

## MEMORANDUM

**TO:** All Interested Parties  
**FROM:** Enrique Gonzalez, Staff Liaison  
**DATE:** Thursday, November 21, 2019  
**SUBJECT:** Proposed TIA (Log No. 005-18) to UNIFORM PLUMBING CODE, Section Table 603.2 (Backflow Prevention Devices, Assemblies, and Methods).

In accordance with the [IAPMO Regulations Governing Committee Projects](#), the attached proposed Tentative Interim Amendment (TIA) to the 2018 edition of the UNIFORM PLUMBING CODE is being submitted for public comment. The TIA (Log No. 005-18) is on UPC, Table 603.2 (Backflow Prevention Devices, Assemblies, and Methods).

We invite all interested parties to review the proposed TIA. If you wish to submit a comment in regards to this TIA, fill out the attached [TIA Comment Form](#). Email the completed form to [enrique.gonzalez@iapmo.org](mailto:enrique.gonzalez@iapmo.org). The closing date for submitting comment forms for this TIA is **Monday, December 2, 2019**.

Thank you for your time and interest in the development of the Uniform Plumbing Code.

In accordance with the [IAPMO Regulations Governing Committee Projects](#), a proposed TIA, which has been submitted for processing pursuant to 5-1 of the Regulations, will be automatically docketed as an appeal on the agenda of the IAPMO Standards Council. Any party may advocate their position before the Council. Please note that most Council Meetings are held via teleconference.

Parties wishing to address the Council shall notify the Council Secretary no later than 48 hours prior to the Council meeting. Although not required, parties wishing to advocate a position are encouraged, to the extent practicable, to file written submissions in general conformance with sections 1-6.3 and 1-6.4 of the Regulations in advance of the meeting at which action will be considered.

When an automatically docketed appeal has not been pursued by any party, the Council will not consider the matter as an appeal.

This TIA will be on the Standards Council Meeting Agenda to be announced at a later date.

Should you require assistance, please contact me at (909) 230-5535 or by email at [enrique.gonzalez@iapmo.org](mailto:enrique.gonzalez@iapmo.org).

Best regards,

Enrique Gonzalez

# FORM FOR TIA COMMENT ON IAPMO UPC/UMC COMMITTEE DOCUMENT

**NOTE: All comments MUST be received by 5:00 PM PST on Monday, December 2, 2019.**

For further information on the standards-making process, please contact  
Codes and Standards Administration at 909-472-4110

For technical assistance, please call IAPMO at 909-230-5535

**FOR OFFICE USE ONLY**

RESP # : \_\_\_\_\_

DATE REC'D: \_\_\_\_\_

Date: \_\_\_\_\_ Name: \_\_\_\_\_ Telephone #: \_\_\_\_\_

Company: \_\_\_\_\_

Street Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Please Indicate Organization Represented (if any): \_\_\_\_\_

1. a) IAPMO Document Title: Uniform Plumbing Code Document Year: 2018

b) Section/Paragraph: Table 603.2

c) Comment on TIA: UPC 005-18

2. Comment Recommends (check one):  AGREE  DISAGREE

3. Substantiation for Comment:

Signature (**Required**): \_\_\_\_\_

Please use separate form for each comment.

**INSTRUCTIONS FOR SUBMITTING COMMENTS**  
**– PLEASE READ CAREFULLY –**

1. Complete form digitally by filling in each item described.
2. Check the appropriate box to indicate whether this comment recommends agreeing or disagreeing with the proposed TIA.
3. In the space title “Substantiation for Comment”, state the reason for your comment.
4. Sign the comment. (Required)

**NOTE:** The IAPMO Regulations Governing Committee Projects in Section 5-4(c): All public comments, ballots, and comments on ballot on the proposed TIA shall be summarized in a staff report and forwarded to the Council for action in accordance with Section 5-5.

## UPC TIA 005-18

### UNIFORM PLUMBING CODE TIA FORM - 2018

Reference Code Section: Table 603.2

Submitter Name: Joel F. Hipp  
 Company: Hobart, Div. ITW Food Equipment Group  
 Address: 701 S. Ridge Ave, Troy, OH 45374  
 Phone number: (937) 332-2836

#### Proposed language for TIA:

**TABLE 603.2  
 BACKFLOW PREVENTION DEVICES, ASSEMBLIES, AND METHODS**

DEGREE OF HAZARD						
DEVICE, ASSEMBLY, OR METHOD <sup>1</sup>	APPLICABLE STANDARDS	POLLUTION (LOW HAZARD)		CONTAMINATION (HIGH HAZARD)		INSTALLATION <sup>2,3</sup>
		BACK- SIPHONAGE	BACK- PRESSURE	BACK- SIPHONAGE	BACK- PRESSURE	
Atmospheric vacuum breaker (consists of a body, checking member and atmospheric port)	ASSE 1001 or CSA B64.1.1	X	—	X	—	Upright position. <del>No valve downstream.</del> <u>Have outlet open to atmosphere.</u> Minimum of 6 inches or listed distance above all downstream piping and flood level rim of receptor. <sup>4,5</sup>

