTER SANITATION NEWS LETTER

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AMERICAN SOCIETY OF SANITARY ENGINEERING ILLINOIS CHAPTER

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WHAT IS MENT BY BACKFLOW PREVENTION AND HOW MANY CODES REGULATE IT?

The simple explanation is to prevent water or other liquids from flowing in the opposite direction, or Cross-Connection means any physical connection or arrangement between two otherwise separate piping systems where flow from one system to the other is possible.

The Backflow Prevention Program is a requirement of the Safe Drinking Water Act (1974, amended in 1986 and 1996), which was written to protect human health from contaminants in drinking water and to prevent contamination of existing groundwater supplies. (Some code you will have to know but not all you need to know)

You may have to know 1,280 different codes in the State of Illinois for each Town, City or Village.

You may also have to know 102 Codes for the Counties in Illinois.

You may have to know one code for the State of Illinois.

You may have to know the Code of Federal Regulations for Federal facilities.

You may have to know the U.S.EPA regulations for some facilities.

You may have to know the U.S.Pollution Control Hearings Board If something goes wrong in Illinois because of your Negligence.

You may have to know Illinois Pollution Control Board Title 35 Procedural and Environmental Rules; Chapter II Part 174, Subtitle F Chapter I Part 601.

You will have to know Illinois Plumbing Code 890 Subpart I: Water Supply and Distribution

You will also have to know the manufactures recommendations for testing their assembly.

STATE OF ILLINOIS PLUMBING CODE

Section 890.1110 Quality of Water Supply

<u>All</u> premises intended for human habitation or occupancy shall be provided with a potable water supply. The potable water supply shall not be connected to non-potable water and shall be protected from backflow and back siphonage. (See Appendix I.Illustration A.)

Section 890.1120 Color Code

Identification of Piping. All piping conveying non-potable water shall be permanently identified by a continuous purple coloring so that the piping is readily distinguishable from piping carrying potable water. (See the color codes of ANSI/NEMA Z535.1 and ASME A13.1.)

Know what assembly or device to use for containment or Isolation and which one to use for each APPLICATION

Section 890.1130 Protection of Potable Water

- a) Cross-Connection (Submergence). Potable water supply piping and water discharge outlets shall not be submerged in any sewage or toxic substance. Potable water supply piping or water discharge outlets that are submerged in other substances shall be provided with backflow protection as listed in subsection (f). (See Appendix I.Illustrations B and C.)
- b) Approval of Devices and Maintenance. All devices and assemblies for the prevention of backflow shall comply with the standards listed in Appendix A.Table A. All reduced pressure principle (RPZ), reduced pressure detector (RPDA), double check (DCA) and double check detector (DCDA) backflow prevention assemblies shall be tested and approved by a Cross-Connection Control Device Inspector (CCCDI) before initial operation, and at least annually after initial inspection. Records to verify testing and maintenance shall be available at the site of the installation.
- c) Backflow. The water distribution system shall be protected against backflow. Each water outlet shall be protected from backflow by having the outlet end from which the water flows spaced a sufficient distance above the flood-level rim of the receptacle into which the water flows to provide a minimum fixed air gap. When it is not possible to provide a minimum fixed air gap, the water outlet shall be equipped with an accessible backflow prevention device or assembly in accordance with subsection (f) of this Section or Section 890.1140.

d) Fire Safety Systems. The installation of any fire safety system involving the potable water supply system shall be protected against backflow as follows:

