2026

REPORT ON COMMENTS

The Water Efficiency and Sanitation Standard Technical Committee
Report on Comments for Public Review and Comment.

Information on IAPMO Codes and Standards Development

1. Applicable Regulations. The primary rules governing the processing of the *Water Efficiency and Sanitation Standard* are the *IAPMO Regulations Governing Consensus Development of WEStand.* Other applicable rules include the *Guide for the Conduct of Participants in the IAPMO Codes and Standards Development Process.* For copies of these documents, contact the Code Development Department at IAPMO World Headquarters at 4755 E. Philadelphia Street, Ontario, CA 91761-2816 USA, or at 909-472-4100. These documents are also available at the IAPMO website at www.iapmo.org.

The following is general information on the IAPMO process. All participants, however, should refer to the actual rules and regulations for a full understanding of this process and for the criteria that govern participation.

2. Technical Committee Report (TCR). The Technical Committee Report is defined as "the Report of the Technical Committee, consisting of the Report on Proposals (ROP), as modified by the Report on Comments (ROC), published by the Association."

3. Report on Proposals (ROP). The ROP is defined as "a report to the Association on the actions taken by Technical Committees, accompanied by a ballot statement and one or more proposals on text for a new Document or to amend an existing Document." The ROP and the ROC together comprise the Technical Committee Report. Anyone who does not pursue an issue, either in person or by designated representative in accordance with Section 7.0 (Public Review and Comment of the Regulations Governing Consensus Development), as a proposed amendment of the Report on Proposals will be considered as having their objection resolved.

4. Report on Comments (ROC). The ROC is defined as "a report to the Association on the actions taken by Technical Committees, accompanied by a ballot statement and one or more comments resulting from public review of the Report on Proposals (ROP)." The ROP and the ROC together constitute the Technical Committee Report. Anyone who does not pursue an issue, either in person or by designated representative in accordance with Section 8.0 (Public Review and Comment of the Regulations Governing Consensus Development), as a proposed amendment of the Report on Comments will be considered as having their objection resolved.

5. Appeals. Anyone can appeal to the *Executive Committee* concerning procedural or substantive matters related to the development, content, or issuance of any Document of the Association or on matters within the purview of the authority of the Committee. Such appeals must be in written form and filed with the Secretariat (See 9.0 of the Regulations Governing Consensus Development of WEStand). Time constraints for filing an appeal must be in accordance with Section 9.0. Objections are deemed to be resolved if not pursued at this level.

6. Document Issuance. The WEStand Executive Committee is the issuer of the *Water Efficiency and Sanitation Standard*. The committee acts on the issuance of a Document within sixty days from the date of the recommendation from the ROC Technical Committee Meeting, unless this period is extended by the Executive Committee.

International Association of
Plumbing and Mechanical Officials

4755 East Philadelphia Street
Ontario, California – USA 91761-2816

Ph: 909.472.4100 | Fax: 909.472.4150
http://www.iapmo.org

Hugo Aguilar, P.E.
Recording Secretary
IAPMO Executive
Committee

Billy Smith
Chairman
WE•Stand TC

To: IAPMO Members and Other Interested Parties

Date: September 4, 2026

Enclosed is your 2026 Report on Comments (ROC). These comments were presented to the WE♠Stand Technical Committee who met on May 13-14, 2026.

THE BALLOT RESULTS ON ALL COMMITTEE ACTIONS ON PUBLIC COMMENTS PASSED EXCEPT FOR THE FOLLOWING TWO ACTIONS:

ITEM 006 PC 01 FAILED TO ACHIEVE THE NECESSARY 2/3 AFFIRMATIVE VOTE OF RETURNED BALLOTS.
ITEM 104 PC 01 FAILED TO ACHIEVE THE NECESSARY 2/3 AFFIRMATIVE VOTE OF RETURNED BALLOTS.

In accordance with Section 7.7 of the Regulations Governing Consensus Development of the Water Efficiency and Sanitary Standard, where the Technical Committee actions failed to achieve the necessary 2/3 affirmative vote, the Technical Committee action on these items shall be reported in the ROC as rejected.

International Association of
Plumbing and Mechanical Officials

4755 East Philadelphia Street
Ontario, California – USA 91761-2816

Ph: 909.472.4100 | Fax: 909.472.4150
http://www.iapmo.org

2027 WESTAND TECHNICAL COMMITTEE

(As of 04/22/26)

NAME	REPRESENTATION	CLASSIFICATION
Billy Smith, Chair	American Society of Plumbing Engineers (ASPE)	Design Professional
Edward Osann	Self	Consumer
Gary Klein	Gary Klein and Associates, Inc.	Design Professional
Todd Kuchta	Self	Design Professional
Pat Lando	Recode	Design Professional
John Lansing	Center for Building of North America	Design Professional
Rick Layton	Haines, Jones & Cadbury, LLC	Design Professional
Damon Premer	ACCO	Enforcing Authority
Amir Tabakh	City of LA Department of Water and Power	Enforcing Authority
Taylor Nokhoudian	San Francisco Public Utilities Commission	Enforcing Authority
Charles White	PHCC-National Association	Installer/Maintainer
Aster Tseng	Self	Installer/Maintainer
Brian Granger	UA Plumbers Local 68	Labor
James Majerowicz	Plumbers Local Union 130 U A	Labor
Rich Harlan	UA Local 38	Labor
Shawn Crawford	Rainwater Management Solutions	Manufacturer
Michael Cudahy	Plastic Pipe & Fittings Association	Manufacturer
Kyle Thompson	Plumbing Manufacturers International (PMI)	Manufacturer
David Nickelson	Uponor	Manufacturer
Paula Kehoe	Self	Special Expert
Laura Allen	Greywater Action	Special Expert
John Koeller	Koeller and Company	Special Expert
Markus Lenger	CleanBlu Innovations Inc	Special Expert
Beverly Potts	Illinois PHCC	Special Expert
Phil Ribbs	PHR Consultants	Special Expert
Anton Smith	Waiea Water Solutions Inc.	Special Expert
Steven Braband	BioSolutions Inc	User
Jim Kendzel	JGK Consulting LLC	User
Kent Sovocool	Southern Nevada Water Authority	User
Taylor Duran	IAPMO Staff	

IAPMO Technical Committee Membership Application

IAPMO uses the information in this application to determine your qualifications and to assure that IAPMO technical committee appointments are made in a way that ensures that committees will contain a fair balance of interests. Please provide us with as much information as you feel will assist us in the selection process. Feel free to attach additional pages if necessary.

Name of Individual: _____ Title: _____
Employer: _____
Mailing Address: _____
UPS or Other Mailing Address: _____
City: _____ State: _____ Zip: _____
Telephone: _____ Fax: _____ E-Mail: _____

Please indicate the committee for which you are applying:

- ☐ Plumbing Technical Committee
- ☐ Mechanical Technical Committee
- ☐ Swimming Pool, Spa and Hot Tub Technical Committee
- ☐ Solar, Hydronics, and Geothermal Code Technical Committee
- ☐ Water Efficiency and Sanitation Standard Technical Committee

Member categories:

- ☐ Principal member
- ☐ Alternate member. If Alternate, to whom: _____
- ☐ Non-voting member

Please indicate the interest category *(see definitions on page 2)* which you believe best suits your qualifications:

- ☐ Manufacturer
- ☐ User
- ☐ Installer/Maintainer
- ☐ Labor
- ☐ Design Professional (WEStand only)
- ☐ Research/Standards/Testing Laboratory (N/A to WEStand)
- ☐ Enforcing Authority
- ☐ Consumer
- ☐ Special Expert

1. **QUALIFICATIONS OF APPLICANT**
   a. Provide evidence of your general knowledge and competence in the scope (*work)* of the committee (*please attach résumé)*

   _____
   _____
   _____

   b. What is your specific relationship to one or more elements of the scope of the committee?

   _____
   _____
   _____

   c. Will you be able to actively participate in the work of the committee including responding to correspondence and attending committee meetings?

   _____
   _____
   _____

2. **REPRESENTATION**
   Indicate below the name of the entity you would be representing and include written authorization from that entity authorizing you to be their representative:

   _____
   _____
   _____

   a. Does the organization you would represent have a mechanism for instructing votes? If so, can the time constraints imposed by the Regulations Governing Committee Projects be met?

   _____
   _____
   _____

3. **FUNDING SOURCE(S) FOR YOUR PARTICIPATION**

a. What person(s) or organization(s) would fund your participation as a committee member, either in whole or in part? (You should list your employer if your participation is funded by your employer or if your participation is part of your employment responsibilities or otherwise related to your employment.)

_____
_____
_____

b. Background and description of your employer and/or other person(s) or organization(s) funding participation:

_____
_____
_____

4. **ADDITIONAL COMMENTS**

_____
_____
_____

Languages other than English: _____

COMPLETE A SEPARATE APPLICATION FORM FOR EACH COMMITTEE ON WHICH YOU DESIRE TO SERVE. IN ORDER TO ASSURE THE PROMPT PROCESSING OF YOUR REQUEST, PLEASE BE SURE TO COMPLETE ALL QUESTIONS AND SIGN THIS APPLICATION.

If appointed, I agree to abide by the rules and guidelines of IAPMO. In addition, I hereby agree to notify the Secretary of the IAPMO Standards Council of a change in status, including change of employment, organization represented, or funding source. I also agree that IAPMO shall have, and I hereby grant, all and full rights in copyright in any material that I author, either individually or with others, as a member of this committee, or that I submit for the proposed use of the committee in an IAPMO code or standard or other IAPMO document. I further acknowledge that I acquire no rights in any publication of IAPMO and that copyright and all rights in all materials produced by IAPMO technical committees are owned by IAPMO and that IAPMO may register copyright in its own name.

I do not now hold, and I do not intend to hold any patent, the use of which would be required for compliance with any material that I author – either individually or with others – as a member of this committee, or that I submit for the proposed use of the committee in an IAPMO code or standard or other IAPMO document.

I attest that all of the information on this application is true and accurate.

By signing below, I attest to my ability to communicate with IAPMO staff and the members of the Technical Committee through electronic means, namely via email and the internet.

Signature _____ Date_____

INTEREST CATEGORIES

(a) **Manufacturer.** A representative of a maker or marketer of a product, assembly or system, or portion thereof that is affected by the document.
(b) **User.** A representative of an entity that is subject to the provisions of the Document or that voluntarily uses the Document.
(c) **Installer/Maintainer.** A representative of an entity that is in the business of installing or maintaining a product, assembly, or system affected by the Document.
(d) **Labor.** A labor representative or employee concerned with safety in the workplace within the scope of the Document.
(e) **Research/Standards/Testing Laboratory.** A representative of an independent research organization; an organization that develops codes, standards and other similar documents; or an independent testing laboratory.
(f) **Enforcing Authority.** A representative of an agency or an organization that promulgates or enforces the Document.
(g) **Consumer.** A person who is or represents the ultimate purchaser of a product, system or service affected by the Document but who is not a User as defined in 3-2.5.1(b).
(h) **Special Expert.** A person not representing 3-2.5.1(a) through (g) and who has special expertise in the scope of the Document or portion thereof.
(i) **Design Professional.** A person who is in the business of designing systems affected by the Document.

TABLE OF CONTENTS

Item	Code Section	Page No.
002	106.4 - 106.4.3, Table 1401.1	1
003	204.0, 221.0, Chapter 1, Chapter 8	4
004	206.0	22
006	214.0	25
008	Table 402.1	28
009	Table 402.1	36
010	402.2.1, Table 1401.1	45
011	402.3.2	49
012	402.4	52
016	407.2, Table 1401.1	54
018	407.5	59
019	408.1, 408.2, Table 411.1, 412.0 - 412.5.2	67
020	408.1	74
021	408.2	79
022	408.3.1	82
023	408.4	85
024	408.5	88
025	408.6	90
026	408.7	92
027	409.0, 409.1	95
028	409.2, 411.1.2	100
030	415.7	104
032	Chapter 2, 419.0 - 419.6	106
034	501.1, 502.1, 502.2.2	113
037	601.1	117
038	205.0, 601.2	119
040	602.0 - 602.1.3, 605.0, 605.1	122
042	605.4 - 605.4.3	125
046	605.5.3, 605.5.5, 605.5.7, 605.7	129
049	606.1, 606.2, 608.0 - 608.2.2	132
059	605.5.1.5, 606.12.7	135
061	605.5.1.7, 605.5.2, 606.12.9	140
062	Chapter 7	147
065	701.3.1	163
066	701.6	168
068	701.10, 701.10.1	172
073	702.7	183
076	702.13.7	185
080	703.0 - 703.14, Chapter 12	187
082	801.1, 1001.1	192
083	801.2, 901.2, 1001.2	195
084	801.4, 802.2, 901.4, 902.2, 1001.4, 1002.2	203
085	802.1 - 802.1.2, 902.1 - 902.1.2, 1002.1 - 1002.1.2, Table 1401.1	209
086	802.3, 902.3, 1002.3	217

TABLE OF CONTENTS

087	802.5 - 802.8, 803.0, 902.5 - 902.8, 903.0, 1002.5 - 1002.8, 1003.0, Table 802.5, Table 902.5, Table 1002.5	220
088	802.9, 803.5.1, 803.5.2, 902.9, 903.5.1, 903.5.2, 1002.9, 1003.5.1, 1003.5.2, Table 802.9(1), Table 802.9(2), Table 902.9(1), Table 902.9(2), Table 1002.9(1), Table 1002.9(2), Table 1401.1	228
088.01	803.5 - 803.5.2, 903.5 - 903.5.2,1003.5 - 1003.5.2	240
089	802.4, 802.10 - 802.10.6, 804.1, 902.4, 902.10 - 902.10.3, 902.10.5 - 902.10.7, 904.1, 1002.4, 1002.10 - 1002.10.6, 1004.1	245
090	902.10.4	254
091	902.10.8	257
092	1101.7, 1103.5, Table 1103.5, Table 1401.1	260
093	1103.9 - 1103.9.2	266
097	1204.0 - 1204.5, 1205.0 - 1205.6, Table 1205.2, 1206.0 - 1206.3.2, Table 1401.1	274
098	1210.0, 1210.1	288
100	302.3, Chapter 13, Appendix H, Table1401.1	290
101	A 101.1 - A 101.4	297
103	A 101.5 - A 101.6, A 101.8, A 101.9, A 102.0 - A 102.3, A 103.0 - A 103.4, A 104.0 - A 104.12	300
104	Figure F 301.1(6), Figure F 301.1(7)	104
106	F 301.3	315
112	Table 1401.1	317
114	Table 1401.1	319
117	Table 1401.1	321
118	Table 1401.1	323
119	Table 1401.1	326

Copyright © 2026
by International Association of Plumbing and Mechanical Officials
All Rights Reserved

Item #:
002

Code Number:
2023 WE-Stand

Section Number:
106.4 - 106.4.3, Table 1401.1

SUBMITTER:
Andrew Todd

Organization Name:
Self

Organization Representation:

RECOMMENDATION:
Add new text

Proposed Text :

106.0 Inspections and Testing.

106.4 Remote Inspections. Where approved by the Authority Having Jurisdiction, remote inspections of mechanical systems shall be permitted in accordance with NFPA 915 and Section 106.4.1 through Section 106.4.3.
106.4.1 General. The entity or person(s) performing remote inspections shall comply with the requirements set forth by the Authority Having Jurisdiction. The accuracy of the information, quality, verification, usability, and authenticity of the data shall be verified by a qualified person(s). The written test plan shall be submitted to the Authority Having Jurisdiction for approval. The following information shall be provided to the Authority Having Jurisdiction when remote inspections are requested:
(1) Suitability of performing the inspection remotely.
(2) Limitations.
(3) Supporting documentation including, but not limited to, plans, specifications, drawings, details, and records.
(4) Information on the technology or device being used for inspection and data collection.
(5) Submission format.
(6) Scheduling requirements.
(7) Modifications.
(8) Record retention.
(9) Format being used for the transmission of content.
106.4.2 Verification. The following information shall be verified and documented at the time of the remote inspection:
(1) Date and time of remote inspection.
(2) Type of mechanical system being inspected.
(3) Inspection areas.
(4) Building occupancy category where the mechanical system is installed.
(5) Technology or device used for inspection and data collection.
(6) Location of the mechanical system being inspected.
106.4.3 Data Collection or Transmission Devices. Nonaerial and aerial vehicles shall be permitted to be used for remote inspections. Data and content protection shall be provided in accordance with NFPA 915.

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
NFPA 915-2024	Standard for Remote Inspections and Tests	106.4, 106.4.3

(portions of table not shown remain unchanged)

Note: NFPA 915 meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
Remote inspections for permits offer several benefits to both regulatory authorities and permit applicants. Virtual inspections can typically be arranged and executed more swiftly than conventional on-site evaluations, thanks to digital documentation and communication technologies that simplify the application and inspection processes. In particular, digital photographs, videos, and schematics are capable of offering precise depictions of site conditions. Furthermore, remote inspections contribute to health and safety by minimizing the need for physical contact and travel, especially during situations such as the COVID-19 pandemic.

NFPA 915 is suitable for reference as it provides minimum requirements for transmission and data collection associated with remote inspections and tests, automated inspection and testing, and distance monitoring performed in accordance with other governing laws, codes, and standards. This standard lists the appropriate formatting requirements for various data collection methods including written submissions, live and recorded audio or video, and photography.

A read-only version of the standard is provided for your review at the following link: NFPA 915

Committee Action:
Reject

Committee Statement:
The proposed text is unnecessary and does not improve the code. Such requirements should be left to the local jurisdiction. Additionally, remote inspections are not always appropriate, and this may create issues with potentially misleading submissions.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
002	2023 WE-Stand	106.4 - 106.4.3, Table 1501.1

Submitter Name:	Organization Name:	Organization Representation:
Andrew Todd	Self	

Recommendation:
Accept the Code Change Proposal as Submitted

Proposed Text:

Request to accept the code change proposal **as submitted** by this public comment.

Substantiation:
Remote inspections provide an efficient and effective means for authorities to evaluate permitted work, and they offer measurable benefits to both regulatory agencies and applicants. As outlined in the proposal, remote inspections allow for faster scheduling and review through the use of digital documentation such as photographs, videos, and schematics, which can accurately depict site conditions. These methods also support health and safety by reducing the need for physical contact and travel when circumstances warrant it.

NFPA 915 establishes minimum requirements for data transmission, documentation, automated inspection processes, and distance monitoring, making it an appropriate referenced standard for regulating remote inspection practices. The proposal simply provides a framework that jurisdictions may use when they choose to allow remote inspections, while still preserving full authority for the AHJ to determine when such inspections are appropriate.

The added text does not mandate that remote inspections be used. Instead, it supports jurisdictions by giving them a recognized, nationally developed standard and a clear structure for ensuring accuracy, verification, and data protection when remote inspections are permitted. This maintains local discretion while improving consistency, clarity, and public safety for jurisdictions that elect to use remote inspection methods.

A read-only version of the standard is provided for your review at the following link: NFPA 915

Committee Action:
Reject

Committee Statement:
The proposed text does not add value or improve the WEStand and is better handled at the local level. Remote inspections are not appropriate in all cases and may increase the risk of incomplete or misleading documentation.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
23	0	1	5

EXPLANATION OF ABSTAIN:
CRAWFORD: I do not have enough expertise on this topic to make an educated vote.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Item #:
003

Code Number:
2023 WE-Stand

Section Number:
204.0, 221.0, Chapter 1, Chapter 8

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

204.0 - B -
~~**Blackwater.** Waste water containing bodily or other biological wastes discharged from toilets and kitchen sink waste.~~

221.0 - S -
Sewage. ~~Liquid waste containing animal or vegetable matter in suspension or solution and that may include liquids containing chemicals in solution~~Water containing bodily or other biological wastes discharged from toilets and kitchen sinks. Also known as blackwater or sanitary wastewater.

104.0 Permits.
104.1 Permits Required. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.

106.0 Inspections and Testing. (remaining text unchanged)

106.2 Required Inspections. (remaining text unchanged)
106.2.1 Uncovering. Where a urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system, or part thereof, which is installed, altered, or repaired, is covered or concealed before being inspected, tested, and approved as prescribed in this standard, it shall be uncovered for inspection after notice to uncover the work has been issued to the responsible person by the Authority Having Jurisdiction. The requirements of this section shall not be considered to prohibit the operation of the urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system installed to replace existing equipment serving an occupied portion of the building in the event a request for inspection of such equipment has been filed with the Authority Having Jurisdiction not more than 72 hours after such replacement work is completed, and before a portion of system is concealed by a permanent portion of the building.