(portion of table not shown remains unchanged)

#### Substantiation:

**Technical Merit:** ASSE 1001 was updated in 2017 to change the wording "no valve downstream" to, "have its outlet open to atmosphere". The installation requirements for atmospheric vacuum breakers in Table 603.2 must be updated to avoid a conflict with the 2017 edition of ASSE 1001.

The goal will always be to prevent back-pressure on the atmospheric vacuum breaker (AVB). If there is no valve downstream, then the requirement is met. However, retaining the wording "no valve downstream" merely provides one method to meet the objective and does not allow for technical advancements that also prevent backpressure on the AVB. This proposed change will align the wording in Table 603.2 with the latest edition of ASSE 1001 while still protecting against hazardous conditions.

This proposal was submitted as a public comment to Item #235 at the Technical Committee meetings recently but was rejected. The committee statement was simply, "it is necessary to leave the statement 'no valve downstream'". There was no objective evidence or scientific basis to explain why it was necessary to leave the statement "no valve downstream". This flies in the face of the ANSI Consensus process for code development.

Attachment #1 is the UPC 18-101 Request for Clarification issued by Bruce Pfeiffer, Chair of the UPC Answers and Analysis Committee in support of this concept.

Sean Cleary, IAPMO VP of Operations for the Backflow Prevention Institute, recently penned an article in the Working Pressure Magazine titled, "The Most Misunderstood Product in the Cross-Connection Control Industry". The subject of the article was backflow prevention for chemical

dispensers. Excerpts from that article are found below in attachment #2. Mr. Cleary acutely points out the fact that the ASSE 1001 standard was updated in 2017 and valves downstream are no longer prohibited, provided that the device always remains open to atmosphere. He goes on to point out that AHJ's should be aware of updates to standards and recognize that these updates can continue to allow safe procedures and products to protect the public water supply.

The bottom line is this simple update accomplishes the following:

1. It removes a conflict with the latest revision of ASSE 1001 and,
2. It continues to protect of the potable water supply by ensuring AVB's are not subjected to continuous backpressure, which is the intent of the current language, "no valve downstream".

**Emergency nature:**

1) Table 603.2 contains an omission that was overlooked during the last code revision process. Since the 2017 edition of ASSE 1001 is referenced in Table 1701.1 for Referenced Standards, Table 603.2 must also be updated to avoid a conflict within the Code. If the table is not updated, AVB installations can be in full compliance with ASSE 1001 yet not meet the design restrictive wording in the UPC.

2) This proposed TIA will prevent an extreme hardship on owners/users of equipment with an atmospheric vacuum breaker that is installed in accordance with all third-party certification bodies and ASSE 1001-2017. One example is an NSF Certified commercial dishwashing machine with an AVB that has a TEE downstream with one branch connected to an auxiliary solenoid valve and the other branch open to atmosphere. This design has been certified by NSF International and meets the intent of the UPC by not allowing the AVB to ever experience back-pressure. Yet it does not meet the literal wording of Table 603.2 of the UPC. We have verified receipts showing these customers have paid huge fees and endured lengthy delays in operations due to the local AHJ enforcing outdated wording in the code.

I hereby grant IAPMO all and full rights in copyright, in this proposal, and I understand that I acquire no rights in any publication of IAPMO in which this proposal appears in this or another similar or analogous form.

Submitter signature (required):



Date: 2019-11-08

Mail to: Codes Department · IAPMO · 4755 E. Philadelphia Street · Ontario · CA · 91761-2816  
FAX: 909-472-4246

(Supporting information in following pages)

Attachment #1

**Joel Hipp**

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**From:** Doug Kirk <doug.kirk@iapmo.org>  
**Sent:** Friday, September 07, 2018 10:42 AM  
**To:** Joel Hipp  
**Subject:** Request for Clarification (UPC 18-101)

Joel,

**This is the response to your request for clarification on the Uniform Plumbing Code. The question(s) considered was (were):**

Among other installation requirements for atmospheric vacuum breakers (AVB) it states, "no valve downstream". If this is to prevent backpressure on the AVB, is the intent of the code met when the valve is located in a downstream branch of the AVB where the valve cannot cause backpressure?