- 1) Backflow protection is not required for fire safety systems constructed as follows:
 - A) The system shall be looped, with no dead ends, to allow circulation, to prevent the stagnation of water in the line;
 - B) The system shall not have any non-potable connections or a fire department hose (Siamese) connection;
 - C) The system shall have 20 sprinkler heads or less; and
 - D) The system shall be constructed of potable water supply quality pipe in accordance with Appendix A.Table A.
- 2) When backflow protection is required, a double detector check valve or double check valve backflow preventer assembly shall be installed at the fire safety system's point of connection to the potable water supply when a fire safety system has no chemical additives or non-potable connection and:
 - A) The fire safety system has no fire department hose connections; or
 - B) The fire safety system has one or more fire department hose connections (for boosting pressure and flow to the fire safety system) that are served only by fire fighting apparatus connected to a public water supply or a fire department that does not use chemical additives or rely upon any non-potable water supply.
 - 3) A fixed air gap with a break tank or other storage vessel or a reduced pressure principle backflow preventer assembly (RPZ) shall be installed at the fire safety system's point of connection to the potable water supply if:
 - A) The fire safety system contains additives such as antifreeze, fire retardant or other chemicals. (The RPZ may be located at the point of connection to that section of the system containing additives when the system's connection to the water supply is protected by a double detector check valve backflow preventer assembly.); or
 - B) Non-potable water flows into the fire safety system by gravity; or

- C) There is a permanent or emergency connection through which water can be pumped into the fire safety system from any other non-potable source; or
- D) Fire department connections are available that could permit water to be pumped into the fire safety system from a non-potable source capable of serving the fire safety system. A non-potable source of water shall be considered capable of serving the fire safety system under the following conditions: it must be capable of year-round use, maintained with at least 50,000 gallons of usable water not subject to freezing, accessible to fire fighting pumper equipment, and located within 1,700 feet of the facility.

e) Prohibited Connections

 Sewage Lines. There shall be no direct connection between potable water lines and sewage lines or equipment and vessels containing sewage. Connections shall be made only through a minimum fixed air gap as outlined in subsection (f)(5).

2) Chemical or Petroleum Pressure Vessels. No direct connection shall occur between any potable water supply and any pressure vessel, i.e., storage tank, tank car, tank truck or trailer, or other miscellaneous pressurized tank or cylinder containing or having contained liquified gaseous petroleum products or other liquified gaseous chemicals. When it is necessary to discharge from a potable water line to a pressure vessel, the discharge shall be through a minimum fixed air gap as outlined in subsection (f)(5). Exception: Chemical pressure vessels containing chemicals used in the water treatment process, for uses other than private purposes, are exempt from this subsection (e)(2).

- 3) If water under pressure is required, as in subsections (e)(1) and (2), it shall be supplied by means of an auxiliary pump taking suction from a tank provided for this purpose only with an over-rim supply having the required minimum fixed air gap.
- 4) A potable water line to a single wall refrigerant condenser shall be provided with a backflow preventer complying with ASSE 1012 or 1013.
- 5) No pipe or fitting of the water supply system shall be drilled or tapped nor shall any band or saddle be used except at the water main in the street. Exception: See Section 890.320(h) for potable water use only.

- f) Devices for the Protection of the Potable Water Supply. Approved backflow preventers or vacuum breakers shall be installed with all plumbing fixtures and equipment that may have a submerged potable water supply outlet and that are not protected by a minimum fixed air gap. Connection to the potable water supply system for the following fixtures or equipment shall be protected against backflow with one of the appropriate devices as indicated below:
 - 1) Inlet to receptacles containing low hazard substances (steam, compressed air, food, beverages, etc.):
 - A) fixed air gap fitting;
 - B) reduced pressure principle backflow preventer assembly;
 - C) atmospheric vacuum breaker unit;
 - D) double check valve backflow preventer assembly;
 - E) double check backflow preventer with atmospheric vent assembly; or
 - F) dual check valve.
 - 2) Inlet to receptacles containing high hazard substances (vats, storage containers, plumbing fixtures, etc.):
 - A) fixed air gap fitting;
 - B) reduced pressure principle backflow preventer assembly; or
 - C) atmospheric vacuum breaker unit.
 - 3) Coils or jackets used as heat exchangers in compressors, degreasers and other equipment involving high hazard substances:
 - A) fixed air gap fitting; or
 - B) reduced pressure principle backflow preventer assembly.
 - 4) Direct connections that are subject to back pressure:
 - A) Receptacles containing low hazard substances (vats, storage containers, plumbing fixtures, etc.):
 - i) fixed air gap fitting;
 - ii) reduced pressure principle backflow preventer assembly;
 - iii) double check valve backflow preventer assembly;
 - iv) double check backflow preventer with atmospheric vent assembly; or
 - v) dual check valve.
 - B) Receptacles containing high hazard substances (vats, storage containers, etc.):
 - i) fixed air gap fitting; or