106.3 Testing of Systems. The urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system shall be tested and approved in accordance with this standard or the Authority Having Jurisdiction. Tests shall be conducted in the presence of the Authority Having Jurisdiction or the Authority Having Jurisdiction's duly appointed representative.

No test or inspection shall be required where a composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system, or part thereof, is set up for exhibition purposes and has no connection with water or the drainage system. In cases where it would be impractical to provide the required water or air tests, or for minor installations and repairs, the Authority Having Jurisdiction shall be permitted to make such inspection as deemed advisable in order to be assured that the work has been performed in accordance with the intent of this standard. Joints and connections in the composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system shall be airtight, gastight and watertight for the pressures required by the test.
106.3.1 Defective Systems. In buildings or premises condemned by the Authority Having Jurisdiction because of an insanitary condition of a composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or blackwater treatment system, or part thereof, the alterations in such system shall be in accordance with the requirements of this standard.

108.0 Violations and Penalties.
108.1 General. It shall be unlawful for a person, firm, or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, equip, use, or maintain a urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system, materials, equipment, appurtenances, and other associated components or permit the same to be done in violation of this standard.

108.6 Authority to Condemn. Where the Authority Having Jurisdiction ascertains that a urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system or portion thereof, regulated by this standard, has become hazardous to life, health, or property, or has become insanitary, the Authority Having Jurisdiction shall order in writing that such system, either be removed or placed in a safe or sanitary condition. The order shall fix a reasonable time limit for compliance. No person shall use or maintain a defective system after receiving such notice. Where such system is to be disconnected, written notice shall be given. In cases of immediate danger to life or property, such disconnection shall be permitted to be made immediately without such notice.

109.0 Board of Appeals.
109.1 General. In order to hear and decide appeals of orders, decisions, or determinations made by the Authority Having Jurisdiction relative to the application and interpretations of this standard, there shall be and is hereby created a Board of Appeals consisting of members who are qualified by experience and training to pass upon matters pertaining to composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system design, construction, and maintenance and the public health aspects of such systems and who are not employees of the jurisdiction. The Authority Having Jurisdiction shall be an ex-officio member and shall act as secretary to said board but shall have no vote upon a matter before the board. The Board of Appeals shall be appointed by the governing body and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business and shall render decisions and findings in writing to the appellant with a duplicate copy to the Authority Having Jurisdiction.

802.0 System Design.

802.2 Permit. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any ~~blackwater~~sewage treatment system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.

802.6 Effluent Water Quality Parameters. ~~Blackwater~~Sewage treatment systems shall be designed to meet the effluent water quality parameters for water closet and urinal fixture use listed in Table 802.6.

802.8 Health and Safety. Treated ~~blackwater~~sewage shall not create a nuisance or odor, nor threaten human health, or damage the quality of surface water or groundwater.

802.10 System Requirements. (remaining text unchanged)
802.10.1 Connections to Potable or Reclaimed (Recycled) Water Systems. ~~Blackwater~~Sewage treatment systems shall have no direct connection to any potable water supply or reclaimed (recycled) water source system. Potable water or reclaimed (recycled) water shall be permitted to be used as makeup water for a ~~blackwater~~sewage treatment system provided the potable or reclaimed (recycled) water supply connection is protected by an airgap.
802.10.2 Bypass Connection. A bypass shall be provided for the input connection to the ~~blackwater~~sewage treatment system. The bypass shall be a diverter valve normally open to the ~~blackwater~~sewage treatment system. The normally closed port of the diverter valve shall be connected directly to the plumbing drainage system according to the plumbing code.
802.10.3 Overflow Connection. ~~Blackwater~~Sewage treatment overflow shall be connected directly to the plumbing drainage system. The overflow shall be provided with a backwater valve at the point of connection to the plumbing drainage system. The backwater valve shall be accessible for inspection and maintenance.
802.10.4 Fail-safe Mechanisms. ~~Blackwater~~Sewage treatment systems shall be equipped with an automatic shutdown of the treatment process when a malfunction occurs.
802.10.5 Flow Meter Totalizer. Buildings with ~~blackwater~~sewage treatment systems shall include a flow meter totalizer on the treated ~~blackwater~~sewage distribution system and a flow meter totalizer on the potable make-up water connection to the ~~blackwater~~sewage treatment system.

803.0 Commissioning.
803.1 General. Onsite ~~blackwater~~sewage treatment systems shall be commissioned in accordance with the requirements of Section 803.2 through Section 803.5.
803.2 Requirements. Commissioning for ~~blackwater~~sewage treatment systems shall be included in the design and construction processes of the project. Commissioning shall be performed by a person who demonstrates competency in commissioning ~~blackwater~~sewage treatment systems as required by the Authority Having Jurisdiction.
803.3 Plan. The construction documents shall include the commissioning plan for the ~~blackwater~~sewage treatment system. The commissioning plan shall be approved by the Authority Having Jurisdiction prior to commissioning the ~~blackwater~~sewage treatment system. The commissioning plan shall include the following:
(1) – (8) (remaining text unchanged)
803.4 Performance Testing. Performance tests shall verify that the installation and operation of the equipment of the ~~blackwater~~sewage treatment system is in accordance with the approved plans and specifications. The performance test report shall include the equipment tested, the testing methods utilized, and proof of proper calibration of the equipment.

805.0 Inspection.
805.1 General. Field inspections shall take place during and after construction while the contractor is on-site to verify that the ~~blackwater~~sewage treatment system components have been properly supplied and installed according to the plans and specifications used for installation. Record drawings shall be maintained with changes to the approved plans by the contractor and available for periodic inspection as needed.

SUBSTANTIATION:
The term "sewage" is generally more appropriate than "blackwater" because it is broader, more widely understood, and commonly used in public infrastructure and environmental contexts.

Committee Action:
Reject

Committee Statement:
The term "blackwater" is not interchangeable with "sewage," as "sewage" may include wastes beyond those originating from toilets and kitchens. "Blackwater" is consistent with common industry terminology and aligns with existing EPA regulations. Furthermore, the proposed revised definition of "sewage" conflicts with the terminology provided in the plumbing code.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	1	0	4

EXPLANATION OF NEGATIVE:
LANDO: I prefer not to use the term "blackwater."

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
003	2023 WE-Stand	204.0

Submitter Name:	Organization Name:	Organization Representation:
Markus Lenger	WEStand Log Reduction Targets Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to replace the code change proposal by this public comment.

204.0 - B -
Blackwater. ~~Waste water containing bodily or other biological wastes discharged from toilets and kitchen sink waste.~~Untreated wastewater containing kitchen sink waste, human sanitary waste, or any wastewater that has come into contact with toilet fixtures. This includes discharge from water closets, urinals, and bidets.

Substantiation:
The revised definition improves clarity by replacing the broad phrase "bodily or other biological wastes discharged from toilets" with "human sanitary waste" and "any wastewater that has come into contact with toilet fixtures," which more precisely identifies the nature of the waste and the fixtures involved.

The addition of a clarifying sentence specifying water closets, urinals, and bidets eliminates ambiguity about which fixtures generate blackwater and aligns with standard plumbing terminology.

The term "untreated" has been added to explicitly establish that blackwater classification occurs at the point of generation, before any treatment is applied. This reinforces the distinction between blackwater and treated effluent and supports accurate downstream treatment system design.

Committee Action:
Reject

Committee Statement:
Public Comment #3 was heard prior to Public Comment #1. Public Comment #1 is being rejected in favor of the action taken on Public Comment #3.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
003	2023 WE-Stand	221.0

Submitter Name:	Organization Name:	Organization Representation:
Markus Lenger	WEStand Log Reduction Targets Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to <u>replace</u> the code change proposal by this public comment.

221.0 - S -

Sewage. ~~Liquid waste containing animal or vegetable matter in suspension or solution and that may include liquids containing chemicals in solution.~~Wastewater from sanitary fixtures and domestic or commercial sources containing human excrement and other liquid wastes.

Substantiation:

The original definition characterized sewage broadly as liquid waste containing animal or vegetable matter, which is imprecise and could create confusion about the boundary between sewage and the wastewater streams covered by this standard. The revised definition addresses this by specifically identifying human excrement and other liquid wastes originating from sanitary fixtures and domestic or commercial sources, which more accurately reflects how sewage is distinguished from blackwater, greywater, and stormwater within the standard's framework.

The phrase "liquids containing chemicals in solution" has also been removed, as this language more aptly describes industrial or chemical effluent and does not contribute to a meaningful definition of sewage in this context.

A clear and precise definition of sewage is important because this standard governs onsite treatment systems for blackwater, greywater, and stormwater, and sewage represents a wastewater category that falls outside those provisions. Accurate terminology ensures that the boundaries between these waste streams are well understood and consistently applied.

Committee Action:

Reject

Committee Statement:

The committee disagrees with the updated definition for “sewage” as it is inconsistent with the plumbing code.

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:

Braband, Kendzel, Koeller, Layton, A. Smith

Comment 3

Item #:	Code Number:	Sections(s):
003	2023 WE-Stand	204.0, Chapter 1, Chapter 8

Submitter Name:	Organization Name:	Organization Representation:
Pat Lando	Recode	

Recommendation:

Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

204.0 - B -
~~**Blackwater.** Waste water containing bodily or other biological wastes discharged from toilets and kitchen sink waste.~~

104.0 Permits.
104.1 Permits Required. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.

106.0 Inspections and Testing.

106.2 Required Inspections. (remaining text unchanged)
106.2.1 Uncovering. Where a urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system, or part thereof, which is installed, altered, or repaired, is covered or concealed before being inspected, tested, and approved as prescribed in this standard, it shall be uncovered for inspection after notice to uncover the work has been issued to the responsible person by the Authority Having Jurisdiction. The requirements of this section shall not be considered to prohibit the operation of the urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system installed to replace existing equipment serving an occupied portion of the building in the event a request for inspection of such equipment has been filed with the Authority Having Jurisdiction not more than 72 hours after such replacement work is completed, and before a portion of system is concealed by a permanent portion of the building.
106.3 Testing of Systems. The urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system shall be tested and approved in accordance with this standard or the Authority Having Jurisdiction. Tests shall be conducted in the presence of the Authority Having Jurisdiction or the Authority Having Jurisdiction's duly appointed representative.
No test or inspection shall be required where a composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system, or part thereof, is set up for exhibition purposes and has no connection with water or the drainage system. In cases where it would be impractical to provide the required water or air tests, or for minor installations and repairs, the Authority Having Jurisdiction shall be permitted to make such inspection as deemed advisable in order to be assured that the work has been performed in accordance with the intent of this standard. Joints and connections in the composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system shall be airtight, gastight and watertight for the pressures required by the test.
106.3.1 Defective Systems. In buildings or premises condemned by the Authority Having Jurisdiction because of an insanitary condition of a composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system, or part thereof, the alterations in such system shall be in accordance with the requirements of this standard.

108.0 Violations and Penalties.
108.1 General. It shall be unlawful for a person, firm, or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, equip, use, or maintain a urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system, materials, equipment, appurtenances, and other associated components or permit the same to be done in violation of this standard.

108.6 Authority to Condemn. Where the Authority Having Jurisdiction ascertains that a urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system or portion thereof, regulated by this standard, has become hazardous to life, health, or property, or has become insanitary, the Authority Having Jurisdiction shall order in writing that such system, either be removed or placed in a safe or sanitary condition. The order shall fix a reasonable time limit for compliance. No person shall use or maintain a defective system after receiving such notice.
Where such system is to be disconnected, written notice shall be given. In cases of immediate danger to life or property, such disconnection shall be permitted to be made immediately without such notice.

109.0 Board of Appeals.
109.1 General. In order to hear and decide appeals of orders, decisions, or determinations made by the Authority Having Jurisdiction relative to the application and interpretations of this standard, there shall be and is hereby created a Board of Appeals consisting of members who are qualified by experience and training to pass upon matters pertaining to composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~sewage treatment system design, construction, and maintenance and the public health aspects of such systems and who are not employees of the jurisdiction. The Authority Having Jurisdiction shall be an ex-officio member and shall act as secretary to said board but shall have no vote upon a matter before the board. The Board of Appeals shall be appointed by the governing body and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business and shall render decisions and findings in writing to the appellant with a duplicate copy to the Authority Having Jurisdiction.

CHAPTER 8
ONSITE ~~BLACKWATER~~SEWAGE TREATMENT SYSTEMS

801.0 General.
801.1 Applicability. The provisions of this chapter shall apply to the water quality, monitoring, design, construction, alteration, repair, and operation requirements of onsite ~~blackwater~~sewage treatment systems for nonpotable reuse.
801.2 Allowable Use of ~~Blackwater~~Sewage. Where approved or required by the Authority Having Jurisdiction, ~~blackwater~~sewage shall be permitted to be used in lieu of potable water for uses such as, but not limited, to water closets, urinals, clothes washers, ornamental plant irrigation, and dust suppression.
801.3 Permit. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any onsite ~~blackwater~~sewage treatment system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.
801.4 Qualifications. Onsite ~~blackwater~~sewage treatment systems complying with this chapter shall be designed by a registered design professional.

802.0 System Design.
802.1 Requirements. Onsite ~~blackwater~~sewage treatment systems shall comply with Section 802.1.1 or Section 802.1.2.
802.1.1 Listed Systems. Onsite ~~blackwater~~sewage treatment systems shall be comply with NSF/ANSI 350, shall be installed in accordance with the manufacturer's installation instructions, and shall be commissioned in accordance with Section 805.0.
802.1.2 Engineered Systems. Engineered onsite ~~blackwater~~sewage treatment systems shall be in accordance with Section 803.0 through Section 807.0.

803.0 Design Requirements.
803.1 Log Reduction Targets. Onsite ~~blackwater~~sewage treatment systems shall be designed to achieve the log reduction targets (LRT) in accordance with Table 803.1. The LRT of the treatment processes used in onsite ~~blackwater~~sewage treatment systems shall be validated in accordance with Section 803.3.

TABLE 803.1
LOG REDUCTION TARGETS FOR ONSITE ~~BLACKWATER~~SEWAGE TREATMENT SYSTEMS

(portions of table not shown remain unchanged)

803.2 Effluent Water Quality Parameters. ~~Blackwater~~Sewage treatment systems shall be designed to meet the effluent water quality parameters for water closet and urinal fixture use listed in Table 803.2.

803.4 Health and Safety. Treated ~~blackwater~~sewage shall not create a nuisance or odor, nor threaten human health, or damage the quality of surface water or groundwater.
803.5 Monitoring. Monitoring of onsite ~~blackwater~~sewage treatment systems shall be based on the risk level in accordance with Table 803.5(1).

804.0 System Requirements.
804.1 General. Onsite ~~blackwater~~sewage treatment systems shall be installed in accordance with Section 804.2 through Section 804.8.
804.2 Material Compatibility. Onsite ~~blackwater~~sewage treatment systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system.
804.3 Connections to Potable or Reclaimed (Recycled) Water Systems. ~~Blackwater~~Sewage treatment systems shall have no direct connection to any potable water supply or reclaimed (recycled) water source system. Potable water or reclaimed (recycled) water shall be permitted to be used as makeup water for a ~~blackwater~~sewage treatment system provided the potable or reclaimed (recycled) water supply connection is protected by an airgap.
804.4 Bypass Connection. A bypass shall be provided for the input connection to the ~~blackwater~~sewage treatment system. The bypass shall be a diverter valve normally open to the ~~blackwater~~sewage treatment system. The normally closed port of the diverter valve shall be connected directly to the plumbing drainage system according to the plumbing code.
804.5 Overflow Connection. ~~Blackwater~~Sewage treatment overflow shall be connected directly to the plumbing drainage system. The overflow shall be provided with a backwater valve at the point of connection to the plumbing drainage system. The backwater valve shall be accessible for inspection and maintenance.
804.6 Fail-safe Mechanisms. ~~Blackwater~~Sewage treatment systems shall be equipped with an automatic shutdown of the treatment process when a malfunction occurs.
804.7 Flow Meter Totalizer. Buildings with ~~blackwater~~sewage treatment systems shall include a flow meter totalizer on the treated ~~blackwater~~sewage distribution system and a flow meter totalizer on the potable make-up water connection to the ~~blackwater~~sewage treatment system.

805.0 Commissioning.
805.1 General. Onsite ~~blackwater~~sewage treatment systems shall be commissioned in accordance with the requirements of Section 805.2 through Section 805.5.
805.2 Requirements. Commissioning for ~~blackwater~~sewage treatment systems shall be included in the design and construction processes of the project. Commissioning shall be performed by a person who demonstrates competency in commissioning ~~blackwater~~sewage treatment systems as required by the Authority Having Jurisdiction.
805.3 Plan. The construction documents shall include the commissioning plan for the ~~blackwater~~sewage treatment system. The commissioning plan shall be approved by the Authority Having Jurisdiction prior to commissioning the ~~blackwater~~sewage treatment system. The commissioning plan shall include the following:
(1) – (8) (remaining text unchanged)
805.4 Performance Testing. Performance tests shall verify that the installation and operation of the equipment of the ~~blackwater~~sewage treatment system is in accordance with the approved plans and specifications. The performance test report shall include the equipment tested, the testing methods utilized, and proof of proper calibration of the equipment.

807.0 Inspection.
807.1 General. Field inspections shall take place during and after construction while the contractor is onsite to verify that the ~~blackwater~~sewage treatment system components have been properly supplied and installed according to the plans and specifications used for installation. Record drawings shall be maintained with changes to the approved plans by the contractor and available for periodic inspection as needed.

(shown for information purposes only)

221.0 - S -
Sewage. Liquid waste containing animal or vegetable matter in suspension or solution and that may include liquids containing chemicals in solution.

Substantiation:

The term *blackwater*[1] fails to communicate a unique source, fixture, water quality, or treatment level of wastewater and should be replaced with the term *sewage*[2] as defined in the UPC. The use of the term *blackwater* in Chapter 8, including the definition and $\log_{10}$ treatment targets, is entirely based on municipal sewage, which conflates its definition with *sewage* and fails to present a clear public understanding of its use.

The term *blackwater* is not used or referenced in federal regulations and is not used in state plumbing or sanitation codes, with the limited exception of Florida[3] and New Jersey (administrative)[4]. Neither of the primary plumbing codes uses the term. In 2020, WE•Stand adopted the term during inclusion of the On-Site Nonpotable Water Reuse chapter, currently Chapter 8.

At the time of adoption, the Technical Committee was informed that *blackwater* is a vernacular industry term used primarily in guidance documents to describe wastewater intended for reuse, but that it does not appear in any other national standard. Guidance documents frequently rely on subjective, color based terminology such as blackwater, graywater, dark graywater, yellow water, and brown water. While there was general agreement that including the term was not ideal, rejecting the remainder of the chapter solely due to terminology was not considered acceptable by the proponent or the majority of the Technical Committee.

Moreover, Technical Committee members noted that *blackwater* is often informally interpreted as a subset of sewage (or domestic sewage) that excludes chemicals or other waste streams. However, this interpretation does not align with municipal or on site wastewater treatment practices, including those currently recognized within WE•Stand, where wastewater streams are commonly combined and treated as sewage. It also does not align with the scientific research and public health risk modeling that underpin Chapter 8, which are based on pathogen concentrations, exposure pathways, and treatment targets derived from municipal sewage.

Current Use in WE•Stand

The current WE•Stand log reduction treatment targets for blackwater reuse in Chapter 8 (Section 803.1) are based on treatment targets developed for municipal sewage. The underlying research and scientific framework used to establish these targets relies on public health risk assumptions associated with wastewater reuse.

These assumptions are derived from pathogen dynamics, dose-response models, and $\log_{10}$ pathogen reduction targets developed specifically for untreated municipal sewage. Within this framework, the researchers use the term *wastewater* as defined as sewage (under either plumbing code), and the associated treatment targets are based on pathogen concentrations and exposure pathways characteristic of municipal sewer systems. They do not find justification for different levels of treatment for specific fixtures or other subsets of waste streams that could be considered *blackwater*.

Regulatory Perspective

I surveyed state and municipal regulators in jurisdictions where these systems have been installed. Their plumbing codes do not contain the term *blackwater*, and regulators generally interpret the term as including discharges from water closets, toilets, and urinals. They also agree that these discharges are often combined with other wastewater sources such as laundry or kitchen wastewater and that, in practical terms, *blackwater* is *sewage*.

