

## MEMORANDUM

**TO:** All Interested Parties  
**FROM:** Enrique Gonzalez, Staff Liaison  
**DATE:** Wednesday, November 18, 2020  
**SUBJECT:** Proposed TIA (Log No. 001-21) to UNIFORM PLUMBING CODE, 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 2021 edition of the UNIFORM PLUMBING CODE is being submitted for public comment. The TIA (Log No. 001-21) 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 **Wednesday, December 2, 2020**.

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 heard on December 17, 2020.

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 Wednesday, December 2, 2020.**

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: 2021

b) Section/Paragraph: Table 603.2

c) Comment on TIA: UPC 001-21

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 001-21

## UNIFORM PLUMBING CODE TIA FORM - 2021

### Reference Code Section:

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:

Modify language as follows:

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:** The 2021 UPC has a conflict regarding the installation requirements for atmospheric vacuum breakers (AVB). Table 603.2 states that there shall be “No valve downstream”. However, ASSE 1001 was updated in 2017 to remove the wording "no valve downstream" and add, "have its outlet open to atmosphere" (Attachment 1). Table 1701.1 in the 2021 UPC for Reference Standards includes the 2017 edition of ASSE 1001 (Attachment 2). Therefore, the installation requirements for atmospheric vacuum breakers in Table 603.2 must be updated as shown above to correct this conflict with the 2017 edition of ASSE 1001. Allowing a valve downstream from an AVB that does not create backpressure on the device is not a public health hazard.

Historically, a valve in the outlet to the AVB *would* create backpressure *if* it were considered a control valve and completely stopped the flow of water exiting the AVB. However, if the valve is not a shutoff or control valve, and is located in a branch of a TEE that does not block the outlet of the AVB to atmosphere, the intent of the requirement is met. Prohibiting *any* downstream valve is design restrictive and does not represent current certified designs that meet the intent of the code, which is to prevent backpressure on the AVB.

The validity of applications with a valve downstream from an AVB can be confirmed by the UPC 18-101 Request for Clarification issued by Bruce Pfeiffer, Chair of the UPC Answers and Analysis Committee (attachment 3).

Updates to nationally recognized standards referenced in the UPC must always be taken into consideration so that the public can fully benefit from advancements in technology. Otherwise there would be confusion for anyone enforcing the UPC or applying the standards.

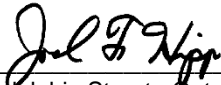
**Emergency nature:**

1) Hardship on Owners/Users of Equipment - There are currently many commercial dishwashing machines on the market with an auxiliary valve downstream of an AVB. The valve is in a branch of a TEE that cannot prevent the AVB from being open to atmosphere. However, since it does not meet the *literal* interpretation of the wording in Table 603.2 of the UPC, some AHJ's have required these customers to replace the AVB with an RPZ or Spill Resistant Pressure Vacuum Breaker. Results of these nonconformance citations:

- Delays in receiving a final CO
- Plumbing modification fees from \$1,200 to \$2,000 per site
- Loss of manufacturer warranty due to non-standard part replacements
- Voiding the third-party sanitation certification

2) Loss of NSF Certification – When an NSF Certified commercial dishwashing machine is modified to replace the AVB with an untested device, that NSF Certification is rendered null and void. As such, the customer is susceptible to a possible public health citation for using a non-certified dishmachine. An even more significant ramification is a possible reduction in the sanitizing efficacy of the dishmachine which is a potential public health concern.

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: 2020-10-21  
Mail to: Codes Department · IAPMO · 4755 E. Philadelphia Street · Ontario · CA · 91761-2816  
FAX: 909-472-4246

## Attachment #1

ASSE 1001-2017:

# Performance Requirements for Atmospheric Type Vacuum Breakers

## Section I

### 1.0 General

#### 1.1 Application

This standard applies to atmospheric type vacuum breakers (herein referred to as the "device") that are single pipe-applied, flushometer-applied, or integrally-applied (does not apply to water closet tank ballcocks or similar devices that depend on float-operated valves to control flow). The purpose of these devices is to provide protection of the potable water supply against pollutants or contaminants that enter the system due to backsiphonage through the outlet. Under backsiphonage conditions, a small amount of water is permitted to exit through the air ports.

The device shall:

- 1) Have its outlet open to atmosphere;
- 2) Not be subjected to backpressure;
- 3) Not be subjected to more than twelve (12) hours of continuous water pressure; and
- 4) Be installed with its critical level (CL) not less than 6.0 inches (152.4 mm) above the flood level rim of the fixture or appliances served; or deck mounted/equipment mounted atmospheric vacuum breakers shall be installed in accordance with the manufacturer's instructions, with its critical level (CL) not less than 1.0 inch (25.4 mm) above the flood level rim of the fixture or appliance served.

## Attachment #2

### REFERENCED STANDARDS

TABLE 1701.1 (continued)  
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	APPLICATION	REFERENCED SECTION
ASME B16.29-2017	Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings – DWV	Fittings	Table 701.2
ASME B16.34-2017	Valves-Flanged, Threaded, and Welding End	Valves	606.1
ASME B16.42-2016	Ductile Iron Pipe Flanges and Flanged Fittings: Classes 150 and 300	Fuel Gas Piping	1208.6.12.4
ASME B16.47-2017	Large Diameter Steel Flanges: NPS 26 through NPS 60 Metric/Inch	Fittings	1208.6.12.2(2)
ASME B16.50-2018	Wrought Copper and Copper Alloy Braze-Joint Pressure Fittings	Fittings	Table 604.1, 1321.1, 1321.11
ASME B16.51-2018	Copper and Copper Alloy Press-Connect Pressure Fittings	Fittings	Table 604.1
ASME B31.3-2016	Process Piping	Piping	1308.2(9)
ASME B36.10M-2018	Welded and Seamless Wrought Steel Pipe	Fuel Gas, Piping	1208.6.3.1
ASME BPVC Section VIII.1-2017	Rules for Construction of Pressure Vessels - Division 1	Miscellaneous	505.4, 1309.5(2), 1310.4(2), 1312.3(2)
ASME BPVC Section IX-2017	Welding, Brazing, and Fusing Qualifications - Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators	Miscellaneous	1322.1.1, 1322.2.1, 1323.11
ASPE 45-2019	Siphonic Roof Drainage	Storm Drainage	1106.2
ASSE 1001-2017	Atmospheric Type Vacuum Breakers	Backflow Protection	Table 603.2
ASSE 1002/ASME	Anti-Siphon Fill Valves for Water Closet Tanks	Backflow Protection	412.2, Table 603.2

### Attachment #3

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>