- ii) a reduced pressure principle backflow preventer assembly.
 - 5) Inlet to or direct connection with sewage or lethal substances: fixed air gap fitting.
 - 6) Hose and spray units or stations shall be protected by one of the appropriate devices as indicated below:
- A) Fixed air gap;
- B) Reduced pressure principle backflow preventer assembly;
- C) Double check valve backflow preventer assembly;
- D) Double check valve backflow preventer with atmospheric vent assembly;
- E) Dual check valve backflow preventer assembly;
- F) Atmospheric vacuum breaker unit.
 - g) Installation of Devices or Assemblies
 - Devices of All Types. Backflow preventer assemblies and devices shall be installed to be accessible for observation, maintenance and replacement services. Backflow preventer devices or assemblies shall not be installed where they would be subject to freezing conditions, except as allowed in Section 890.1140(d).
 - 2) All in-line backflow/back siphonage preventer assemblies shall have a full port type valve with a resilient seated shut-off valve on each side of the preventer. Relocation of the valves is not permitted.
 - 3) A protective strainer shall be located upstream of the first check valve on all backflow/back siphonage preventers unless the device contains a built-in strainer. Fire safety systems are exempt from the strainer requirement.
 - 4) Atmospheric vacuum breakers shall be installed with the critical level above the flood level rim of the fixture they serve, and on the discharge side of the last control valve of the fixture. No shut-off valve or faucet shall be installed beyond the vacuum breaker.
 - 5) No in-line double check valve backflow preventer assembly (DCV) or reduced pressure principle backflow preventer assembly (RPZ) shall be located more than 5 feet above a floor, or be installed where it is subject to freezing or flooding conditions. After installation, each DCV and RPZ shall be field tested in-line in accordance with the manufacturer's

instructions by a cross-connection control device inspector before initial operation. (See subsection (b).)

- A dual check backflow preventer with atmospheric vent assembly shall not be installed where it is subject to freezing or flooding conditions.
 - 7) Closed water systems with hot water storage shall have a properly sized thermal expansion tank located in the cold water supply as near to the water heater as possible and with no shut-off valve or other device between the heater and the expansion tank. Exception: In existing buildings with a closed water system, a properly sized pressure relief valve may be substituted in place of a thermal expansion tank. For closed water systems created by backflow protection in manufactured housing, as required in Section 890.1140(i), a ballcock with a relief valve may be substituted for the thermal expansion tank.

ANY QUESTIONS OR PURCHESES ON YOUR PLUMBING NEEDS YOU CAN CONTACT ONE OF ASSE ILLINOIS CHAPTERS SPONSORS. IF YOU NEED A PLUMBING CONTRACTOR CALL 1-833-PLUM-911

There were 5,190 fatal work injuries recorded in the United States in 2021 alone, an 8.9-percent increase from 4,764 in 2020, according to the U.S. Bureau of Labor Statistics (BLS). This was the key finding from the 2021 Census of Fatal Occupational Injuries.

The 3.6 fatal occupational injury rate in 2021 represents the highest annual rate since 2016. In essence, a worker died every 101 minutes from a work-related injury (2021).2 Transportation and material moving workers experienced the highest number of fatalities while transportation had the most frequent fatalities. Many of the injuries, illness and fatalities occuring in SMEs.

So what about offering tax credits, subsidies and grants to help SMEs improve their experience rate so that they can reduce risk and limit liability while using the cost savings to hire more workers, purchase new equipment and machinery, and expand the business into new markerts.

These governmental initiatives could be done with OSHA, SBA and the IRS. Together with periodic third-party audits, inspections and surveys could improve the bottom line and help society and the economy.

In the spirit of friendship and cooperation, the Illinois Chapter of the American Society of Sanitary Engineering (ASSE) and the Plumbing Contractors Association of Greater Chicago (PCA) are both proud to represent and serve the skilled and dedicated professionals in our industry. To make up for a few advertisements that were missed in recent issues due to an unintentional oversight, our ASSE Chapter is pleased to run this expanded version of the PCA's ad.