> "Using the definition that I follow for blackwater, there is no instance where blackwater is not sewage." — Oregon Department of Environmental Quality

> "Blackwater includes graywater and kitchen sinks in addition to human sanitary waste or wastewater from toilets, urinals, and bidets. The terms *sewage* or *domestic sewage* are all encompassing and blackwater would fall under either definition." — San Francisco Public Utilities

Engineering and Practice

I also surveyed engineers who have designed, built, and operated water reuse systems. These professionals consistently apply state or federal sewage treatment and discharge standards when designing reuse systems. Current design practice aligns reuse system treatment with one of the four categories in Chapter 8 (Section 803.1): wastewater (sewage), graywater, stormwater, and roof runoff. When engineers design wastewater reuse systems, they often include all building wastewater streams in a single system. This approach maximizes recycled water volume while amortizing permitting, design, and operational costs across one treatment system.

> "Often, to optimize building water reuse, source water collection combines all wastewater to a single point for treatment and disinfection, which is the most cost effective. This avoids multiple permits, inspections, and long term compliance. Building scale projects are typically not served well by having multiple treatment systems from different wastewater sources." — Pete Muñoz, PE, Biohabitats

Plumbers are often left making difficult decisions in the field, and the plumbing code must be specific; the terms we use are critical for public safety.

> "Most definitions of sewage include bodily wastes but could include other serious contaminants. I think the term blackwater is intended to focus on discharges that include fecal matter and other bodily wastes. Sewage would be a broader term in my opinion… As a plumber, most things are sewage to me and need to be handled with the proper treatment facility."

Recommendation

Based on regulatory interpretation, engineering practice, and the scientific foundation for treatment targets within Chapter 8, it is recommended that the term *blackwater* be removed from WE•Stand and replaced with the term *sewage*, which is already clearly defined in the Uniform Plumbing Code[2], scientifically supported, and used consistently across plumbing and sanitation standards.

References

[1]Blackwater (WE•Stand)- Waste water containing bodily or other biological wastes discharged from toilets and kitchen sink waste.

[2] Sewage (UPC) - Liquid waste containing animal or vegetable matter in suspension or solution and that may include liquids containing chemicals in solution.

[3] Florida Statutes, Section 381.0065, Onsite sewage treatment and disposal systems, regulation; “Blackwater” means that part of domestic sewage carried off by toilets, urinals, and kitchen drains.

[4] New Jersey Administrative Code, N J A C 7:9A, Standards for Individual Subsurface Sewage Disposal Systems; "Blackwater" means any sanitary sewage generated within a residential, commercial or institutional facility which includes discharges from water closets, toilets, urinals or similar fixtures alone or in combination with other wastewater. Blackwater generally does not include laundry or kitchen wastewater.

Committee Action:

Accept As Submitted

Committee Statement:

The committee agrees with updating the terminology from “blackwater” to “sewage” throughout the WEStand. The committee also recognizes that sections and tables in Item #003 PC 3 are also in the following comments: Item #062 PC 1 (§§104.1, 106.2.1, 106.3, 106.3.1, 108.1, 108.6, 109.1); Item #068 PC 1 (§804.1); Item #082PC 1 (§801.1); Item #083 PC 1 (§801.2); Item #085 PC 1 (§§802.1, 802.1.2); Item #087 PC 1 (Table 803.1); Item#087 PC 2 (§803.2); and Item #089 PC 1 (§§804.3, 804.4, 804.6, 804.7, 805.2, 805.3, 805.4, 807.1). The committee recognizes that those recommended comments stand-alone and remain in place, and that this terminology update will also be included.

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:

Braband, Kendzel, Koeller, Layton, A. Smith

Comment 4

Item #:	Code Number:	Sections(s):
003	2023 WE-Stand	204.0, 206.0, Chapter 1, Chapter 8

Submitter Name:
Pat Lando

Organization Name:
Recode

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to replace the code change proposal by this public comment.

204.0 - B -
~~**Blackwater.** Waste water containing bodily or other biological wastes discharged from toilets and kitchen sink waste.~~

206.0 - D -
Domestic Sewage. The liquid and water-borne wastes derived from the ordinary living processes, free from industrial wastes, and of such character as to permit satisfactory disposal, without special treatment, into the public sewer or by means of a private sewage disposal system.

104.0 Permits.
104.1 Permits Required. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~domestic sewage treatment system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.

106.0 Inspections and Testing.

106.2 Required Inspections. (remaining text unchanged)
106.2.1 Uncovering. Where a urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~domestic sewage treatment system, or part thereof, which is installed, altered, or repaired, is covered or concealed before being inspected, tested, and approved as prescribed in this standard, it shall be uncovered for inspection after notice to uncover the work has been issued to the responsible person by the Authority Having Jurisdiction. The requirements of this section shall not be considered to prohibit the operation of the urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~domestic sewage treatment system installed to replace existing equipment serving an occupied portion of the building in the event a request for inspection of such equipment has been filed with the Authority Having Jurisdiction not more than 72 hours after such replacement work is completed, and before a portion of system is concealed by a permanent portion of the building.

106.3 Testing of Systems. The urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~domestic sewage treatment system shall be tested and approved in accordance with this standard or the Authority Having Jurisdiction. Tests shall be conducted in the presence of the Authority Having Jurisdiction or the Authority Having Jurisdiction's duly appointed representative.

No test or inspection shall be required where a composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~domestic sewage treatment system, or part thereof, is set up for exhibition purposes and has no connection with water or the drainage system. In cases where it would be impractical to provide the required water or air tests, or for minor installations and repairs, the Authority Having Jurisdiction shall be permitted to make such inspection as deemed advisable in order to be assured that the work has been performed in accordance with the intent of this standard. Joints and connections in the composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~domestic sewage treatment system shall be airtight, gastight and watertight for the pressures required by the test.

106.3.1 Defective Systems. In buildings or premises condemned by the Authority Having Jurisdiction because of an insanitary condition of a composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~domestic sewage treatment system, or part thereof, the alterations in such system shall be in accordance with the requirements of this standard.

108.0 Violations and Penalties.

108.1 General. It shall be unlawful for a person, firm, or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, equip, use, or maintain a urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~domestic sewage treatment system, materials, equipment, appurtenances, and other associated components or permit the same to be done in violation of this standard.

108.6 Authority to Condemn. Where the Authority Having Jurisdiction ascertains that a urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~domestic sewage treatment system or portion thereof, regulated by this standard, has become hazardous to life, health, or property, or has become insanitary, the Authority Having Jurisdiction shall order in writing that such system, either be removed or placed in a safe or sanitary condition. The order shall fix a reasonable time limit for compliance. No person shall use or maintain a defective system after receiving such notice. Where such system is to be disconnected, written notice shall be given. In cases of immediate danger to life or property, such disconnection shall be permitted to be made immediately without such notice.

109.0 Board of Appeals.

109.1 General. In order to hear and decide appeals of orders, decisions, or determinations made by the Authority Having Jurisdiction relative to the application and interpretations of this standard, there shall be and is hereby created a Board of Appeals consisting of members who are qualified by experience and training to pass upon matters pertaining to composting toilet, urine diversion system, alternate water source system, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or ~~blackwater~~domestic sewage treatment system design, construction, and maintenance and the public health aspects of such systems and who are not employees of the jurisdiction. The Authority Having Jurisdiction shall be an ex-officio member and shall act as secretary to said board but shall have no vote upon a matter before the board. The Board of Appeals shall be appointed by the governing body and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business and shall render decisions and findings in writing to the appellant with a duplicate copy to the Authority Having Jurisdiction.

CHAPTER 8
ONSITE ~~BLACKWATER~~DOMESTIC SEWAGE TREATMENT SYSTEMS

801.0 General.

801.1 Applicability. The provisions of this chapter shall apply to the water quality, monitoring, design, construction, alteration, repair, and operation requirements of onsite ~~blackwater~~domestic sewage treatment systems for nonpotable reuse.

801.2 Allowable Use of ~~Blackwater~~Domestic Sewage. Where approved or required by the Authority Having Jurisdiction, ~~blackwater~~domestic sewage shall be permitted to be used in lieu of potable water for uses such as, but not limited, to water closets, urinals, clothes washers, ornamental plant irrigation, and dust suppression.

801.3 Permit. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any onsite ~~blackwater~~domestic sewage treatment system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.

801.4 Qualifications. Onsite ~~blackwater~~domestic sewage treatment systems complying with this chapter shall be designed by a registered design professional.

802.0 System Design.

802.1 Requirements. Onsite ~~blackwater~~domestic sewage treatment systems shall comply with Section 802.1.1 or Section 802.1.2.

802.1.1 Listed Systems. Onsite ~~blackwater~~domestic sewage treatment systems shall be comply with NSF/ANSI 350, shall be installed in accordance with the manufacturer's installation instructions, and shall be commissioned in accordance with Section 805.0.

802.1.2 Engineered Systems. Engineered onsite ~~blackwater~~domestic sewage treatment systems shall be in accordance with Section 803.0 through Section 807.0.

803.0 Design Requirements.

803.1 Log Reduction Targets. Onsite ~~blackwater~~domestic sewage treatment systems shall be designed to achieve the log reduction targets (LRT) in accordance with Table 803.1. The LRT of the treatment processes used in onsite ~~blackwater~~domestic sewage treatment systems shall be validated in accordance with Section 803.3.

TABLE 803.1
LOG REDUCTION TARGETS FOR ONSITE ~~BLACKWATER~~DOMESTIC SEWAGE TREATMENT SYSTEMS

(portions of table not shown remain unchanged)

803.2 Effluent Water Quality Parameters. ~~Blackwater~~Domestic sewage treatment systems shall be designed to meet the effluent water quality parameters for water closet and urinal fixture use listed in Table 803.2.

803.4 Health and Safety. Treated ~~blackwater~~domestic sewage shall not create a nuisance or odor, nor threaten human health, or damage the quality of surface water or groundwater.

803.5 Monitoring. Monitoring of onsite ~~blackwater~~domestic sewage treatment systems shall be based on the risk level in accordance with Table 803.5(1).

804.0 System Requirements.

804.1 General. Onsite ~~blackwater~~domestic sewage treatment systems shall be installed in accordance with Section 804.2 through Section 804.8.

804.2 Material Compatibility. Onsite ~~blackwater~~domestic sewage treatment systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system.

804.3 Connections to Potable or Reclaimed (Recycled) Water Systems. ~~Blackwater~~Domestic sewage treatment systems shall have no direct connection to any potable water supply or reclaimed (recycled) water source system. Potable water or reclaimed (recycled) water shall be permitted to be used as makeup water for a ~~blackwater~~domestic sewage treatment system provided the potable or reclaimed (recycled) water supply connection is protected by an airgap.

804.4 Bypass Connection. A bypass shall be provided for the input connection to the ~~blackwater~~domestic sewage treatment system. The bypass shall be a diverter valve normally open to the ~~blackwater~~domestic sewage treatment system. The normally closed port of the diverter valve shall be connected directly to the plumbing drainage system according to the plumbing code.

804.5 Overflow Connection. ~~Blackwater~~Domestic sewage treatment overflow shall be connected directly to the plumbing drainage system. The overflow shall be provided with a backwater valve at the point of connection to the plumbing drainage system. The backwater valve shall be accessible for inspection and maintenance.

804.6 Fail-safe Mechanisms. ~~Blackwater~~Domestic sewage treatment systems shall be equipped with an automatic shutdown of the treatment process when a malfunction occurs.

804.7 Flow Meter Totalizer. Buildings with ~~blackwater~~domestic sewage treatment systems shall include a flow meter totalizer on the treated ~~blackwater~~domestic sewage distribution system and a flow meter totalizer on the potable make-up water connection to the ~~blackwater~~domestic sewage treatment system.

805.0 Commissioning.

805.1 General. Onsite ~~blackwater~~domestic sewage treatment systems shall be commissioned in accordance with the requirements of Section 805.2 through Section 805.5.

805.2 Requirements. Commissioning for ~~blackwater~~domestic sewage treatment systems shall be included in the design and construction processes of the project. Commissioning shall be performed by a person who demonstrates competency in commissioning ~~blackwater~~domestic sewage treatment systems as required by the Authority Having Jurisdiction.

805.3 Plan. The construction documents shall include the commissioning plan for the ~~blackwater~~domestic sewage treatment system. The commissioning plan shall be approved by the Authority Having Jurisdiction prior to commissioning the ~~blackwater~~domestic sewage treatment system. The commissioning plan shall include the following:

(1) – (8) (remaining text unchanged)

805.4 Performance Testing. Performance tests shall verify that the installation and operation of the equipment of the ~~blackwater~~domestic sewage treatment system is in accordance with the approved plans and specifications. The performance test report shall include the equipment tested, the testing methods utilized, and proof of proper calibration of the equipment.

807.0 Inspection.

807.1 General. Field inspections shall take place during and after construction while the contractor is onsite to verify that the ~~blackwater~~domestic sewage treatment system components have been properly supplied and installed according to the plans and specifications used for installation. Record drawings shall be maintained with changes to the approved plans by the contractor and available for periodic inspection as needed.

Substantiation:

The term *blackwater*[1] fails to communicate a unique source, fixture, water quality, or treatment level of wastewater and should be replaced with the term *domestic sewage*[2] as defined in the UPC. The use of the term *blackwater* in Chapter 8, including the definition and $\log_{10}$ treatment targets, is entirely based on municipal sewage, which conflates its definition with *domestic sewage* and fails to present a clear public understanding of its use.

The term *blackwater* is not used or referenced in federal regulations and is not used in state plumbing or sanitation codes, with the limited exception of Florida[3] and New Jersey (administrative)[4]. Neither of the primary plumbing codes uses the term. In 2020, WE•Stand adopted the term during inclusion of the On-Site Nonpotable Water Reuse chapter, currently Chapter 8.

At the time of adoption, the Technical Committee was informed that *blackwater* is a vernacular industry term used primarily in guidance documents to describe wastewater intended for reuse, but that it does not appear in any other national standard. Guidance documents frequently rely on subjective, color based terminology such as blackwater, graywater, dark graywater, yellow water, and brown water. While there was general agreement that including the term was not ideal, rejecting the remainder of the chapter solely due to terminology was not considered acceptable by the proponent or the majority of the Technical Committee.

Moreover, Technical Committee members noted that *blackwater* is often informally interpreted as a subset of sewage (or domestic sewage) that excludes chemicals or other waste streams. However, this interpretation does not align with municipal or onsite wastewater treatment practices, including those currently recognized within WE•Stand, where wastewater streams are commonly combined and treated as sewage. It also does not align with the scientific research and public health risk modeling that underpin Chapter 8, which are based on pathogen concentrations, exposure pathways, and treatment targets derived from municipal sewage.

Current Use in WE•Stand

The current WE•Stand log reduction treatment targets for blackwater reuse in Chapter 8 (Section 803.1) are based on treatment targets developed for municipal sewage. The underlying research and scientific framework used to establish these targets relies on public health risk assumptions associated with wastewater reuse.

These assumptions are derived from pathogen dynamics, dose-response models, and $\log_{10}$ pathogen reduction targets developed specifically for untreated municipal sewage. Within this framework, the researchers use the term *wastewater* as defined as sewage (under either plumbing code), and the associated treatment targets are based on pathogen concentrations and exposure pathways characteristic of municipal sewer systems. They do not find justification for different levels of treatment for specific fixtures or other subsets of waste streams that could be considered *blackwater*.

Regulatory Perspective

I surveyed state and municipal regulators in jurisdictions where these systems have been installed. Their plumbing codes do not contain the term *blackwater*, and regulators generally interpret the term as including discharges from water closets, toilets, and urinals. They also agree that these discharges are often combined with other wastewater sources such as laundry or kitchen wastewater and that, in practical terms, *blackwater* is *sewage*.

> "Using the definition that I follow for blackwater, there is no instance where blackwater is not sewage." — Oregon Department of Environmental Quality

> "Blackwater includes graywater and kitchen sinks in addition to human sanitary waste or wastewater from toilets, urinals, and bidets. The terms *sewage* or *domestic sewage* are all encompassing and blackwater would fall under either definition." — San Francisco Public Utilities

Engineering and Practice

I also surveyed engineers who have designed, built, and operated water reuse systems. These professionals consistently apply state or federal sewage treatment and discharge standards when designing reuse systems. Current design practice aligns reuse system treatment with one of the four categories in Chapter 8 (Section 803.1): wastewater (sewage), graywater, stormwater, and roof runoff. When engineers design wastewater reuse systems, they often include all building wastewater streams in a single system. This approach maximizes recycled water volume while amortizing permitting, design, and operational costs across one treatment system.

> "Often, to optimize building water reuse, source water collection combines all wastewater to a single point for treatment and disinfection, which is the most cost effective. This avoids multiple permits, inspections, and long term compliance. Building scale projects are typically not served well by having multiple treatment systems from different wastewater sources." — Pete Muñoz, PE, Biohabitats

Plumbers are often left making difficult decisions in the field, and the plumbing code must be specific; the terms we use are critical for public safety.

> "Most definitions of sewage include bodily wastes but could include other serious contaminants. I think the term blackwater is intended to focus on discharges that include fecal matter and other bodily wastes. Sewage would be a broader term in my opinion… As a plumber, most things are sewage to me and need to be handled with the proper treatment facility."

Recommendation

Based on regulatory interpretation, engineering practice, and the scientific foundation for treatment targets within Chapter 8, it is recommended that the term *blackwater* be removed from WE•Stand and replaced with the term *domestic sewage*, which is already clearly defined in the Uniform Plumbing Code[2], scientifically supported, and used consistently across plumbing and sanitation standards.

References

[1] Blackwater (WE•Stand) - Waste water containing bodily or other biological wastes discharged from toilets and kitchen sink waste.

[2] Domestic Sewage (UPC) - The liquid and water-borne wastes derived from the ordinary living processes, free from industrial wastes, and of such character as to permit satisfactory disposal, without special treatment, into the public sewer or by means of a private sewage disposal system.

[3] Florida Statutes, Section 381.0065, Onsite sewage treatment and disposal systems, regulation; "Blackwater" means that part of domestic sewage carried off by toilets, urinals, and kitchen drains.

[4] New Jersey Administrative Code, N J A C 7:9A, Standards for Individual Subsurface Sewage Disposal Systems; "Blackwater" means any sanitary sewage generated within a residential, commercial or institutional facility which includes discharges from water closets, toilets, urinals or similar fixtures alone or in combination with other wastewater. Blackwater generally does not include laundry or kitchen wastewater.

Committee Action:

Reject

Committee Statement:

Public Comment #4 is being rejected in favor of the action taken on Public Comment #3.

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:

Braband, Kendzel, Koeller, Layton, A. Smith

Item #:
004

Code Number:
2023 WE-Stand

Section Number:
206.0

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Add new text

Proposed Text :

206.0 - D -
Dust Suppression. The application of water to control or reduce airborne particulates generated by ground disturbance from site development, construction, or transportation activities.

SUBSTANTIATION:
Dust suppression is listed as an allowable use for effluent from onsite treatment systems in the WEStand, and an appropriate definition is needed to support such allowances. The proposed description is specific to references of this term throughout the standard as it addresses the application of water and lists the applicable types of ground disturbances.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
14	12	0	3

Failed Ballot Disclaimer:
NOTE: Item #004 failed to achieve the necessary 2/3 affirmative vote of returned ballots. In accordance with Section 6.8.2 of the Regulations Governing Consensus Development of WEStand, a public comment is requested for this proposal. The technical committee will reconsider this proposal as a public comment.

EXPLANATION OF NEGATIVE:
CUDAHY: I agree with Kyle Thompson. Codes should approach definitions carefully. We are not building a dictionary.

KENDZEL: A definition is not needed because the term is self-explanatory.

KLEIN: The definition is not needed.

LANDO: The definition is not needed.

MANN: While I agree that this definition is not required, I am bothered by the fact that the negative comments refer to the WEStand as a code. The WEStand is not a code; it is a standard.

NICKELSON: This definition is not needed as it is a common term.

PREMER: This definition is not needed.

RIBBS: A definition is not needed because the term is self-explanatory.

B. SMITH: A definition is not needed because the term is self-explanatory.

THOMPSON: Codes are not intended to serve as encyclopedias of terms and definitions. Only novel terms or common terms used in novel ways within the text of a code require definitions. An online search for "definition of dust suppression" returns the following as the first result: "Dust suppression is the process of controlling and reducing airborne dust particles in various environments."