**Comment:**

The 2017 ASSE 1001 standard has been revised to remove the requirement that "the device shall be installed downstream of the last control valve". It was replaced with, "the device shall have its outlet open to atmosphere", since this has always been the intent of the provision. Additional supporting information is attached.

[http://forms.iapmo.org/iapmo/interpretations/files/code\\_2461\\_VacuumBreaker-InfomalCodeRequest-2018.pdf](http://forms.iapmo.org/iapmo/interpretations/files/code_2461_VacuumBreaker-InfomalCodeRequest-2018.pdf)

**The UPC Answers & Analysis Committee answered as follows:**

Table 603.2 of the 2015 Uniform Plumbing Code specifically prohibits the installation of valves downstream of an Atmospheric Vacuum Breakers (AVB). This requirement is to prevent the AVB from being subjected to constant working pressure from the water supply by closing a valve. With no downstream manual or mechanical valve to prevent the water pressure from dissipating after the operation of the rinse cycle, the AVB as shown in the attached drawing would be sufficient backflow protection. The AVB must be installed a minimum of 6 inches or listed distance above all downstream piping and the flood level rim of the receptor.

*Note. Alteration of this configuration in the field or the installation of aftermarket chemical dispensers for sanitation purposes may require additional backflow protection.*

Sincerely,  
Bruce Pfeiffer  
Chair UPC Answers & Analysis Committee

Request processed by,

Doug Kirk, Technical Services Supervisor

4755 East Philadelphia St  
Ontario, CA 91761-2816  
E-mail: [doug.kirk@iapmo.org](mailto:doug.kirk@iapmo.org)  
Web: <http://www.iapmo.org>

## Attachment #2

Excerpts from Sean Cleary article 9-30-2019:

### Sean Cleary

<http://www.iapmobpi.org>

Sean Cleary has been a member of United Association Local 524 Scranton, Pa. for more than 35 years. He has worked in all phases of the plumbing and mechanical industry and is a licensed master plumber. Cleary is a past president of ASSE International and past chairman of the ASSE Cross-Connection Control Technical Committee. He is employed by IAPMO as the vice president of operations for the Backflow Prevention Institute (BPI).



If we do encounter the faucet being used as the water supply, several problems can occur. One problem is related to the installation height – an AVB is required to be mounted six inches above all downstream piping. Chemical dispensers in most cases are mounted at an elevation above the faucet AVB. The elevated piping could cause backpressure on the AVB, which it is not designed for or to protect against. Another issue is that the chemical dispenser contains a **shutoff valve**. That could put the AVB under **continuous pressure** (defined as pressure for more than 12 hours in a 24-hour period). The **ASSE 1001 AVB standard was updated in 2017**. A significant change to the standard was the removal of a sentence in Section I.1 Application that read, “The device shall be installed downstream of the last control valve.” This would prohibit the installation of an ASSE 1055 dispenser downstream of a faucet AVB. **That statement was replaced with the following language in the updated standard: “The device shall have its outlet open to atmosphere,” which would allow a valve downstream provided some part of the outlet piping was open to atmosphere at all times.** This one line changed the installation requirements significantly. It allowed for the possibility of the faucet with an AVB to be used as the water supply for an ASSE 1055 chemical dispenser, as long as the installation has continuous water flow when the faucet is open. IAMPO PS-104-97, Material and Property Standard for Pressure Relief Connection for Dispensing Equipment, is designed to protect against both backpressure and continuous pressure. When installed, it ensures a continuous flow of water through the bleed valve device whenever the faucet is open, making backpressure on the AVB impossible.

Many Authorities Having Jurisdiction (AHJ) are having issues with the installation of this equipment. That is why it's important that we **examine all the possible options**, including the use of the bleed valve device. Several AHJs consider these devices shutoff valves. These devices are not. They also say bleed valve devices can create backpressure on the faucets AVB. These devices **cannot create backpressure**. Another reason we hear from the industry is that they have a high failure rate. However, I have seen no studies or documentation showing that this is true. AHJs need to look at these situations with an open mind and not simply revert to the "reduced pressure principle backflow preventer should always be installed" answer.

We should work for inspections on this equipment when it is installed. Installation standards should be developed and enforced. A dedicated water supply should be used whenever possible, and in new construction, these water supplies should be part of the design criteria on any commercial construction. The Dispenser Equipment Alliance (DEA) is an industry group looking at this issue, working to develop these installation standards, and educate the public and the industry about this equipment. Visit [www.dispensingequipment.org](http://www.dispensingequipment.org) for more information.

Code changes are being proposed to remove any confusion about how these devices can and should be installed. It's time for **AHJs to take a fresh look** at the installation of chemical dispensers, the way they work, and how they should be installed. The information is available – **the products and standards have changed. Let's move forward with safe procedures and products to protect the public water supply.**