PCA of Greater Chicago Advocacy and support you can count on.

The *Plumbing Contractors Association* (PCA) represents and serves UA Local 130 signatory plumbing contractors in Chicago and Northern Illinois (17 counties) with quality resources, education, advocacy, safety, networking, and much more – led by a dedicated volunteer contractor board and a full-time staff.

The PCA (and *Plumbing Council*) provides our members with an array of practical services and benefits, so contractors can focus on best serving their customers. Since 1882, the PCA has shown that "none of us is as strong as all of us." As the only local plumbing contractors' association affiliated with and active in the National and State PHCC; MCAA; IMSCA; CISCO; and UAC, the PCA is a united voice for our industry.

Contactors and consumers (for "Find a Plumber" referrals) may visit: <u>www.pcaofchicago.com</u>; phone 312-563-9526; or email: <u>sj@pcaofchicago.com</u>. PCA: 603 Rogers Street, Suite 2, Downers Grove IL 60515

ASSE Illinois Chapter wishes to thank Metropolitan Pump, Inc. for their continuing support of ASSE Illinois Chapter. For all your need in High quality Engineered Pumps, and water control solutions; 815-886-9200



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Illinois Chapter of ASSE wishes to thank all our sponsors for supporting our cause



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"WORKING WELL WITH OTHERS"

"PLUMBERS PROTEECT THE HEALTH OF THE NATION"

"ADVOCACY AND SUPPORT YOU CAN COUNT ON"

"SAFE WATER THROUGH PLUMBING CODE COMPLIANCE"



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IAPMO Publishes Children's Coloring Book "My Mom Is a Plumbing Superhero"

First Children's Book to Focus on Women Plumbers' Contributions; Aims to Shift Perceptions of Plumbing Careers with Women and Young Girls

When was the last time your favorite superhero used powers to ensure you have safe drinking water and proper sanitation? The International Association of Plumbing and Mechanical Officials (IAPMO) is leading the charge to spotlight the *real-life* superheroes who protect our everyday lives by launching a new children's coloring book today. "My Mom Is a Plumbing Superhero" is the first children's book focused exclusively on women plumbers, lifting up their contributions to public health while aiming to shift perceptions of plumbing careers.

IAPMO partnered with real-life superhero plumber Judaline Cassidy, a proud member of Plumbers Local Union No. 1 NYC, founder of Tools & Tiaras, and one of CNN's "Champions for Change." Inspired and guided by Cassidy's 25-year career, "My Mom Is a Plumbing Superhero" creatively brings to life what it's really like to be a plumber building a modern hygiene infrastructure.

"All of us at IAPMO are inspired by Judaline's career journey and her message that plumbing careers are not gendered. Rather, it is about having the *best* plumbers to improve the way we live," IAPMO CEO Dave Viola said.

The book illustrates how plumbers work on advanced water technologies to mitigate the effects of drought and natural disasters. The helpful nature of plumbers comes to life with illustrations depicting the work of service plumbers. The book also portrays women installing and maintaining medical gas systems.

"People need to know that plumbing is *not* just clogged toilets," Cassidy said. "Clean water, steam heat, beautiful fixtures, gas lines — the pipes and systems that rely on my craft are in homes and buildings everywhere. My work is not only essential to daily life. My work saves lives."

Only 2.1% of plumbers are women, according to 2021 data from the Bureau of Labor Statistics.

"The bottom line is that we desperately need more plumbers and, therefore, must find creative, unique ways to fill this shortage," Viola said. "Collaborating with Judaline is the perfect opportunity to convey to young girls and women — as well as career counselors, youth leaders, and parents — that plumbing careers are purposeful, meaningful, and lucrative."

Cassidy founded the nonprofit Tools & Tiaras as part of her mission to show girls and women that Jobs Don't Have Genders[™]. A native of Trinidad and Tobago, Cassidy has broken barriers over the last 25 years advocating for equity for women in the trades. She was one of the first women accepted into Plumbers Local 371 Staten Island, NY; the first woman elected to the Examining Board of Plumbers Local Union No. 1 NYC; and ushered in the first Women's Committee within her union, becoming its first president.