The proposed definition in this item closely reflects that response, indicating there is no novelty in either the definition or the use of the term within the code. Therefore, there is no need to include this term in Chapter 2 (Definitions) of the WEStand.

TSENG: A definition is not needed because the term is self-explanatory.

WHITE: A definition is not needed because the term is self-explanatory.

VOTES NOT RETURNED:
Crawford, Granger, A. Smith

Comment 1

Item #:	**Code Number:**	**Sections(s):**
004	2023 WE-Stand	206.0

Submitter Name:	**Organization Name:**	**Organization Representation:**
Markus Lenger	WEStand Log Reduction Targets Task Group (Chair)	

Recommendation:
Accept the Code Change Proposal as Submitted

Proposed Text:

Request to accept the code change proposal **as submitted** by this public comment.

Substantiation:
Dust suppression is introduced as a defined term because it appears as a designated allowable use for onsite treated nonpotable water in the LRT tables and allowable use provisions throughout the standard, and a clear definition is necessary to establish a consistent boundary between dust suppression and other water application activities. The definition focuses on the control of airborne particulates generated by ground disturbance from site development, construction, or transportation activities. This provides a straightforward description that supports related provisions in the WEStand without prescribing specific performance criteria.

Committee Action:
Reject

Committee Statement:
Including a definition for “dust suppression” is unnecessary, as the term is commonly understood and does not represent a novel concept or a specialized application within the code that would require a formal definition.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
20	4	0	5

EXPLANATION OF NEGATIVE:
HARLAN: The substantiation supports the proposed change.

KEHOE: I agree with the other comments.

NOKHOUDIAN: The definition provides a straightforward description that supports related provisions in the WEStand.

OSANN: I agree with the proponent's substantiation.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
006

Code Number:
2023 WE-Stand

Section Number:
214.0

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

214.0 - L -
Log_{10} Reduction Target (LRT). ~~The log_{10} reduction target for the specified~~A biological performance criterion for onsite treatment systems; a cumulative logarithmic reduction assigned to a particular pathogen group (e.g., viruses, bacteria, or protozoa) ~~to achieve the~~corresponding to an identified level of risk to individuals~~ (e.g., 10^{-4} infection per year)~~.

SUBSTANTIATION:
The definition of "Log_{10} Reduction Target" (LRT) is being updated for technical accuracy. Log reduction targets for onsite treatment systems serve as biological performance criteria because they quantify a system's effectiveness in removing or inactivating biological contaminants, including bacteria, viruses, and protozoa. These targets are expressed as cumulative logarithmic reductions assigned to specific pathogen groups and represent the minimum reduction required for a treatment system to be considered effective in pathogen removal or inactivation.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:
25

NEGATIVE:
0

ABSTAIN:
0

NOT RETURNED:
4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
006

Code Number:
2023 WE-Stand

Sections(s):
214.0

Submitter Name:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

214.0 - L -
Log_{10} Reduction Target (LRT). A biological performance ~~criterion~~parameter (envelope) for onsite treatment systems~~; a~~ that establishes the minimum cumulative logarithmic reduction ~~assigned to a~~in pathogen concentration for particular pathogen groups (~~e.g.,~~ viruses, bacteria, or protozoa) corresponding to ~~an identified~~a specified level of risk ~~to individuals~~reduction.

Substantiation:
The LRT functions as a performance boundary and establishes the minimum cumulative log reduction that a treatment system must achieve for each pathogen group. The envelope concept conveys that while systems must meet the specified threshold, they are permitted to exceed it, which is more consistent with how LRTs operate as quantifiable design objectives within a risk-based framework. The updated wording also shifts the framing from exposure risk to treatment performance as this better reflects the role of LRTs in onsite treatment system design and aligns with current microbial risk assessment terminology.

Committee Action:
Reject

Committee Statement:
The committee prefers the definition as presented in the original proposal. This public comment introduces additional qualifiers and terminology that increase complexity without improving clarity.

Failed Ballot Disclaimer:
NOTE: Item #006 PC 01 failed to achieve the necessary 2/3 affirmative vote of returned ballots. In accordance with Section 7.7 of the Regulations Governing Consensus Development of WEStand, the TC action on the Comment shall be reported in the ROC as rejected.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
8	16	0	5

EXPLANATION OF NEGATIVE:
ALLEN: I agree with the other comments.

CRAWFORD: I agree with Taylor Nokhoudian's comments. The proposed definition provides a clearer definition of log reduction target.

GRANGER: The proposed definition provides a clearer definition of "log reduction target."

HARLAN: The proposed definition provides a clearer definition of “log reduction target.”

KEHOE: I agree with the other comments.

LANDO: The proposal includes important terms that provide a better definition. Specifically, the terms "parameter" and "minimum" are critical changes that should be accepted.

LANSING: I agree with the other comments.

LENGER: These are clearer terms. I agree with the comments by Taylor Nokhoudian and others.

NICKELSON: I agree with Pat Lando that there are some further important clarifying terms included in the revised definition in Comment 01.

NOKHOUDIAN: The proposed definition provides a clearer definition of “log reduction target.”

OSANN: I agree with comment by Taylor Nokhoudian.

PREMER: I am in agreement with the other comments.

RIBBS: The proposal includes two important terms that provide a better definition. Specifically, the terms "parameter" and "minimum" are critical changes that should be accepted.

SOVOCOOL: After reviewing the comments and the change, I am changing my vote to negative as I think the changes suggested by the comment and reiterated by the commenters here are needed.

THOMPSON: This revised definition more accurately reflects the way the term is used in the WEStand, compared to the original proposal.

TSENG: I agree with Pat Lando's rationale.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
008

Code Number:
2023 WE-Stand

Section Number:
Table 402.1

SUBMITTER:
Edward Osann

Organization Name:
Self

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

TABLE 402.1
MAXIMUM FLOW RATES FOR FIXTURE FITTINGS

FIXTURE TYPE	MAXIMUM FLOW RATE[1]
RESIDENTIAL	
Water closets	1.1 gpf
NON-RESIDENTIAL	
Water closets	1.28 gpf
BOTH RESIDENTIAL AND NON-RESIDENTIAL	
~~Water closets~~	~~1.28 gpf~~

(portions of table not shown remain unchanged)

SUBSTANTIATION:
This proposal will revise the maximum flush volume for water closets in residential buildings to 1.1 gallons per flush (gpf), while leaving the maximum flush volume for water closets installed in non-residential buildings unchanged at 1.28 gpf.

Water closets that operate at 1.1 gpf or less are now available from dozens of manufacturers. Their performance has been tested by MaP, and as of January 2025, 467 models of tank-type toilets from 41 brands were found to rate "MaP Premium", indicating that they have successfully passed waste loads of 600 grams, substantially higher than the EPA WaterSense criteria for bowl evacuation. Flushometer valve toilets are also available that perform well at 1.1 gpf -- 104 bowl/valve combinations from 11 brands have received the MaP Premium rating. See <www.map-testing.com>.

The proposal is confined to residential applications to mitigate concerns about the impact of reduced flush volume on the movement of solid waste through extended wastewater drains serving commercial and industrial facilities with considerable building setbacks. Also, it is frequently noted that some commercial applications, e.g., warehouses, have little or no ancillary flows other than those from a toilet room.

In contrast, wastewater drains and sewer mains serving occupied residential buildings receive flows daily from the full range of domestic water uses, including showering, hand washing, tooth brushing, dishwashing, and clothes washing, among others. Residential sewer service lines are generally shorter than those at commercial and industrial locations.

The proposed shift from 1.28 gpf to 1.1 gpf results in a savings of about 0.9 gallons per capita per day. Using the REUWS 2 finding of 58.6 gpcd of indoor water use in single-family homes, this reduction represents about 1.5% of the daily sewage flow from a residence, unlikely to have a material impact on solids transport in building drains.

Yet while the savings are modest at the household level, the cumulative impact of this shift will be valuable to the nation's drinking water utilities. Due to the vagaries of the hydrological cycle, most water utilities operate with some form of carry-over storage, to better maintain reliability during droughts and other supply emergencies. Small savings accumulated year after year can be stored to provide utilities with a greater cushion against the need for curtailments when supply challenges arise. WEStand should embrace the efficient toilet technology available today to better prepare adopting jurisdictions for the inevitable water management challenges that are approaching in the years ahead.

Committee Action:
Reject

Committee Statement:
There are concerns about potential conflicts with the plumbing code and other existing regulations. Reducing flow rates may also negatively impact the performance of the drainage system, as existing piping was originally designed for higher flows that aided in the transport of effluent and waste through the sewer system. Additionally, further justification is needed to support prescribing different flow rates for residential and non-residential fixtures.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
17	8	0	4

EXPLANATION OF NEGATIVE:
KEHOE: I need additional information. The comments indicate that more information is needed.

KENDZEL: It is hard to argue with John Koeller on this one. He has convinced me to change my vote.

KLEIN: John Koeller makes some excellent points.

KOELLER: After reading the committee statement, I concluded that a full and complete discussion did not occur at the committee meeting. With respect to that statement, concerns about "potential conflicts with the plumbing code" are meaningless without identifying those conflicts. After all, WEStand is a stretch code (or standard) for water efficiency. As such, throughout WEStand and the proposals being considered for the next version, there are many supposed conflicts. To not consider this significant change to WEStand based upon the cited reasoning in the committee statement is to avoid trends already in place and thereby defer consideration for another 2 or 3 years.

Second, comments citing PERC as it relates to drain line carry are irrelevant. The PERC studies were not directed at residential dwellings as covered in this proposal. In fact, PERC was focused entirely upon commercial applications where little supplemental water was available (as in residential dwellings), drainline lengths are longer, drainline slopes are specified differently, and water closet usage can sometimes be considered more aggressive. That is, abusive use and the flushing of products other than human waste and toilet paper. Instead of PERC, the dominant study for residential drainlines in reduced flow environments is the 20-year-old study conducted on behalf of the Canada Mortgage and Housing Corporation. That study's purpose was to examine the feasibility of 0.8 gpf (3.0 L) water closets in single-family residential applications. It showed that, with the shorter drainline distances to the sewer, 0.8 gpf was sufficient to transport the waste without any supplemental water as normally provided in the home by showers and clothes washers. Plus, of course, water closets in the home do not generally suffer from the abuse mentioned above.

As a direct result of the 2005 study findings, hundreds of thousands of 0.8 gpf water closets have been successfully installed and are operating in the U.S. and Canada. Note that the current proposal on the table for WEStand is not for 0.8 gpf water closets, but rather 1.1 gpf water closets in residential only.

1.0 and 1.1 gpf water closets first entered the U.S. market in 2000 and 2001, so the products are mature and manufactured by over 3 dozen companies. Our organization, Maximum Performance (MaP) Testing, currently lists 454 different models of water closets that comply with the 1.1 gpf limitation, all of which are certified to the U.S. EPA WaterSense specification as well. (https://map-testing.com/wp-content/uploads/2025/05/2025-05-02-ALL_MaP_PREMIUM-HETs.pdf)

These water closet models are being rebated by water utilities in California, Seattle, Denver, Atlanta, and elsewhere and installed in aging and new homes in those areas. In Southern California alone, for example, over 400,000 such 1.1 gpf (or less) water closets were installed in homes by 2023.

Finally, as additional background, the California Energy Commission (CEC) is in the process of evaluating and adopting new regulations for water closets, including a mandate that the sale and installation of all new water closets in the state be limited to 1.1 gpf models. That proposal was for models installed in both residential and commercial installations. Advocacy groups (including MaP) have been engaged in attempting to change that thinking to residential only, given that water closets in commercial and industrial applications are quite different in their demands upon the plumbing system. We hope the CEC will agree and focus their attention instead upon residential, working in conjunction with the code-writing bodies.

SUMMARY:
(1) The PERC study is not applicable to this proposal; instead, the CMHC study addresses residential drainlines.
(2) Water closets functioning at 1.1 gpf or less have existed in the marketplace and in homes for 25 years; to my knowledge, customers/users/homeowners are overwhelmingly satisfied with them.
(3) Millions of 0.8 gpf, 1.0 gpf, and 1.1 gpf models have been installed as replacements in older homes in the U.S. and Canada, especially in California.
(4) Water closets in residential and commercial installations experience vastly different demands by users; to classify them as performing in identical environments is wrong.
(5) In our current MaP list of 1.1 gpf (or less) water closets, there are 454 product models not only certified to the WaterSense specification; all meet more aggressive performance requirements than the current ASME/CSA product standard requires.

1.1 gpf water closets in residential applications are a natural evolution in product development and should be recognized in a stretch code and standard such as WEStand.

I urge members to reconsider their vote to “reject” and avail themselves of all the technical and other information at hand before finalizing their vote.

KUCHTA: Although 1.1 gpf water closets are more common, issues with adequate carry in the pipes have been observed. It is recommended not to lower the current flow rate.

LANDO: John Koeller does a great job supporting a negative vote.

LENGER: I agree with Ed Osann and John Koeller.

OSANN: The original substantiation provides ample justification for the adoption of this proposal. There will be no conflict with the plumbing code if this provision is included in the 2027 edition of the WEStand and adopted by a state or local code-adopting body.

EXPLANATION OF AFFIRMATIVE:
SOVOCOOL: Recognizing my understanding of the findings of PERC with respect to drainline carry for commercial building slope grades, I am, with reluctance, voting to affirm the group's decision. If there is evidence showing no inhibition of waste transport at the potentially more forgiving drainline slopes used in other types of developments, I could be persuaded to support the proposal by casting a negative vote. However, I also note that the conflict with other codes and standards is a significant concern and would need to be addressed comprehensively in future follow-up work.

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
008

Code Number:
2023 WE-Stand

Sections(s):
Table 402.1

Submitter Name:
Edward Osann

Organization Name:
Self

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

TABLE 402.1
MAXIMUM FLOW RATES AND WATER CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

FIXTURE TYPE	MAXIMUM FLOW RATE OR WATER CONSUMPTION[1]
RESIDENTIAL	
Water closets (single-family dwellings)	1.1 gpf
Water closets (residences other than single-family dwellings)	1.28 gpf
NON-RESIDENTIAL	
Water closets	1.28 gpf
BOTH RESIDENTIAL AND NON-RESIDENTIAL	
~~Water closets~~	~~1.28 gpf~~

(portions of table not shown remain unchanged)

Substantiation:
The text proposed in this comment is the same as the original text of Item 8, except that in response to concerns expressed about some applications of 1.1 gpf products in high-rise multi-family and mixed-use buildings, the revision of the maximum flush volume for water closets to 1.1 gpf is now limited to single-family dwellings. (The term "single-family dwelling" is not defined in WEStand but is defined in the Uniform Plumbing Code.)

> ***[2024 UPC]***
> ***Single-Family Dwelling.*** *A building designed to be used as a home by the owner of such building, which shall be the only dwelling located on a parcel of ground with the usual accessory buildings.*

While this comment is a bit narrower in scope than the original proposal, the justification is just as compelling as the original. Products meeting this specification are widely available, at various price points and from many manufacturers. In fact, in a January 2026 update, MaP Testing announced that 6 new MaP PREMIUM-rated tank-type and electro-hydraulic toilet models were added to the PREMIUM [1.1 gpf] list, bringing the total to 466 qualified toilet models from 44 different brands, 3 more brands than when Item 8 was originally filed.

The TC reason statement includes concern that this proposal could present a conflict with the plumbing code. This misconstrues the nature of WEStand as a stretch code. WEStand is loaded with provisions that are more stringent than those contained in the base plumbing codes adopted in most jurisdictions in this country. By definition, a stretch code is intended to go beyond minimum requirements and offer code-enforceable language for voluntary adoption by communities where environmental or economic considerations drive a need for high levels of water efficiency. As stated in the Foreword of WEStand:

> "The need for the WEStand is in recognition that with increasing demand, constrained infrastructure and supplies, and pervasive droughts globally, *there is a critical need to reduce water consumption* attributed to the built environment through conservation and reuse." [emphasis added]

Upon adoption, the provisions of WEStand constitute the code in the adopting jurisdiction. Thus, there is no conflict with the code, since WEStand language *is* the code.

The TC statement also sought information to justify different maximum flow rates for residential and commercial applications. The rationale is simply that the proposal is confined to residential applications to mitigate concerns about the impact of reduced flush volume on the movement of solid waste through extended wastewater drains serving commercial and industrial facilities with long building setbacks. The length of some commercial and industrial service lines can greatly exceed the length of typical residential services. While there are a number of strategies that can accommodate high-efficiency water closets on extended sewer service lines, the simplest resolution is to confine the proposal to residential installations, and in this case, to single-family dwellings.

As explained in the original justification, the use of 1.1 gpf water closets (in lieu of 1.28 gpf units) would typically result in a reduction of about 1.5% of the daily sewage flow from a residence, unlikely to have a material impact on solids transport in building drains and residential sewer service lines. Nevertheless, these small increments of savings at the household level are valuable, as they accumulate throughout the year to make more water available for utilities to serve peak summer demands.

The 1.1 gpf water closet has been offered in the US marketplace for more than 20 years, and cumulative installations in both new and existing homes likely exceed one million units. If WEStand is intended to advance water efficiency and incorporate new efficient technologies and designs as they become proven in the real world, the text proposed in this public comment should be approved.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
17	7	1	4

EXPLANATION OF NEGATIVE:
NICKELSON: I agree with Kyle Thompson's comments specific to the sizing of the overall plumbing system. While there is some discussion in the substantiation regarding the waste side of low-flow toilets, there is no discussion or accommodation for the supply side. As stated in the substantiation, the WEStand is a stretch code and should have higher standards; however, in this case, it seems to focus only on a specific fixture while neglecting the supply side of the system. This raises concerns for me regarding pipe sizing and water age within the system.

PREMER: I agree with Kyle Thompson's comment.

RIBBS: I am in support of Kyle Thompson's lengthy opposition. I concur with the initial statement made by the TC for rejecting this proposal.

B. SMITH: I agree with Kyle Thompson's rationale.

THOMPSON: PMI is opposed to this change because the proposed reduction from 1.28 to 1.1 gpf lacks sufficient field-based evidence demonstrating net benefits across the entire water cycle, including potable water quality, wastewater collection and treatment, infrastructure performance, and recycled water production. While the proponents correctly note that 1.1 gpf products are available in the marketplace and that manufacturers can and do achieve satisfactory fixture-level performance under laboratory test conditions, the question before the committee is not only whether such products can be manufactured and sold. The committee must also consider the broader impacts that a reduction in flush volume has on plumbing systems, wastewater collection infrastructure, water quality, public health, and overall system sustainability.

The existing 1.28 gpf requirement already represents a significant advancement in water efficiency, (Federal mandates require 1.6 gpf) and 1.28 gpf water closets have been widely adopted throughout the U.S. and North America. Before reducing the flush volume further, the committee should require compelling evidence that the proposed change will not create unintended consequences elsewhere in the water cycle.

The proposal also fails to adequately address the growing body of research documenting the effects of declining water use on drinking water quality and premise plumbing systems. Reduced fixture flows increase water age within both municipal distribution systems and building plumbing systems, leading to disinfectant decay, stagnation, biofilm formation, and increased risk of opportunistic waterborne pathogens. Researchers, water utilities, public health agencies, and building water quality experts have repeatedly identified reduced water turnover as a contributing factor to the growth of organisms such as Legionella pneumophila and Pseudomonas aeruginosa. Water conservation remains an important objective, but conservation measures should not be evaluated solely on fixture-level savings. The committee must also consider the impacts on maintaining safe, high-quality potable water throughout the distribution and premise plumbing systems that serve building occupants.

Furthermore, reducing flush volumes contributes to increasingly concentrated wastewater streams, creating challenges for wastewater collection systems, treatment facilities, and water reuse programs. Lower flows result in higher concentrations of solids, nutrients, and contaminants in wastewater, increasing the potential for odor generation, hydrogen sulfide formation, corrosion of sewer infrastructure, solids deposition, and additional maintenance requirements.

Numerous wastewater utilities throughout North America have reported the need for supplemental flushing and, in some cases, the addition of potable water to maintain adequate sewer velocities and system performance as flows decline. More concentrated wastewater also requires additional treatment effort, energy, and chemical inputs to achieve the high-quality effluent standards required for expanding recycled water and potable reuse programs. Any evaluation of additional water efficiency measures should therefore consider not only the reduction in potable water demand, but also the increased operational burdens imposed on downstream wastewater and water reuse infrastructure.

Finally, WEStand provisions frequently serve as the technical foundation for future state and local regulatory actions. California's Green Building Standards Code (CALGreen) and Title 24 have historically relied upon IAPMO codes and standards as sources of technical precedent and justification for enhanced water-efficiency requirements. The California Energy Commission is currently evaluating a proposal under Docket 22-AAER-05 to reduce the maximum flush volume of water closets sold in California from 1.28 gpf to 1.1 gpf. Adoption of this proposal within WEStand is likely to be cited as evidence that a consensus body has thoroughly evaluated the subject and determined the requirement to be technically appropriate and environmentally beneficial.

The committee's decision on this and other items extends beyond just a voluntary stretch code provision. Approval of this requirement will establish a precedent that influences future mandatory state regulations affecting millions of consumers, building owners, water utilities, wastewater agencies, and manufacturers. Such a change should not be adopted absent comprehensive field-based evidence demonstrating that the benefits outweigh the potential impacts on plumbing performance, public health, water quality, wastewater infrastructure, and recycled water production.

TSENG: I agree with Kyle Thompson's comment.

WHITE: I agree with Kyle Thompson's eloquent rationale.

EXPLANATION OF AFFIRMATIVE:

CRAWFORD: I see Kyle Thompson's point, but I agree with John Koeller. This is supposed to be a stretch standard.

KOELLER: While Kyle Thompson makes some points relating to possible impacts on building drainage systems, these points apply to all of the indoor efficiency measures in WEStand. WEStand “pushes the envelope” in many areas besides water closets by incorporating new requirements that have yet to be fully tested in the “field.” The difference in this case is that 1-gallon (and less) water closets have existed in the U.S. marketplace and the built environment for over 25 years. In those 25 years, millions of 1.1-gallon (or less) water closets have been installed and operated successfully in millions of homes. There is history, and that history has clearly demonstrated that high-efficiency flush volumes are viable in both old and new homes. WEStand is considered to be a “stretch” standard, but is the proposed change a “stretch”? I think not, given that these water closets have been part of our history for over 2 decades.

Importantly, the proposal applies only to residential dwelling units, not to any business or other commercial or institutional application (where the current 1.28 gallons per flush maximum is retained). The very comprehensive 2005 study for Canada Mortgage and Housing (referenced in earlier comments on this proposal) concluded that even water closets flushing as low as 0.8 gallons were suitable and feasible in typical new housing. Subsequent to that study, millions of 0.8 gallons-per-flush water closets were successfully installed in the U.S. and Canada. Today, over 40 manufacturers/brands offer nearly 500 water closet models that would comply with the proposed water use maximum. This total includes traditional gravity-fed single- and dual-flush models, as well as pressure assist, vacuum-assist, and electro-hydraulic models of varying designs, all of which are suited to residential use. The 500 models represent about 10% of the total array of water closet models available in today’s marketplace. I urge you to consider supporting this proposal, especially so, if you have so far rejected it, and thereby need to change your vote.

EXPLANATION OF ABSTAIN:
CUDAHY: Upon review, both John Koeller and Kyle Thompson made long and valid arguments. I will abstain on this.

VOTES NOT RETURNED:
Braband, Kendzel, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
009

Code Number:
2023 WE-Stand

Section Number:
Table 402.1

SUBMITTER:
Kyle Thompson

Organization Name:
WEStand Water-Conserving Plumbing Fixtures and Fittings Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

TABLE 402.1
MAXIMUM FLOW RATES AND WATER CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

FIXTURE TYPE	MAXIMUM FLOW RATE OR WATER CONSUMPTION[1]
RESIDENTIAL	
Kitchen faucets[2]	1.8 gpm at 60 psi
Lavatory faucets[3]	1.5 gpm at 60 psi
NON-RESIDENTIAL	
Lavatory faucets (metering)[4]	0.25 gallon/cycle
Lavatory faucets (non-metering)[4]	0.5 gpm at 60 psi
Pre-rinse spray valves	1.0 gpm for Product Class 1 (</= 5.0 ozf)[5] 1.2 gpm for Product Class 2 (> 5.0 ozf and </= 8.0 ozf) 1.28 gpm for Product Class 3 (> 8.0 ozf)
Wash fountains (metering)	0.25 gallon/cycle
Wash fountains (non-metering)	2.2 gpm at 60 psi
BOTH RESIDENTIAL AND NON-RESIDENTIAL	
Showerheads[6]	2.0 gpm at 80 psi
Water closets	1.28 gpf
Urinals	0.5 gpf

For SI units: 1 gallon = 3.785 L, 1 gallon per minute = 0.06 L/s, 1 pound-force per square inch = 6.8947 kPa, 1 ounce-force = 0.278 N, 1 ounce-force = 28.3495 grams-force

Notes:

[1] Maximum flow rate or water consumption per fixture fitting.

[2 - 6] (remaining text unchanged)

SUBSTANTIATION:
The proposed revisions are needed to accurately represent the contents of Table 402.1. The table currently only refers to “maximum flow rates.” However, this does not apply to water closets, urinals, and metering faucets, which are measured by water consumption.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

EXPLANATION OF AFFIRMATIVE:
OSANN: Water moving through an indoor fixture is not truly "consumed." In future editions, the WEStand should consider adopting more accurate terminology, such as "volume of use" or "usage per flush."

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
009	2023 WE-Stand	402.5 – 402.5.2, Table 402.1

Submitter Name:	Organization Name:	Organization Representation:
Shuo-Jan Teng	CA Department of Water Resources	Self

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

TABLE 402.1
MAXIMUM FLOW RATES AND WATER CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

FIXTURE TYPE	MAXIMUM FLOW RATE OR WATER CONSUMPTION[1]
RESIDENTIAL	
Lavatory faucets[3]	~~1.5~~1.2 gpm at 60 psi
NON-RESIDENTIAL	
Lavatory faucets (metering)[4]	~~0.25~~0.2 gallons per cycle

(portions of table not shown remain unchanged)

402.0 Water-Conserving Plumbing Fixtures and Fittings.

402.5 Lavatory Faucets. Lavatory faucets shall ~~be in accordance with Section 402.5.1 and Section 402.5.2~~comply with ASME A112.18.1/CSA B125.1.
~~**402.5.1 Lavatory Faucets in Residences, Apartments, and Private Bathrooms in Lodging Facilities, Hospitals, and Patient Care Facilities.**~~ Lavatory faucets installed in residences, apartments, and private bathrooms in lodging, hospitals, and patient care facilities (including skilled nursing and long-term care facilities) shall also comply with ~~ASME A112.18.1/CSA B125.1 and shall be listed to~~ the EPA WaterSense High-Efficiency Lavatory Faucet Specification.
~~**402.5.2 Lavatory Faucets in Other Than Residences, Apartments, and Private Bathrooms in Lodging Facilities.** Lavatory faucets installed in bathrooms of buildings or occupancies other than those specified in Section 402.5.1 shall comply with ASME A112.18.1/CSA B125.1.~~

Note: ASME A112.18.1/CSA B125.1 meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:
This public comment updates Table 402.1 (Maximum Flow Rates and Water Consumption for Plumbing Fixtures and Fittings) to reflect current high-efficiency performance levels for lavatory faucets by reducing the maximum residential flow rate from 1.5 gpm to 1.2 gpm and lowering the metering faucet consumption from 0.25 to 0.2 gallons per cycle.

These values align with the flow rates already prevalent in the marketplace and with the draft revisions to the EPA WaterSense Specification for Private Lavatory Faucets, which note that many manufacturers have transitioned to 1.2 gpm faucets in response to state regulations and evolving efficiency standards.

The revisions to Section 402.5 (Lavatory Faucets) simplify and clarify compliance requirements by stating that all lavatory faucets must comply with ASME A112.18.1/CSA B125.1, while retaining the WaterSense listing requirement for lavatory faucets installed in residences, apartments, and private bathrooms in lodging, hospitals, and patient care facilities.

Committee Action:
Hold

Committee Statement:
In accordance with Section 7.5.2.2(a) of the IAPMO Regulations, Item #009 Public Comment #1 is being placed on “hold” for processing as a proposal in the next revision cycle. The comment introduces a concept that has not had public review by being included in a related proposal as published in the ROP.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:
009

Code Number:
2023 WE-Stand

Sections(s):
402.6, Table 402.1

Submitter Name:
Shuo-Jan Teng

Organization Name:
CA Department of Water Resources

Organization Representation:
Self

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

TABLE 402.1
MAXIMUM FLOW RATES AND WATER CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

FIXTURE TYPE	MAXIMUM FLOW RATE OR WATER CONSUMPTION[1]
BOTH RESIDENTIAL AND NON-RESIDENTIAL	
Showerheads[6]	~~2.0~~1.8 gpm at 80 psi

(portions of table not shown remain unchanged)

402.0 Water-Conserving Plumbing Fixtures and Fittings.

402.6 Showerheads. Showerheads shall comply with ASME A112.18.1/CSA B125.1 and ~~shall be listed to~~ the EPA WaterSense Specification for Showerheads.

Substantiation:
This public comment revises Table 402.1 (Maximum Flow Rates and Water Consumption for Plumbing Fixtures and Fittings) to provide more stringent flow rates for showerheads. The reduction to 1.8 gpm goes 10% beyond the current EPA WaterSense specification maximum of 2.0 gpm and aligns with more stringent state codes already in effect in California and Washington. The 1.8 gpm standard is supported by state-level regulatory adoption, broad product availability from major manufacturers, and years of field use in these jurisdictions without documented performance complaints at scale. WaterSense testing protocols for spray force, spray coverage, and pressure compensation under ASME A112.18.1/CSA B125.1 validate showerhead performance at 2.0 gpm and below, and products meeting those criteria are widely available at 1.8 gpm or lower.

Committee Action:
Hold

Committee Statement:
In accordance with Section 7.5.2.2(a) of the IAPMO Regulations, Item #009 Public Comment #2 is being placed on "hold" for processing as a proposal in the next revision cycle. The comment introduces a concept that has not had public review by being included in a related proposal as published in the ROP.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 3

Item #:	Code Number:	Sections(s):
009	2023 WE-Stand	Table 402.1

Submitter Name:	Organization Name:	Organization Representation:
Shuo-Jan Teng	CA Department of Water Resources	Self

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal as modified by this public comment.

TABLE 402.1
MAXIMUM FLOW RATES AND WATER CONSUMPTION FOR PLUMBING FIXTURES AND FIXTURE FITTINGS

FIXTURE TYPE	MAXIMUM FLOW RATE OR WATER CONSUMPTION[1]
NON-RESIDENTIAL	
Wash fountains (metering)[6]	~~0.25~~0.2 gallons per cycle
Wash fountains (non-metering)[6]	~~2.2~~1.8 gpm at 60 psi

Notes:

[1 – 5] (remaining text unchanged)

[6] For the required number of fixture fittings, see Section 402.11.

(renumber remaining notes)

(shown for information purposes only)

402.11 Wash Fountains. Wash fountains shall be installed with not less than one fixture fitting per 20 inches (508 mm) of rim space.

Substantiation:
The public comment revises Table 402.1 (Maximum Flow Rates and Water Consumption for Plumbing Fixtures and Fittings) to provide more stringent flow rates for wash fountains and direct users to relevant requirements in Section 402.11.

Setting wash-fountain limits at 1.8 gpm (non-metering) and 0.20 gal/cycle (metering) is broadly appropriate and suitable for adoption by any jurisdiction because these rates are already in force at statewide scale in California and used by major local authorities. Their long-term implementation provides a proof of concept that the lower rates are practical to design, inspect, and enforce. This also shows that large-market contractors, designers, and suppliers already work with these limits at scale.

New note (6) compliments note (1) and aligns the maximum flow rates in Table 402.1 with Section 402.11 (Wash Fountains). This section dictates the minimum number of fixtures based on rim space and provides the method for determining how many outlets a wash fountain contains. Note (1), which was accepted during the proposal stage, establishes that the maximum water consumption and flow rates in Table 402.1 apply per fixture fitting. Together, the two notes clarify that for wash fountains, the per-fitting flow limits apply to each outlet as determined by Section 402.11.

Committee Action:
Hold

Committee Statement:
In accordance with Section 7.5.2.2(a) of the IAPMO Regulations, Item #009 Public Comment #3 is being placed on “hold” for processing as a proposal in the next revision cycle. The comment introduces a concept that has not had public review by being included in a related proposal as published in the ROP.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 4

Item #:	Code Number:	Sections(s):
009	2023 WE-Stand	402.1, 402.14

Submitter Name:
Jazmin Curiel

Organization Name:
Self

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

402.0 Water-Conserving Plumbing Fixtures and Fittings.
402.1 General. ~~The maximum water consumption of fixtures and fixture fittings shall comply with the flow rates specified in Table 402.1 and Section 402.2 through Section 402.12.~~Fixtures and fixture fittings shall comply with Section 402.2 through Section 402.12 and shall be installed in accordance with the manufacturer's installation instructions. Maximum water consumption and flow rates shall comply with Table 402.1.

~~**402.14 Installation.** Water-conserving fixtures and fixture fittings shall be installed in accordance with the manufacturers' instructions to maintain their rated performance.~~

(shown for information purposes only)

402.2 Water Closets. Water closets shall be in accordance with Section 402.2.1 and Section 402.2.2.
402.2.1 Gravity, Pressure Assisted and Electro-Hydraulic Tank Type Water Closets. Gravity, pressure assisted, and electro-hydraulic tank type water closets shall comply with ASME A112.19.2/CSA B45.1 and shall also be listed to the EPA WaterSense Specification for Tank-Type Toilets. The effective flush volume for dual-flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.
402.2.2 Flushometer-Valve Activated Water Closets. Flushometer-valve activated water closets shall comply with ASME A112.19.2/CSA B45.1 and shall be listed to the EPA WaterSense Specification for Flushometer-Valve Water Closets.

402.3 Urinals. Urinals shall comply with ASME A112.19.2/CSA B45.1 or CSA B45.5/IAPMO Z124. Flushing urinals shall be listed to the EPA WaterSense Specification for Flushing Urinals.
402.3.1 Nonwater Urinals. Nonwater urinals shall comply with ASME A112.19.3/CSA B45.4, ASME A112.19.19 or CSA B45.5/IAPMO Z124. Nonwater urinals shall be cleaned and maintained in accordance with the manufacturer's instructions after installation. Where nonwater urinals are installed they shall have a water distribution line roughed-in to the urinal location at a height not less than 56 inches (1422 mm) above finished floor to allow for the installation of an approved backflow prevention device in the event of a retrofit. Such water distribution lines shall be installed with shutoff valves located as close as possible to the distributing main to prevent the creation of dead ends. Where nonwater urinals are installed, not less than one water supplied fixture rated at not less than 1 drainage fixture unit (DFU) shall be installed upstream on the same drain line to facilitate drain line flow and rinsing.Exception: Nonwater urinals used as part of a com-posting toilet system.
402.3.2 Nonwater Urinals with Drain Cleansing Action. Nonwater urinals with drain cleansing action shall comply with ASME A112.19.19 or CSA B45.5/IAPMO Z124 and shall be cleaned, maintained and installed in accordance with the manufacturer's installation instructions.

402.4 Residential Kitchen Faucets. Residential kitchen faucets shall comply with ASME A112.18.1/CSA B125.1. Such faucets shall be permitted to temporarily exceed the maximum flow rate specified in Table 402.1, to not more than 2.2 gpm (0.139 L/s) at 60 psi (414 kPa). Upon valve closure, the faucet shall revert to the maximum flow rate in accordance with Table 402.1.

402.5 Lavatory Faucets. Lavatory faucets shall be in accordance with Section 402.5.1 and Section 402.5.2.
402.5.1 Lavatory Faucets in Residences, Apartments, and Private Bathrooms in Lodging Facilities, Hospitals, and Patient Care Facilities. Lavatory faucets installed in residences, apartments, and private bathrooms in lodging, hospitals, and patient care facilities (including skilled nursing and long-term care facilities) shall comply with ASME A112.18.1/CSA B125.1 and shall be listed to the EPA WaterSense High-Efficiency Lavatory Faucet Specification.
402.5.2 Lavatory Faucets in Other Than Residences, Apartments, and Private Bathrooms in Lodging Facilities. Lavatory faucets installed in bathrooms of buildings or occupancies other than those specified in Section 402.5.1 shall comply with ASME A112.18.1/CSA B125.1.

402.6 Showerheads. Showerheads shall comply with ASME A112.18.1/CSA B125.1 and shall be listed to the EPA WaterSense Specification for Showerheads.
402.6.1 Multiple Showerheads Serving One Shower Compartment. The total allowable flow rate of water from multiple showerheads flowing at any given time, with or without a diverter, including rain systems, waterfalls, bodysprays, and jets, shall not exceed 2 gpm (0.13 L/s) per shower compartment, where the floor area of the shower compartment is less than 1800 square inches (in^2) (1.161 m^2). For each increment of 1800 in^2 (1.161 m^2) of floor area thereafter or part thereof, additional showerheads are allowed, provided the total flow rate of water from all flowing devices shall not exceed 2 gpm (0.13 L/s) for each such increment.
Exceptions:
(1) For gang showers in non-residential buildings, singular showerheads or multiple shower outlets serving one showering position shall not exceed 2 gpm (0.13 L/s) in total flow.
(2) Shower compartments for persons with disabilities in accordance with CSA/ASC B651 or ICC A117.1 shall not exceed 4 gpm (0.25 L/s) in total flow, where one outlet is the hand shower.

402.7 Bath and Shower Diverters. Tub spout bath and shower diverters, while operating in the shower mode, shall perform with zero leakage.
402.8 Shower Valves. Shower valves shall meet the temperature control performance requirements of ASSE 1016/ASME A112.1016/CSA B125.16 when tested for the rated flow rate of the installed showerhead.
402.8.1 Marking. Control valves for showers and tub-shower combinations shall be tagged, labeled, or marked with the manufacturer's minimum rated flow and such marking shall be visible after installation.
402.9 Bath and Shower Flow-Reduction Devices. Bath and shower flow-reduction devices shall comply with IAPMO IGC 244.
402.10 Commercial Pre-Rinse Spray Valves. The flow rate for a pre-rinse spray valve installed in a commercial kitchen to remove food waste from cookware and dishes prior to cleaning shall not be more than the maximum flow rate, as specified in Table 402.1. Commercial kitchen pre-rinse spray valves shall be equipped with an integral automatic shutoff.
402.11 Wash Fountains. Wash fountains shall be installed with not less than one fixture fitting per 20 inches (508 mm) of rim space.
402.12 Emergency Safety Showers and Eye Wash Stations. Emergency safety showers and emergency eye wash stations shall not be limited in their water supply flow rates.

Substantiation:
Section 402.1 (General) is being updated to include both the general compliance requirement and the installation requirement from Section 402.14 (Installation). Currently, these provisions are thirteen sections apart, and combining them into one general section provides a single entry point for all baseline compliance obligations under Section 402.0.

Also, Section 402.2 through Section 402.12 address product standard compliance, WaterSense certification, installation provisions, and other requirements beyond maximum water consumption. However, the current text ties the reference to these sections solely to "maximum water consumption of fixtures and fixture fittings."

Updated Section 402.1 corrects this by requiring compliance with Section 402.2 through Section 402.12 as a separate obligation from Table 402.1. This makes clear that fixtures and fixture fittings must meet both the flow rates in the table and the applicable requirements in the subsequent sections.

Moreover, the phrase "to maintain their rated performance" in existing Section 402.14 is a statement of intent rather than an enforceable requirement. A code official cannot measure or verify whether a fixture is maintaining its rated performance in the field based on that language alone.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
010

Code Number:
2023 WE-Stand

Section Number:
402.2.1, Table 1401.1

SUBMITTER:
Kyle Thompson

Organization Name:
WEStand Water-Conserving Plumbing Fixtures and Fittings Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

402.0 Water-Conserving Plumbing Fixtures and Fittings.

402.2 Water Closets. (remaining text unchanged)
402.2.1 Gravity, Pressure Assisted and Electro-Hydraulic Tank Type Water Closets. Gravity, pressure assisted, and electro-hydraulic tank type water closets shall comply with ASME A112.19.2/CSA B45.1~~ or ASME A112.19.14~~ and shall also be listed to the EPA WaterSense Specification for Tank-Type Toilets.~~ The effective flush volume for dual-flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.~~

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
~~ASME A112.19.14-2013 (2018)*~~	~~Six-Liter Water Closets Equipped With a Dual Flushing Device~~	~~402.2.1~~

(portions of table not shown remain unchanged)

SUBSTANTIATION:
The performance testing protocols originally outlined in ASME A112.19.14 have been integrated into the revised ASME A112.19.2/CSA B45.1 standard. This integration ensures consistency and reduces redundancy in toilet testing for manufacturers seeking the WaterSense label. Therefore, only reference to ASME A112.19.2/CSA B45.1 is needed.