"Awareness is key," Cassidy said. "If young women and girls don't know what plumbers actually do or how lucrative and rewarding a career in plumbing is, how can we expect them to consider, much less pursue, this path? It's exciting for me to collaborate with IAPMO on such a fun project that will not only change what people think about plumbing but will show them that plumbers come in all genders and statures."

IAPMO tapped noted children's author Jo S. Kittinger and accomplished illustrator Chuck Galey to create "My Mom Is a Plumbing Superhero." Kittinger has penned more than 35 books for children. Her book, "The House on Dirty-Third Street," won several social justice awards, including a Christopher Award, a Social Justice Literature Award, and the Carol D. Reiser Children's Book Award. Galey has illustrated more than 50 books for educational publishers and created covers for Beverly Cleary's "Ribsy" and "Henry Huggins," as well as R.L. Stine's "Fear Street" series for Recorded Books, Inc.

The 32-page book is available as a free PDF download, and qualifying organizations may order printed quantities from IAPMO at cost. Visit **<u>UniformCodes.org/plumbing-superhero</u>** for more information.

NOTE: Judaline Cassidy will be signing books from 2-4 p.m. today at IAPMO's booth, N3105.

2023 ASSE International Mid-Year Meeting

APRIL 4 – 5, 2023 Chicago Plumbers Local 130

The 2023 ASSE International Mid-Year Meeting will be held April 4-5 2023 at Plumbers Local 130 Training Center in Chicago. The Mid-Year Meeting is a gathering of expert individuals who influence ASSE standards, certifications, membership and code development. Whether you're a manufacture, training provider, engineer, contractor, or general member, there are several meetings that will help you get a full perspective of ASSE's program development.





The PCA Greater Chicago represents and promotes UA Local 130 signatory plumbing contractor in Northern IL. (17 counties) with top quality service, education, advocacy, safety and peer to peer networking second to none. The PCA is the only local plumbing contractor association affiliated with the MCAA, PHCC, CISCO, & IMSCA. To find and hire one of our reputable contractors for 24 hr. emergency service or for residential, commercial, municipal and industrial jobs, call 1-800-76-VALVE or visit *pcaofgreaterchicago.org or plumbing council.org 603 Roger St. Ste. 2 Downers Grove IL 60515 312-503-9526*









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Ames: 7010046 – 2 ½"-10" Total Relief Valve Kit for a C/M 400/C500



Kit Includes: Complete RV with 36" Hose, RV O-Ring and Lube



Ames 7010097 – First Check Assembly 2 ½"-4" for Ames 2000/3000SS

Kit Includes: 1st Check Assembly, O-Ring and Lube

Ames 7010114 – Relief Valve Kit 2 ½" -10" for 4000SS RP and 5000SS RPDA

Kit Includes: Complete Relief Valve Assembly, Relief Valve O-Ring, Lube





Watts: 0794090 – Complete Total Rubber Kit 4" for 909 RP; *Lead Free* (Previously 0887751)

Kit Includes: Check Disc, Cover O-Ring, Sleeve O-Ring, Piston O-Ring, RV Disc Assembly, Diaphragm, Piston

RK 4-350 4" 350AST, 4" 375AST



Kit Includes: (2) Check Disc Rubber, (2) Cover O-Ring, (8) Bolt O-Ring, Lube

Apollo-Conbraco: 40-004-A1 – ¾"-1" Major Repair Kit for 40-200 RP



Kit Includes: RV Bushing, RV Stem, Diaphragm Plate, (2) Poppet, RV Diaphragm, RV Seat Disc, (2) Check Seat Disc, Stem O-Ring, Bushing O-Ring, (2) Check Cap O-Ring, RV Spring, (2) Screw, (2) Retaining washier, (2) Check Seat, (2) O-Rings, RV Seat, RV O-Ring **Test Gauge, Inc.** has Backflow Parts in stock for Same Day Pickup or Next Day Delivery!





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