Additionally, Version 2.0 of the EPA WaterSense Specification for Tank-Type Toilets eliminates the effective flush volume and instead lists a single flush rate of 1.28 gallons per flush (gpf).

Committee Action:
Accept As Amended by the TC

Proposed Text :

402.0 Water-Conserving Plumbing Fixtures and Fittings.

402.2 Water Closets. (remaining text unchanged)

402.2.1 Gravity, Pressure Assisted and Electro-Hydraulic Tank Type Water Closets. Gravity, pressure assisted, and electro-hydraulic tank type water closets shall comply with ASME A112.19.2/CSA B45.1 and shall also be listed to the EPA WaterSense Specification for Tank-Type Toilets. The effective flush volume for dual-flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

Committee Statement:
Although the "effective flush volume" is now addressed within ASME A112.19.14, the existing language defining this term, with respect to dual-flush toilets, is beneficial to users of the WEStand. Therefore, Item #010 is being amended to retain this language.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
010	2023 WE-Stand	402.2 – 402.2.2

Submitter Name:	Organization Name:	Organization Representation:
Shuo-Jan Teng	CA Department of Water Resources	Self

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

402.0 Water-Conserving Plumbing Fixtures and Fittings.

402.2 Water Closets. Water closets shall ~~be in accordance with Section 402.2.1 and Section 402.2.2~~comply with ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, or CSA B45.5/IAPMO Z124. Tank-type water closets shall also comply with the EPA WaterSense Specification for Tank-Type Toilets, and flushometer valve activated water closets shall also comply with the EPA WaterSense Specification for Flushometer-Valve Water Closets.

~~**402.2.1 Gravity, Pressure Assisted and Electro-Hydraulic Tank Type Water Closets.** Gravity, pressure assisted, and electro-hydraulic tank type water closets shall comply with ASME A112.19.2/CSA B45.1 and shall also be listed to the EPA WaterSense Specification for Tank-Type Toilets. The effective flush volume for dual-flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.~~

~~**402.2.2 Flushometer-Valve Activated Water Closets.** Flushometer valve activated water closets shall comply with ASME A112.19.2/CSA B45.1 and shall be listed to the EPA WaterSense Specification for Flushometer-Valve Water Closets.~~

Note: ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, and CSA B45.5/IAPMO Z124 meet the requirements for mandatory referenced standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:
The current text splits water closet requirements across two subsections, each repeating the same base standard reference (ASME A112.19.2/CSA B45.1). The updated text consolidates these into a single section that states the base product standard compliance once, then adds the applicable WaterSense specification by fixture type.

Additionally, the current provisions only reference ASME A112.19.2/CSA B45.1, which covers ceramic (vitreous china) plumbing fixtures. This public comment adds ASME A112.19.3/CSA B45.4 (stainless steel plumbing fixtures) and CSA B45.5/IAPMO Z124 (plastic plumbing fixtures). Water closets are manufactured in all three material types, and each material has its own nationally recognized performance and safety standard. The EPA WaterSense specifications for both tank-type and flushometer-valve water closets already reference all three material standards as the basis for performance testing, so the current WEStand provisions are inconsistent with the WaterSense specifications they require compliance with.

Furthermore, the method for calculating effective flush volume for dual-flush toilets is already specified within both ASME A112.19.2/CSA B45.1 and the EPA WaterSense Specification for Tank-Type Toilets. Restating a definition from a referenced standard within WEStand can create a conflict if the referenced standard is updated and the definition changes. Removing it keeps the WEStand language focused on enforceable requirements and defers the testing methodology to the appropriate referenced standards.

Committee Action:
Accept As Amended by the TC

Proposed Text (Modified by TC) :

402.0 Water-Conserving Plumbing Fixtures and Fittings.

402.2 Water Closets. Water closets shall comply with ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, or CSA B45.5/IAPMO Z124. Tank-type water closets shall ~~also~~ comply with the EPA WaterSense Specification for Tank-Type Toilets, and flushometer valve activated water closets shall ~~also~~ comply with the EPA WaterSense Specification for Flushometer-Valve Water Closets.

Committee Statement:
Section 402.2 is being amended to remove the redundant term “also” in relation to listing and compliance requirements, as it does not add substantive meaning to the provision. This amendment improves clarity and enforceability while maintaining the submitter’s intent.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
011

Code Number:
2023 WE-Stand

Section Number:
402.3.2

SUBMITTER:
Kyle Thompson

Organization Name:
WEStand Water-Conserving Plumbing Fixtures and Fittings Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

402.0 Water-Conserving Plumbing Fixtures and Fittings.

402.3 Urinals. (remaining text unchanged)

402.3.2 Nonwater Urinals with Drain Cleansing Action. Nonwater urinals with drain cleansing action shall comply with ASME A112.19.19 or CSA B45.5/IAPMO Z124 and shall be cleaned, maintained and installed in accordance with the manufacturer's installation instructions.

Note: CSA B45.5/IAPMO Z124 meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
Both ASME A112.19.19 and CSA B45.5/IAPMO Z124 should be referenced in Section 402.3.2 (Nonwater Urinals with Drain Cleansing Action) to account for different materials. While ASME A112.19.19 specifically applies to vitreous china nonwater urinals, CSA B45.5/IAPMO Z124 applies to plastic plumbing fixtures, including nonwater urinals.

Currently, Section 402.3.2 mandates compliance with only ASME A112.19.19, which is overly restrictive and limits the installation of compliant nonwater urinals made from other materials. Expanding the reference to include CSA B45.5/IAPMO Z124 would ensure appropriate coverage for all relevant materials.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
011	2023 WE-Stand	402.3 – 402.3.2

Submitter Name:	Organization Name:	Organization Representation:
Shuo-Jan Teng	CA Department of Water Resources	Self

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

402.0 Water-Conserving Plumbing Fixtures and Fittings.

402.3 Urinals. Urinals shall comply with ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, or CSA B45.5/IAPMO Z124. Flushing urinals shall ~~be listed to~~also comply with the EPA WaterSense Specification for Flushing Urinals. Nonwater urinals that discharge into the drainage system shall also comply with ASME A112.19.19 and Section 402.3.1.

402.3.1 Nonwater Urinals. ~~Nonwater urinals shall comply with ASME A112.19.3/CSA B45.4, ASME A112.19.19 or CSA B45.5/IAPMO Z124.~~ Nonwater urinals shall be cleaned and maintained in accordance with the manufacturer's instructions after installation. Where nonwater urinals are installed they shall have a water distribution line roughed-in to the urinal location at a height not less than 56 inches (1422 mm) above finished floor to allow for the installation of an approved backflow prevention device in the event of a retrofit. Such water distribution lines shall be installed with shutoff valves located as close as possible to the distributing main to prevent the creation of dead ends. Where nonwater urinals are installed, not less than one water supplied fixture rated at not less than 1 drainage fixture unit (DFU) shall be installed upstream on the same drain line to facilitate drain line flow and rinsing. ~~Exception: Nonwater urinals used as part of a composting toilet system.~~

~~**402.3.2 Nonwater Urinals with Drain Cleansing Action.** Nonwater urinals with drain cleansing action shall comply with ASME A112.19.19 or CSA B45.5/IAPMO Z124 and shall be cleaned, maintained and installed in accordance with the manufacturer's installation instructions.~~

Note: ASME A112.19.3/CSA B45.4 and ASME A112.19.19 meet the requirements for mandatory referenced standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:
Section 402.3 (Urinals) is being updated to include ASME A112.19.3/CSA B45.4 for stainless steel plumbing fixtures. The current text only references ASME A112.19.2/CSA B45.1 (ceramic) and CSA B45.5/IAPMO Z124 (plastic), omitting the applicable standard for stainless steel urinals manufactured and installed in commercial and institutional settings. All three are material-based standards addressing dimensional requirements, surface finish, structural integrity, trap seal, and hydraulic performance for the physical fixture.

ASME A112.19.19 is a separate function-specific standard covering the unique design and performance requirements for nonwater urinals, including sealant or cartridge trap mechanisms, odor control, and waste conveyance without a water flush. A nonwater urinal must comply with both its applicable material standard (ASME A112.19.2/CSA B45.1, ASME A112.19.3/CSA B45.4, or CSA B45.5/IAPMO Z124) and ASME A112.19.19 for its nonwater function.

Since the updates to Section 402.3 addressing nonwater urinals specifies applicability to only those that discharge into the drainage system, the exception to Section 402.3.1 (Nonwater Urinals) is being removed. Nonwater urinals used as part of composting toilet systems do not discharge into the drainage system, so the updated scoping language inherently excludes them without needing a separate exception statement.

Committee Action:
Reject

Committee Statement:
The proposed updates introduce combined provisions that create confusion and complicate application and enforcement, particularly by addressing multiple fixture types within a single section. The revisions also remove Section 402.3.2, which covers a distinct and necessary fixture type (nonwater urinals with drain cleansing action) that should be retained.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
012

Code Number:
2023 WE-Stand

Section Number:
402.4

SUBMITTER:
Kyle Thompson

Organization Name:
WEStand Water-Conserving Plumbing Fixtures and Fittings Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

402.0 Water-Conserving Plumbing Fixtures and Fittings.

402.4 Residential Kitchen Faucets. ~~Kitchen faucets shall be permitted to temporarily increase the flow above the maximum rate not to exceed 2.2 gpm (8.3 L/min) at 60 psi (414 kPa), and shall revert to a maximum flow rate in accordance with Table 402.1 upon valve closure.~~Residential kitchen faucets shall comply with ASME A112.18.1/CSA B125.1. Such faucets shall be permitted to temporarily exceed the maximum flow rate specified in Table 402.1, to not more than 2.2 gpm (0.139 L/s) at 60 psi (414 kPa). Upon valve closure, the faucet shall revert to the maximum flow rate in accordance with Table 402.1.

Note: ASME A112.18.1/CSA B125.1 meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
Section 402.4 (Residential Kitchen Faucets) is being revised to improve enforceability and clarify provisions related to temporary flow rates that exceed the limits in Table 402.1. Additionally, ASME A112.18.1/CSA B125.1 (Plumbing Supply Fittings) is the appropriate listing requirement for residential kitchen faucets. This standard covers plumbing supply fittings, including faucets, valves, and other fixtures, intended for potable water systems in both residential and commercial applications. It specifies requirements for performance, safety, and durability, including flow rate limits, mechanical strength, and corrosion resistance. As a note, the WEStand currently requires compliance with this standard for residential and non-residential lavatory faucets.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
012	2023 WE-Stand	402.4

Submitter Name:	Organization Name:	Organization Representation:
Jazmin Curiel	Self	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

402.0 Water-Conserving Plumbing Fixtures and Fittings.

402.4 Residential Kitchen Faucets. Residential kitchen faucets shall comply with ASME A112.18.1/CSA B125.1. Such faucets shall be permitted to temporarily exceed the maximum flow rate specified in Table 402.1, ~~to not more than~~but in no case shall exceed 2.2 gpm (0.139 L/s) at 60 psi (414 kPa). Upon valve closure, the faucet shall automatically revert to the maximum flow rate in accordance with Table 402.1.

Substantiation:
The phrase "to not more than" reads as a permissive target, while the phrase "but in no case shall exceed" establishes a clear enforceable ceiling. Adding the requirement for faucets to "automatically" revert upon valve closure requires that the reversion is a function of the faucet's internal mechanism rather than a manual action by the user. This prevents the temporary higher-flow mode from becoming the faucet's continuous operating condition and maintains the maximum flow rate established in Table 402.1.

Committee Action:
Reject

Committee Statement:
The committee prefers the existing language, which provides a clear and enforceable maximum flow rate. The addition of the term “automatically” is ambiguous, and the phrase “but in no case shall exceed” does not improve clarity or enforceability.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Item #:
016

Code Number:
2023 WE-Stand

Section Number:
407.2, Table 1401.1

SUBMITTER:
Fred Betz

Organization Name:
NeuMod Labs

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

407.0 Commercial Food Service.

407.2 Food Steamers. Food steamers shall comply with the Energy Star program requirements for energy use of commercial steam cookers. Boilerless type steamers shall not consume more than 2 gallons (7.6 L) per compartment. Boiler type steamers shall not consume more than 1.5 gallons (5.7 L) per pan per hour.

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
Energy Star-2003	Program Requirements for Commercial Steam Cookers	407.2

(portions of table not shown remain unchanged)

Note: Energy Star meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
With respect to the established scope limitations of both ASHRAE 191P and WEStand, this code change proposal incorporates provisions from ASHRAE 191P relating to food steamers.

The referenced Energy Star program requirements can be viewed here: Energy Star Program Requirements for Commercial Steam Cookers

Similar verbiage is used in the WEStand as shown below:

> ***[2023 WEStand]***
> ***407.1 Ice Makers.*** *Ice makers shall be air cooled and shall be in accordance with Energy Star for energy use for commercial ice machines. Ice makers producing cubed-type ice shall not exceed 20 gallons (76 L) of water per 100 pounds (45.4 kg) of ice produced. Ice makers producing nugget and flake ice shall not exceed 14 gallons (53 kg) of water per 100 pound (45.4 kg) of ice produced.*

Committee Action:
Reject

Committee Statement:
Energy Star program requirements do not pertain to water efficiency and conservation, and the proposed language references "energy use" which does not align with the intent of the WEStand. Furthermore, the committee requests that these requirements be reviewed by a working group to determine their applicability to either plumbing or mechanical systems, with any resulting recommendations submitted as public comments for further consideration.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
016	2023 WE-Stand	221.0, 407.2, Table 1501.1

Submitter Name:	Organization Name:	Organization Representation:
Gary Klein	WEStand/ASHRAE 191P Working Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

407.0 Commercial Food Service.

~~**407.2 Food Steamers.** Boilerless type steamers shall not consume more than 2 gallons (8 L) per compartment. Boiler type steamers shall not consume more than 1.5 gallons (5.7 L) per pan per hour.~~

407.2 Steam Cookers. Steam cookers shall comply with the Energy Star program requirements.

221.0 - S -
~~Food Steamers (~~**Steam Cookers**~~)~~**.** A cooking appliance wherein heat is imparted to food in a closed compartment by direct contact with steam. The compartment can be at or above atmospheric pressure. The steam can be static or circulated.

TABLE 1501.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
Energy Star-2003 (version 1.2)	Program Requirements for Commercial Steam Cookers	407.2

(portions of table not shown remain unchanged)

Note: Energy Star meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:
The existing water consumption rates for commercial steam cookers are from the 2015 Green Plumbing & Mechanical Code Supplement (GPMCS). Upon further review, it was determined that the rate for boiler-type steam cookers is drastically inaccurate.

According to the 2005 Food Service Technology Center study titled "Evaluating the Water Savings Potential of Commercial Connectionless Food Steamers," boilerless-type steam cookers averaged approximately 2 gallons per hour (gal/h) per compartment, and boiler-type steam cookers averaged approximately 40.5 gal/h per compartment. After consulting with industry experts, it was determined that these values still accurately estimate water consumption rates for standard-efficiency steam cookers. A more recent study by the California Energy Commission, titled "Demonstration of High-Efficiency Commercial Cooking Equipment and Kitchen Ventilation Systems," also supports these findings.

Furthermore, compartments are measured by their pan capacity, which varies, making the per-compartment consumption rate an imprecise metric for estimating actual water use.

Water consumption for boilerless-type steam cookers is typically constant at 2 gal/h regardless of unit size or energy rating. However, water consumption for boiler-type steam cookers varies significantly based on unit size, pan capacity, and efficiency level, making a single fixed rate inadequate for accurate estimation. The Energy Star program establishes water consumption limits based on pan capacity, which accounts for these variables and provides a more accurate measure of efficiency. Therefore, reference to the Energy Star program requirements is the most suitable option for addressing water consumption and avoiding imposing inaccurate rates on boiler-type steam cookers.

A read-only version of the standard is provided for your review via the following link: Energy Star Program Requirements for Commercial Steam Cookers

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:
016

Code Number:
2023 WE-Stand

Sections(s):
407.1

Submitter Name:
Gary Klein

Organization Name:
WEStand/ASHRAE 191P Working Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

407.0 Commercial Food Service.
407.1 Ice Makers. Ice makers shall be air cooled and shall be in accordance with the Energy Star ~~for energy use for commercial ice machines~~program requirements. Ice makers producing cubed-type ice shall not exceed 20 gallons of water per 100 pounds (1.67 L/kg) of ice produced. Ice makers producing nugget and flake ice shall not exceed ~~14~~15 gallons of water per 100 pounds (~~1.2~~1.3 L/kg) of ice produced.

Note: Energy Star meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:
Section 407.1 (Ice Makers) references Energy Star program requirements, which have been updated from "Program Requirements for Commercial Ice Machines" to "Program Requirements for Automatic Commercial Ice Makers."

The current requirements specify a maximum potable water usage of 15 gallons per 100 pounds for continuous-type (nugget and flake) ice makers. Section 407.1 is therefore being revised accordingly. No changes to Table 1501.1 (Referenced Standards) are necessary, as the current version was incorporated during the proposal stage.

A read-only version of the standard is provided for your review via the following link: Energy Star Program Requirements for Automatic Commercial Ice Makers

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
018

Code Number:
2023 WE-Stand

Section Number:
407.5

SUBMITTER:
Kyle Thompson

Organization Name:
WEStand Water-Conserving Plumbing Fixtures and Fittings Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

407.0 Commercial Food Service.

407.5 Dipper Well Faucets. Where dipper wells ~~have a permanent water supply, the faucet shall have metered or sensor activated flow~~are installed, the water supply to a dipper well shall have a shutoff valve and flow control. The flow of water into a dipper well shall be limited by not less than one of the following methods:
(1) Water flow shall not exceed the water capacity of the dipper well in one minute at a supply pressure of 60 psi (414 kPa), and the maximum flow shall not exceed 2.2 gpm (8.3 L/m) at a supply pressure of 60 psi (414 kPa). The water capacity of a dipper well shall be the maximum amount of water that the fixture can hold before water flows into the drain.
(2) The volume of water dispensed into a dipper well in each activation cycle of a self-closing fixture fitting shall not exceed the water capacity of the dipper well, and the maximum flow shall not exceed ~~0.2 gpm (0.8 L/min)~~2.2 gpm (0.139 L/s) at a supply pressure of 60 psi (414 kPa).

SUBSTANTIATION:
This proposal restores a maximum flow rate of 2.2 gpm at 60 psi, as found in the 2021 UPC and the 2017 Green Plumbing & Mechanical Code Supplement. This revision also aligns dipper well faucet requirements with historical regulatory standards that better support compliance with food safety codes and practical use in commercial food service settings. The current requirement, which limits the maximum flow rate to 0.2 gpm, is insufficient to maintain the level of utensil sanitation required by the FDA Food Code and the California Retail Food Code. Specifically, Section 3-304.12 of the 2022 FDA Food Code and Section 114119 of the 2022 California Retail Food Code require that in-use utensils be stored in running water at a velocity sufficient to flush particulates to the drain.

Dipper wells are critical to maintaining food safety in both front-of-house settings (e.g., ice cream parlors, coffee shops) and back-of-house commercial kitchens (e.g., restaurants, bakeries, and high-volume food service operations). While a 0.2 gpm flow rate may be sufficient for light residues such as ice cream or coffee, it is inadequate for commercial kitchens, where utensils are often coated with heavier residues like sauces, cheese, and grease. To effectively remove these particulates and prevent cross-contamination, dipper well faucets must be capable of delivering higher flow rates as needed to maintain proper water circulation and ensure continuous flushing of food waste to the drain.

This standard recognizes that dipper wells are part of a broader food safety system, allowing operators to adjust flow as needed to maintain sanitary conditions without unnecessary water waste. Because effective operation depends on sufficient flow velocity, this proposed change is necessary to restore flexibility. Without this change, food establishments may be compelled to adopt alternative utensil cleaning practices that are less effective or pose additional health risks, thereby compromising public health and safety.

Committee Action:
Reject

Committee Statement:
The phrase “one or more of the following methods” in the charging statement is misleading, as the listed options are not actual methods of controlling dipper well faucets. The current requirements specify metered or sensor-activated flow, which are recognized control methods. In contrast, the proposed updates permit continuous flow, which is inconsistent with the intended design of dipper well faucets and does not align with water efficiency practices. Additional revisions are needed for technical accuracy and to improve clarity.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
17	9	0	3

Failed Ballot Disclaimer:
NOTE: Item #018 failed to achieve the necessary 2/3 affirmative vote of returned ballots. In accordance with Section 6.8.2 of the Regulations Governing Consensus Development of WEStand, a public comment is requested for this proposal. The technical committee will reconsider this proposal as a public comment.

EXPLANATION OF NEGATIVE:
CUDAHY: I support the substantiation provided by Kyle Thompson.

HARLAN: I support the current FDA regulations and the substantiation provided by Kyle Thompson.

KEHOE: I do not think we have enough information to proceed.

MANN: While I support some of the actions taken by the EPA, I do not believe the EPA should be used as the basis for our substantiation. The agency's position may change over time. WEStand should have its own substantiation demonstrating that this flow rate is necessary to properly rinse utensils.

NICKELSON: The proponent's substantiation clearly shows that the current maximum flow rate of 0.2 gpm may not be sufficient to meet FDA requirements for removing particulates. The proposed 2.2 gpm limit is not a mandatory flow, but rather a maximum. If particulates can be removed at a lower flow rate, then a lower rate may be used.

The current language does not permit a higher flow rate when particulates are not being removed. The language in the proposal provides the opportunity to properly rinse utensils, whereas the current language is very limiting and does not consider the effectiveness of the well.

PREMER: I agree with Kyle Thompson's comments.

RIBBS: I support the current FDA regulations and the substantiation provided by Kyle Thompson.

THOMPSON: This proposed revision to Section 407.5 of the 2023 WEStand seeks to restore a maximum flow rate of 2.2 gpm at 60 psi for dipper well faucets, aligning with the requirements previously set forth in the 2021 Uniform Plumbing Code. This change is necessary to ensure consistency with long-standing regulatory standards that support the operational and sanitary needs of commercial food establishments.

Limiting dipper well faucets to 0.2 gpm creates a fundamental conflict with food safety mandates prescribed by both the U.S. Food and Drug Administration (FDA) and the California Retail Food Code. Specifically, Section 3-304.12 of the 2022 FDA Food Code and Section 114119 of the California Retail Food Code require that in-use utensils be stored "in running water of sufficient velocity to flush particulates to the drain."

A flow rate of 0.2 gpm is insufficient to achieve this standard in many back-of-house kitchen environments where utensils may be soiled with heavy residues such as sauces, cheese, or grease. In these cases, a higher flow rate is essential to prevent buildup, maintain sanitary conditions, and minimize cross-contamination risks.

Dipper wells are widely used in both front-of-house and back-of-house applications, but the operational demands vary significantly. While a low flow rate may be adequate for light-duty uses (e.g., rinsing ice cream scoops), back-of-house kitchen environments require adjustable, higher flow rates to meet diverse and intensive cleaning needs. Continuous-flow dipper wells are commonly adjusted by operators to flush particulates quickly and are often integrated into broader food safety protocols. Setting an artificially low maximum flow rate, such as 0.2 gpm, removes the flexibility necessary for safe operation.

In summary, reinstating the 2.2 gpm maximum flow rate recognizes the role of dipper wells in public health protection. It ensures that the performance of these fixtures aligns with food safety codes, real-world kitchen demands, and long-standing plumbing standards, preserving both operational flexibility and consumer safety.

TSENG: I support the substantiation provided by Kyle Thompson.

EXPLANATION OF AFFIRMATIVE:
KLEIN: There is no flow rate that makes a dipper well water-efficient, and there is certainly no need to increase it.

LENGER: I agree with Ed Osann and Gary Klein's comments. It is wasting water.

OSANN: While the current language of WEStand may need revision, Item #018 is wide of the mark. Without justification, the proposal would allow continuous flow of up to 2.2 gpm through any dipper well. This is a tremendous waste, allowing over 1,000 gallons of water to be used during a single 8-hour shift.

There is no standard that addresses the flow needed to move food particles to the drain nor the time in which this function must be performed; and there is no test procedure for measuring this function. Allowing a continuous flow of 2.2 gpm is unsupported by any studies or data made available to the TC. The committee consensus at the meeting in Ontario was for both Item #017 and Item #018 to be reconsidered by a working group rather than pushing through Item #018 without change.

VOTES NOT RETURNED:
Crawford, Granger, A. Smith

Comment 1

Item #:	**Code Number:**	**Sections(s):**
018	2023 WE-Stand	407.5

Submitter Name:	**Organization Name:**	**Organization Representation:**
Gary Klein	WEStand/ASHRAE 191P Working Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

407.0 Commercial Food Service.

407.5 Dipper Well Faucets. ~~Where dipper wells have a permanent water supply, the faucet shall have metered or sensor activated flow The volume of water dispensed into a dipper well in each activation cycle of a self-closing fixture fitting shall not exceed the water capacity of the dipper well, and the maximum flow shall not exceed 0.2 gpm (0.013 L/s) at a supply pressure of 60 psi (414 kPa).~~Dipper well faucets with a permanent connection to the water supply shall have a shutoff valve and flow control installed on the water supply line. The flow of water into the dipper well shall be limited in accordance with one of the following:
(1) **Continuous-flow dipper well faucets.** Where a dipper well is equipped to provide an uninterrupted flow of water during operation, the flow rate of the dipper well faucet shall not exceed 0.25 gpm (0.0158 L/s) at a supply pressure of 60 psi (414 kPa).
(2) **Self-closing dipper well faucets.** Where a dipper well is equipped with a metered or sensor-activated faucet that initiates and terminates water flow, the dipper well faucet shall not dispense more water than the water capacity of the dipper well bowl per activation cycle. The water capacity of a dipper well shall be the maximum volume of water the bowl fixture is capable of holding without overflow.
Exception: Dipper well faucets equipped with a manual override feature shall be permitted to temporarily exceed the flow requirements of Section 407.5(1) and Section 407.5(2). Upon release of the manual override feature, the faucet shall automatically revert to comply with the flow requirements specified in Section 407.5(1) and Section 407.5(2).

Substantiation:
This public comment proposes the following revisions:

(1) Add allowances for continuous-flow dipper well faucets, limiting the maximum flow rate to 0.25 gpm at 60 psi;

(2) Add an explicit compliance path for self-closing (metered/sensor-activated) dipper well faucets based on “not more than the bowl capacity per activation;”

(3) Require a shutoff valve and flow control on the water supply line serving the dipper well faucet; and

(4) Add an exception allowing faucets with a manual override feature to temporarily exceed the maximum flow rate, provided the faucet automatically returns to compliant operation after the override.

The existing WEStand (2023) text limits dipper well faucets with a permanent water supply connection to 0.2 gpm at 60 psi and relies on metered/sensor activation as the primary compliance approach, regardless of application or cleanliness demands. In practice, dipper wells are used to store “in-use” utensils, often associated with moist foods, where food safety codes require running water “of sufficient velocity to flush particulates to the drain.”

Industry and enforcement stakeholders have repeatedly emphasized that the key cleanliness consideration is not flow rate alone, but whether the water stream can consistently clear particulates and residue and keep the well visibly clean. For example, county environmental health feedback indicates the flow “can be very slow as long as it is sufficient to wash away particles and residue,” but the system must still function to remove residue.

Related workgroup documentation similarly notes that the water stream “must be of sufficient force to keep particulates flushed out of the bowl,” and that operators during time-constrained peak usage need to flush the bowl momentarily with a higher-force stream when sediment builds up.

While a 0.25 gpm limit is not ideal for all uses, it is a meaningful improvement over 0.2 gpm in reducing the risk that an otherwise compliant installation cannot maintain adequate flushing/turnover especially for common bowl volumes and typical operating conditions. Increasing the limit to 0.25 gpm improves the likelihood that “running water of sufficient velocity to flush particulates” can be maintained in real-world conditions while preserving water-efficiency.

According to the 2015 GPMCS Proposal Matrix and a Frontier Energy study provided to the WEStand Technical Committee, the marketplace already includes flow-controlled dipper well faucets with a 0.25 gpm maximum flow, and such faucets have been found satisfactory for coffeehouse and ice cream shop (front-of-house) applications. Food safety codes focus on the outcome, particulates flushed to the drain, rather than a single fixed flow rate. Certain conditions (e.g., sediment accumulation, higher-viscosity foods, or temporary misuse) may require a brief, higher-force flush to restore proper operation. The manual override exception is therefore a targeted safeguard that:

- maintains code compliance during normal operation;
- enables rapid flushing/water exchange to clear settled particulates and restore clean hygienic function during peak use; and
- avoids “workarounds” (e.g., removal of flow controls) that reduce enforceability and could increase overall water waste.

The California Energy Commission provided comments to members and has participated in the workgroups because of its ongoing proceeding on “Appliance Efficiency Regulations for Dipper Wells” (Docket 21-AAER-01). This underscores that this is an active and evolving policy topic, including recent filings that reference dipper well efficiency requirements.

The draft revision represents a compromise improvement over the current 2023 WEStand requirement by eliminating the requirement for metered or sensor activated flow, increasing the flow rate limit from 0.2 to 0.25 gpm, and allowing a limited manual override capability. These changes better align WEStand’s water efficiency intent with real world usage of dipper wells and cleanliness obligations under current food safety codes.

[Supporting documentation is provided in KAVI for TC review]

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
018	2023 WE-Stand	407.5

Submitter Name:	Organization Name:	Organization Representation:
Helen Davis (Energy Solutions), Jessica Lopez (California Energy Commission)	Multiple Submitters	

Recommendation:
Reject the Code Change Proposal

Proposed Text:

Request to **reject** the code change proposal by this public comment.

Substantiation:
Helen Davis (Energy Solutions):
See public comment to Item #018 submitted by the WEStand/ASHRAE 191P Working Group.

[Supporting documentation is provided in KAVI for TC review]

Jessica Lopez (California Energy Commission):
The California Energy Commission (CEC) is the primary energy policy and planning agency for the State of California. One of the CEC's chief mandates is, "to reduce the wasteful, uneconomic, inefficient, and unnecessary consumption of energy, including the energy associated with the use of water..." in the state by prescribing standards for minimum levels of operating efficiency for appliances that consume a significant amount of energy or water on a statewide basis.[1]

In pursuit of this goal, the CEC initiated a pre-rulemaking proceeding in October 2021 to explore water efficiency standards for dipper wells. This proceeding will evaluate and potentially establish comprehensive regulations for dipper wells, including efficiency standards, test procedures, marking, and certification requirements. These regulations would fall under Title 20, California Code of Regulations, Sections 1601–1609, also known as California's Appliance Efficiency Regulations. The goal of this proceeding is to reduce wasteful and unnecessary water and energy consumption in the state of California.

The technical discussions within the CEC proceeding are virtually identical to the ones within the IAPMO WEStand proceeding. Therefore, the CEC appreciates the opportunity to comment on Item #018 submitted by Kyle Thompson on behalf of Plumbing Manufacturers International (PMI), which proposes to remove the existing requirement of metered or sensor activated flow and to change the maximum flow rate for dipper wells from 0.2 gallons per minute (gpm) to 2.2 gpm.[2]

The following statement was read by CEC staff at the Technical Committee Meeting on June 19, 2025 in Ontario, CA during the discussion on Item #018 and is now resubmitted to provide important clarification to the technical committee:

While we acknowledge the importance of food safety highlighted in the substantiation of the proposal, we respectfully oppose increasing the maximum flow rate to 2.2 gpm.

Our primary concern with the proposal stems from the fundamental misconception that dipper wells should be used for utensil sanitation. A dipper well is not a sanitation device. Its intended purpose is to maintain utensils in a state of readiness by preventing the buildup of particulate matter between uses, or as a temporary holding location before proper washing. It is not designed, nor should it be relied upon, to sanitize or even thoroughly clean utensils. Proper sanitation involves comprehensive steps, including washing utensils with soap and water, followed by rinsing and then chemical or heat-based sanitization.[3]

The proposal cites FDA Food Code Section 3-304.12 (D), which requires "running water of sufficient velocity to flush particulates to the drain" for certain moist foods. We agree with the necessity of flushing particulates. However, it's crucial to examine the full context of how the FDA Food Code describes "in-use utensils" and their storage. The FDA Food Code provides various options for storing in-use utensils, six to be exact, which helps frame the dipper well's actual role.[4]

The FDA Food Code specifies that once a utensil starts being used, it's an "in-use utensil" and "must be cleaned and sanitized on a schedule that precludes the growth of pathogens."[5] And "based on the type of operation, there are a number of methods available for storage of in-use utensils during pauses in food preparation or dispensing, such as in the food, clean and protected, or under running water to prevent bacterial growth." Or "if stored in a container of water, the water temperature must be at least 135°F."[6] This detailed guidance on storage methods reinforces that when running water is used for in-use utensils, the purpose is storage and preventing particulate buildup, not achieving full sanitation.

Furthermore, the Food Code notes that "the handles of utensils, even if manipulated with gloved hands, are particularly susceptible to contamination,"[7] emphasizing that proper handling and thorough cleaning or sanitizing is of critical importance, not just continuous flushing in a dipper well.

For heavier residues like sauces, cheese, or grease, a dipper well, regardless of its flow rate, is an inadequate primary cleaning method. Food establishments commonly utilize other FDA Food Code approved storage methods for these types of heavier residues. As the Food Code permits, these in-use utensils are often stored directly "in the food with their handles above the top of the food and the container."[8] Examples include ladles used for dressings in a salad bar, utensils in various food types in a hot bar, or utensils in hot food well warmers in a fast-food establishment.

Relying on an increased dipper well flow rate for this purpose could create a false sense of security regarding utensil cleanliness and divert attention from essential multi-step cleaning and sanitizing processes. Lastly, in considering efficiency standards for dipper wells the CEC organized an industry working group with the goal of developing a test standard for dipper wells, and in these meetings it was discussed that a flow rate of 2.2 gpm would be inappropriate for dipper well applications, causing splashing and conditions not ideal for a kitchen setting.

Footnotes:

[1] State of California, Public Resources Code, Section 25402.

[2] The proposal suggests revising the text of Section 407.5 of the upcoming 2027 IAPMO WEStand.

[3] 2022 U.S. FDA Food Code, Section 4-6: Cleaning of Equipment and Utensils, and Section 4-7: Sanitization of Equipment and Utensils.

[4] 2022 U.S. FDA Food Code, Section 3-304.12(A)-(F): In-Use Utensils, Between-Use Storage,

[5] 2022 U.S. FDA Food Code, Annex 3: Public Health Reasons/Administrative Guidelines; and Section 3-304.12 In-Use Utensils, Between-Use Storage.

[6] 2022 U.S. FDA Food Code, Annex 7: Model Forms, Guides, and Other Aids, Section 43. In-Use Utensil; Properly Stored; and Chapter 3. Food, Section 3-304.12 In-Use Utensils, Between-Use Storage.

[7] 2022 U.S. FDA Food Code, Annex 3: Public Health Reasons/Administrative Guidelines, Section 3-304.11 Food Contact with Equipment and Utensils.

[8] 2022 U.S. FDA Food Code, Section 3-304.12 In-Use Utensils, Between-Use Storage, Parts (A) and (B).

The following link is provided for your review: 2022 U.S. FDA Food Code

[Supporting documentation is provided in KAVI for TC review]

Committee Action:
Reject

Committee Statement:
Public Comment #2 was heard prior to Public Comment #1. The intent of the original proposal has merit, and rejecting the comment allows other public comments addressing this item to be considered.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
019

Code Number:
2023 WE-Stand

Section Number:
408.1, 408.2, Table 411.1, 412.0 - 412.5.2

SUBMITTER:
Fred Betz

Organization Name:
NeuMod Labs

Organization Representation:

RECOMMENDATION:
Delete text without substitution

Proposed Text :

408.0 Medical and Laboratory Facilities.
~~**408.1 X-Ray Film Processing Units.** Processors for X-ray film exceeding 6 inches (152 mm) in any dimension shall be equipped with water recycling units.~~
~~**408.2 Exhaust Hood Liquid Scrubber Systems.** Liquid scrubber systems for exhaust hoods and ducts shall be of the recirculation type. Liquid scrubber systems for perchloric acid exhaust hoods and ducts shall be equipped with a timer-controlled water recirculation system. The collection sump for perchloric acid exhaust systems shall be designed to automatically drain after the wash down process has completed.~~

(renumber remaining sections)

TABLE 411.1
DEDICATED WATER METERING REQUIREMENTS

APPLICATION	REQUIREMENTS
~~Cooling Towers~~	~~The makeup water supply to cooling towers, evaporative condensers, and fluid coolers. Cooling towers sharing a common basin can be grouped together using one meter.~~
~~Evaporative Coolers~~	~~The makeup water supply to an evaporative cooler having an air flow exceeding 30 000 cubic feet per minute (ft^3/min).~~
~~Fluid Coolers and Chillers — Open Systems~~	~~The makeup water supply on water cooled fluid coolers and chillers not utilizing closed-loop recirculation.~~
~~Hydronic Cooling Systems — Closed Loop~~	~~Systems with 50 ton or greater of cooling capacity and where a make-up water supply is connected.~~
~~Hydronic Heating Systems~~	~~The makeup water supply to one or more boilers collectively exceeding 1 000 000 British thermal units per hour (Btu/h).~~
~~Industrial Processes~~	~~The water supply to an industrial water using process where the average consumption exceeds 1000 gallons per day (gal/d). Like equipment sharing one common water supply can be grouped together using one meter.~~ ~~**Exception:** Processes using untreated water where the water is directly returned to the original source after use.~~

(portions of table not shown remain unchanged)

~~**412.0 HVAC Water Efficiency.**~~

~~**412.1 Once-Through Cooling.** Once-through cooling using potable water is prohibited.~~

~~**412.2 Cooling Towers and Evaporative Coolers.** Cooling towers and evaporative coolers shall be equipped with makeup water and blow down meters, conductivity controllers and overflow alarms. Cooling towers shall be equipped with efficiency drift eliminators that achieve drift reduction to 0.002 percent of the circulated water volume for counterflow towers and 0.005 percent for cross-flow towers.~~

~~**412.3 Cooling Tower Makeup Water.** Water used for air-conditioning cooling towers shall not be discharged where the hardness of the basin water is less than 88 grains per gallon (gr/gal) (1500 mg/L).~~

~~**Exception:** Where any of the following conditions of the basin water are present: total suspended solids exceed 25 ppm, $CaCO_3$ exceeds 600 ppm, chlorides exceed 250 ppm, sulfates exceed 250 ppm, or silica exceeds 150 ppm.~~

~~**412.4 Evaporative Cooler Water Use.** Evaporative cooling systems shall use less than 3.5 gallons (13.2 L) of water per ton-hour of cooling when system controls are set to maximum water use. Water use, expressed in maximum water use per ton-hour of cooling, shall be marked on the device and included in product user manuals and product information literature. Water use information shall be readily available at the time of code compliance inspection.~~

~~**412.4.1 Overflow Alarm.** Cooling systems shall be equipped with an overflow alarm to alert building owners, tenants, or maintenance personnel when the water refill valve continues to allow water to flow into the reservoir when the reservoir is full. The alarm shall have a minimum sound pressure level rating of 85 dBa measured at a distance of 10 feet (3048 mm).~~

~~**412.4.2 Automatic Pump Shut-Off.** Cooling systems shall automatically cease pumping water to the evaporation pads when airflow across evaporation pads ceases.~~

~~**412.4.3 Cooler Reservoir Discharge.** A water quality management system (either timer or water quality sensor) shall be provided. Where timers are used, the time interval between discharge of reservoir water shall be set to 6 hours or greater of cooler operation. Where water quality sensors are used, the discharge of reservoir water shall be set to 800 ppm or more of Total Dissolved Solids (TDS). Continuous discharge or continuous bleed systems shall be prohibited.~~

~~**412.4.4 Discharge Water Reuse.** Discharge water shall be reused where appropriate applications exist on site. Where a nonpotable water source system exists on site, evaporative cooler discharge water shall be collected and discharged to the collection system.~~

~~**Exception:** Where the reservoir water adversely affects the quality of the nonpotable water supply making the nonpotable water unusable for its intended purposes.~~

~~**412.4.5 Discharge Water to Drain.** Where discharge water is not recovered for reuse, the sump overflow line shall not be directly connected to a drain. Where the discharge water is released into a sanitary drain, a minimum 6 inch (152 mm) air gap is required between the termination of the discharge line and the drain opening. The discharge line shall terminate in a location that is readily visible to the building owner, tenants, or maintenance personnel.~~

~~**412.5 Use of Reclaimed (Recycled) and On-Site Treated Nonpotable Water for Cooling.** Reclaimed (recycled) or on-site treated nonpotable water used for industrial and commercial cooling or air-conditioning shall be approved for use by the water/wastewater utility and the Authority Having Jurisdiction.~~

~~**412.5.1 Drift Eliminator.** A drift eliminator shall be utilized in a cooling system, utilizing alternate sources of water, where the aerosolized water comes in contact with employees or members of the public.~~

~~**412.5.2 Disinfection.** A biocide shall be used to treat the cooling system recirculation water where the recycled water comes in contact with employees or members of the public.~~

(renumber remaining sections)

SUBSTANTIATION:
ASHRAE 191P and the WEStand both dictate provisions for water conservation and efficiency in plumbing and mechanical systems. To mitigate this overlap, ASHRAE and IAPMO have agreed to narrow the scopes of these standards, with ASHRAE191P limited to mechanical systems, and the WEStand limited to plumbing systems.

For reference, ASHRAE 191P will be jointly published with the WEStand as a companion document. Following this intent, the committee developing ASHRAE 191 has reviewed all relevant requirements and is removing out of scope provisions from WEStand Chapter 4 (Water Efficiency and Conservation) via this code change proposal.

Committee Action:
Reject

Committee Statement:
Before removing these requirements, the committee requests that all affected sections be reviewed by a working group to determine their applicability to either plumbing or mechanical systems, with any resulting recommendations submitted as public comments for further consideration. Additionally, the substantiation is ambiguous and lacks technical justification to support the proposed changes.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
019	2023 WE-Stand	408.1, 408.2

Submitter Name:	Organization Name:	Organization Representation:
Gary Klein	WEStand/ASHRAE 191P Working Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

408.0 Medical and Laboratory Facilities.
~~**408.1 X-Ray Film Processing Units.** Processors for X-ray film exceeding 6 inches (152 mm) in any dimension shall be equipped with water recycling units.~~

~~**408.2 Exhaust Hood Liquid Scrubber Systems.** Liquid scrubber systems for exhaust hoods and ducts shall be of the recirculation type. Liquid scrubber systems for perchloric acid exhaust hoods and ducts shall be equipped with a timer controlled water recirculation system. The collection sump for perchloric acid exhaust systems shall be designed to automatically drain after the wash down process has completed.~~

(renumber remaining sections)

Substantiation:
In alignment with the scope limitations of WEStand, Section 408.1 (X-Ray Film Processing Units) and Section 408.2 (Exhaust Hood Liquid Scrubber Systems) are being deleted.

Section 408.1: The water recycling units referenced in Section 408.1 are integrated components of the x-ray film processor, which is a type of process equipment.

Section 408.2: Liquid scrubber systems are integral to exhaust hood assemblies and serve as part of mechanical exhaust and ventilation systems.

Although these systems connect to plumbing for water supply and drainage, their water use requirements pertain to process and mechanical equipment, not plumbing systems.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

EXPLANATION OF AFFIRMATIVE:
OSANN: I am voting affirmative, while noting a concern regarding the removal of provisions from WEStand prior to the adoption of comparable language by ASHRAE. The status of ASHRAE 191-P remains uncertain, as it has not yet been approved despite extensive committee development over more than a decade.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
019	2023 WE-Stand	Table 411.1

Submitter Name:	Organization Name:	Organization Representation:
Gary Klein	WEStand/ASHRAE 191P Working Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

TABLE 411.1
DEDICATED WATER METERING REQUIREMENTS

APPLICATION	REQUIREMENTS
~~Cooling Towers~~	~~The makeup water supply to cooling towers, evaporative condensers, and fluid coolers. Cooling towers sharing a common basin can be grouped together using one meter.~~
~~Evaporative Coolers~~	~~The makeup water supply to an evaporative cooler having an air flow exceeding 30 000 cubic feet per minute (ft^3/min).~~
~~Fluid Coolers and Chillers – Open Systems~~	~~The makeup water supply on water-cooled fluid coolers and chillers not utilizing closed loop recirculation.~~
~~Hydronic Cooling Systems – Closed Loop~~	~~Systems with 50 tons or greater of cooling capacity and where a make-up water supply is connected.~~
~~Hydronic Heating Systems~~	~~The makeup water supply to one or more boilers collectively exceeding 1 000 000 British thermal units per hour (Btu/h).~~
~~Industrial Processes~~	~~The water supply to an industrial water-using process where the average consumption exceeds 1000 gallons per day (gal/d). Like equipment sharing one common water supply can be grouped together using one meter.~~ ~~**Exception:** Processes using untreated water where the water is directly returned to the original source after use.~~

(portions of table not shown remain unchanged)

Substantiation:
In alignment with the scope limitations of WEStand, Table 411.1 (Dedicated Water Metering Requirements) is being revised to remove requirements for mechanical and process applications. Cooling towers, evaporative coolers, chillers, and hydronic systems are mechanical equipment serving HVAC infrastructures, while industrial processes encompass a broad range of process equipment used in manufacturing and production operations. Although these systems connect to plumbing for water supply and drainage, their water use pertains to mechanical and process equipment, not plumbing systems.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

EXPLANATION OF AFFIRMATIVE:
OSANN: I am voting affirmative, while noting a concern regarding the removal of provisions from WEStand prior to the adoption of comparable language by ASHRAE. The status of ASHRAE 191-P remains uncertain, as it has not yet been approved despite extensive committee development over more than a decade.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 3

Item #:	Code Number:	Sections(s):
019	2023 WE-Stand	412.0 – 412.5.2

Submitter Name:	Organization Name:	Organization Representation:
Gary Klein	WEStand/ASHRAE 191P Working Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to <u>replace</u> the code change proposal by this public comment.

~~**412.0 HVAC Water Efficiency.**~~
~~**412.1 Once-Through Cooling.** Once-through cooling using potable water is prohibited.~~
~~**412.2 Cooling Towers and Evaporative Coolers.** Cooling towers and evaporative coolers shall be equipped with makeup water and blow down meters, conductivity controllers and overflow alarms. Cooling towers shall be equipped with efficiency drift eliminators that achieve drift reduction to 0.002 percent of the circulated water volume for counterflow towers and 0.005 percent for cross-flow towers.~~
~~**412.3 Cooling Tower Makeup Water.** Water used for air-conditioning cooling towers shall not be discharged where the hardness of the basin water is less than 88 gr/gal (1510 mg/L).~~
~~**Exception:** Where any of the following conditions of the basin water are present: total suspended solids exceed 25 ppm, $CaCO_3$ exceeds 600 ppm, chlorides exceed 250 ppm, sulfates exceed 250 ppm, or silica exceeds 150 ppm.~~
~~**412.4 Evaporative Cooler Water Use.** Evaporative cooling systems shall use less than 3.5 gallons (13.2 L) of water per ton-hour of cooling when system controls are set to maximum water use. Water use, expressed in maximum water use per ton-hour of cooling, shall be marked on the device and included in product user manuals and product information literature. Water use information shall be readily available at the time of code compliance inspection.~~
~~**412.4.1 Overflow Alarm.** Cooling systems shall be equipped with an overflow alarm to alert building owners, tenants, or maintenance personnel when the water refill valve continues to allow water to flow into the reservoir when the reservoir is full. The alarm shall have a minimum sound pressure level rating of 85 dBa measured at a distance of 10 feet (3048 mm).~~

~~**412.4.2 Automatic Pump Shut-Off.** Cooling systems shall automatically cease pumping water to the evaporation pads when airflow across evaporation pads ceases.~~
~~**412.4.3 Cooler Reservoir Discharge.** A water quality management system (either timer or water quality sensor) shall be provided. Where timers are used, the time interval between discharge of reservoir water shall be set to 6 hours or greater of cooler operation. Where water quality sensors are used, the discharge of reservoir water shall be set to 800 ppm or more of Total Dissolved Solids (TDS). Continuous discharge or continuous bleed systems shall be prohibited.~~
~~**412.4.4 Discharge Water Reuse.** Discharge water shall be reused where appropriate applications exist on site. Where a nonpotable water source system exists on site, evaporative cooler discharge water shall be collected and discharged to the collection system.~~
~~**Exception:** Where the reservoir water adversely affects the quality of the nonpotable water supply making the nonpotable water unusable for its intended purposes.~~
~~**412.4.5 Discharge Water to Drain.** Where discharge water is not recovered for reuse, the sump overflow line shall not be directly connected to a drain. Where the discharge water is released into a sanitary drain, a minimum 6 inch (152 mm) air gap is required between the termination of the discharge line and the drain opening. The discharge line shall terminate in a location that is readily visible to the building owner, tenants, or maintenance personnel.~~
~~**412.5 Use of Reclaimed (Recycled) and Onsite Treated Nonpotable Water for Cooling.** Reclaimed (recycled) or onsite treated nonpotable water used for industrial and commercial cooling or air-conditioning shall be approved for use by the water/wastewater utility and the Authority Having Jurisdiction.~~
~~**412.5.1 Drift Eliminator.** A drift eliminator shall be utilized in a cooling system, utilizing alternate sources of water, where the aerosolized water comes in contact with employees or members of the public.~~
~~**412.5.2 Disinfection.** A biocide shall be used to treat the cooling system recirculation water where the recycled water comes in contact with employees or members of the public.~~

(renumber remaining sections)

Substantiation:
In alignment with the scope limitations of WEStand, Section 412.0 (HVAC Water Efficiency) and its corresponding subsections are being deleted. These sections address cooling towers, evaporative coolers, and related HVAC equipment, all of which are classified as mechanical equipment.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

EXPLANATION OF AFFIRMATIVE:
OSANN: I am voting affirmative, while noting a concern regarding the removal of provisions from WEStand prior to the adoption of comparable language by ASHRAE. The status of ASHRAE 191-P remains uncertain, as it has not yet been approved despite extensive committee development over more than a decade.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Item #:
020

Code Number:
2023 WE-Stand

Section Number:
408.1

SUBMITTER:
Fred Betz

Organization Name:
NeuMod Labs

Organization Representation:

RECOMMENDATION:
Add new text

Proposed Text :

408.0 Medical and Laboratory Facilities.
408.1 Reverse Osmosis and Nanofiltration. Where medical and laboratory systems are installed with reverse osmosis and nanofiltration equipment, permeate water shall account for not less than 75 percent of the feed water for systems having a consumption rate exceeding 2 gpm (0.13 L/s), and 50 percent of the feed water for systems having a consumption rate not exceeding 2 gpm (0.13 L/s). Reverse osmosis water treatment systems shall also comply with Section 406.3.

(renumber remaining sections)

(shown for information purposes only)

406.3 Point-of-Use Reverse Osmosis Water Treatment Systems. Reverse osmosis (RO) water treatment systems shall comply with NSF/ANSI 58 and shall be equipped with automatic shutoff valves to prevent discharge when there is no call for producing treated water. Residential RO systems shall also comply with ASSE 1086.

SUBSTANTIATION:
With respect to the established scope limitations of both ASHRAE 191P and WEStand, this code change proposal incorporates provisions from ASHRAE 191P relating to reverse osmosis and nanofiltration equipment used in medical and laboratory systems.

Committee Action:
Reject

Committee Statement:
The committee did not have access to ASHRAE 191P for review, and the provided substantiation is ambiguous and lacks technical justification to support the proposed changes. Furthermore, the committee requests that these requirements be reviewed by a working group to determine their applicability to either plumbing or mechanical systems, with any resulting recommendations submitted as public comments for further consideration.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
020

Code Number:
2023 WE-Stand

Sections(s):
406.3, Table 1501.1

Submitter Name:
Gary Klein

Organization Name:
WEStand/ASHRAE 191P Working Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

406.0 Water Softeners and Treatment Devices.

406.3 Point-of-Use Reverse Osmosis Water Treatment Systems. Point-of-use ~~R~~reverse osmosis (RO) water treatment systems shall comply with NSF/ANSI 58 and the EPA WaterSense Specification for Point-of-Use Reverse Osmosis Systems and shall be equipped with automatic shutoff valves to prevent discharge when there is no call for producing treated water. Residential RO systems shall also comply with ASSE 1086.

TABLE 1501.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
EPA WaterSense-2024	Specification for Point-of-Use Reverse Osmosis Systems	406.3

(portions of table not shown remain unchanged)

Note: The EPA WaterSense Specification meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:
Reverse osmosis (RO) systems are inherently water inefficient. Their semi-permeable membrane requires a continuous flow of water to flush away rejected contaminants and prevent buildup at the membrane. Since wastewater is necessary for maintaining proper membrane function, water efficiency is determined by the membrane recovery ratio or rate.

While NSF/ANSI 58 provides the test procedures for determining membrane recovery rates, the EPA WaterSense Specification for Point-of-Use Reverse Osmosis Systems specifies the required minimum efficiency rating and maximum water-to-product ratio. By referencing this specification, water waste is reduced at the point-of-use while water quality and treatment performance are maintained.

Additionally, the section is being revised to align with the scopes of these standards, which are limited to point-of-use RO systems. See below:

> **NSF/ANSI 58 [Section 1.2 (Scope)]:** "The point-of-use (POU) RO drinking water treatment systems addressed by this standard are designed to be used for the reduction of specific substances that may be present in drinking water (public or private) considered to be microbiologically safe and of known quality." [...]
>
> **EPA WaterSense [Section 1.0 (Scope and Objective)]:** "This specification establishes the criteria for point-of-use reverse osmosis (RO) systems to earn a label under the U.S. Environmental Protection Agency's (EPA's) WaterSense program." [...]

A read-only version of the specification is provided for your review via the following link: [EPA WaterSense Specification for Point-of-Use Reverse Osmosis Systems]

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
020	2023 WE-Stand	408.1, Table 408.1

Submitter Name:	Organization Name:	Organization Representation:
Gary Klein	WEStand/ASHRAE 191P Working Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to <u>replace</u> the code change proposal by this public comment.

408.0 Medical and Laboratory Facilities.

408.1 Reverse Osmosis. Reverse osmosis equipment installed in medical and laboratory systems shall have a minimum recovery rate in accordance with Table 408.1. For the purposes of this section, the recovery rate shall be defined as the percentage of influent water (feed water) discharged as effluent product water (permeate). Reverse osmosis drinking water treatment systems shall comply with Section 406.3.

(renumber remaining sections)

TABLE 408.1
MINIMUM RECOVERY RATE

CONSUMPTION RATE (gallons per minute)	MINIMUM RECOVERY RATE
≤ 2 gpm	50 percent
> 2 gpm	75 percent

For SI units: 1 gallon per minute = 0.06 L/s

Substantiation:
Similar to the intent of the RO water efficiency requirements presented in a separate public comment to Section 406.3 (Point-of-Use Reverse Osmosis Water Treatment Systems), minimum recovery rates need to also be prescribed for RO equipment in medical and laboratory systems. However, the EPA WaterSense Specification, and consequently its defined minimum recovery rates, cannot be applied here, as this specification is limited to drinking water treatment systems.

Instead, Table 408.1 (Minimum Recovery Rate) offers a tiered approach corresponding system size with achievable efficiency. Smaller systems (≤2 gpm) are required to achieve a minimum 50 percent recovery rate, while larger systems (>2 gpm) are required to achieve a minimum 75 percent recovery rate. This is consistent with the minimum recovery rates prescribed within the original proposal.

> Small-scale RO equipment (≤2 gpm) contains fewer membrane elements and has a shorter water supply process, which limits system recovery.
>
> Larger-scale RO equipment (>2 gpm) can utilize multi-stage membrane configurations and is capable of achieving higher recovery rates.

Furthermore, the methodology for determining recovery rates is consistent regardless of application. Therefore, the proposed text includes a definition for "recovery rate" that aligns with industry standards.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
021

Code Number:
2023 WE-Stand

Section Number:
408.2

SUBMITTER:
Fred Betz

Organization Name:
NeuMod Labs

Organization Representation:

RECOMMENDATION:
Add new text

Proposed Text :

408.0 Medical and Laboratory Facilities.

408.2 Water Treatment Systems. Water treatment systems for medical and laboratory applications shall comply with the following:
(1) Pressure gauges shall determine and display when to backwash or change cartridges of installed filters.
(2) Recharge cycles for water softeners shall be set by volume of water treated or based upon conductivity or hardness. Water softeners shall comply with Section 406.1.

(renumber remaining sections)

(shown for information purposes only)

406.1 Water Softeners. Water softeners shall be listed to NSF/ANSI 44. Water softeners shall have a rated salt efficiency exceeding 3400 grains (gr) (220.3 g) of total hardness exchange per pound (lb) (0.5 kg) of salt, based on sodium chloride (NaCl) equivalency, and shall not generate more than 4 gallons (15 L) of water per 1000 grains (64.8 g) of hardness removed during the service cycle.

SUBSTANTIATION:
With respect to the established scope limitations of both ASHRAE 191P and WEStand, this code change proposal incorporates provisions from ASHRAE 191P relating to water treatment systems used in medical and laboratory applications.

Committee Action:
Reject

Committee Statement:
The committee did not have access to ASHRAE 191P for review, and the provided substantiation is ambiguous and lacks technical justification to support the proposed changes. Additionally, Item (1) of Section 408.2 (Water Treatment Systems) requires rewording to improve clarity and enforceability since pressure gauges do not determine when maintenance actions are necessary. Furthermore, the committee requests that these requirements be reviewed by a working group to determine their applicability to either plumbing or mechanical systems, with any resulting recommendations submitted as public comments for further consideration.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
021	2023 WE-Stand	406.1, 408.2

Submitter Name:	Organization Name:	Organization Representation:
Gary Klein	WEStand/ASHRAE 191P Working Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

408.0 Medical and Laboratory Facilities.

408.2 Water Treatment Systems. Water treatment systems for medical and laboratory applications shall comply with the following:
(1) Means shall be provided to indicate when backwash or filter changes are required.
(2) Recharge cycles for water softeners shall be set based on conductivity or hardness.
(3) Water softeners shall also comply with Section 406.1.

(renumber remaining sections)

406.0 Water Softeners and Treatment Devices.
406.1 Water Softeners. Water softeners shall be listed to NSF/ANSI 44. Water softeners shall have a rated salt efficiency exceeding 3400 grains of total hardness exchange per pound (gr/lb) (485.7 g/kg) of salt, based on sodium chloride (NaCl) equivalency, and shall not generate more than 4 gallons of water per 1000 grains (0.23 L/g) of hardness removed during the ~~service~~recharge cycle.

Substantiation:
Water treatment systems in medical and laboratory applications can consume significant volumes of water during maintenance cycles. To reduce water waste, these cycles should occur based on actual equipment conditions rather than fixed schedules.

Item (1): Backwashing is used to flush out debris accumulated in the filter. Requiring a means to indicate when backwash is needed ensures that cycles occur based on actual system conditions.

Item (2): Recharge cycles for water softeners use a significant amount of water to flush the resin and send the brine and minerals to drain. Requiring recharge cycles to be based on conductivity or hardness ensures that flushing occurs only when the resin is exhausted.

Item (3): Section 406.1 includes product listing and water efficiency requirements for water softeners.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
022

Code Number:
2023 WE-Stand

Section Number:
408.3.1

SUBMITTER:
Fred Betz

Organization Name:
NeuMod Labs

Organization Representation:

RECOMMENDATION:
Add new text

Proposed Text :

408.0 Medical and Laboratory Facilities.

408.3 Steam Sterilizers. (remaining text unchanged)
408.3.1 Design Requirements. Steam sterilizers shall be designed in accordance with the following:
(1) Operate using mechanical vacuum equipment.
(2) Be sized to meet the volume and rate requirements for the specific application.
(3) Maximize claim recovery rates in accordance with the equipment manufacturer's specifications.
(4) Use equipment with recirculation, shutoff capability when not in use, or both.
(5) Be set to the minimum flow rates in accordance with the manufacturer's installation instructions.
(6) Be equipped with manual or automatic shutoff.
Exception: Sterilizers used for FDA regulated devices and instruments shall not require automatic shut off.

SUBSTANTIATION:
With respect to the established scope limitations of both ASHRAE 191P and WEStand, this code change proposal incorporates provisions from ASHRAE 191P relating to steam sterilizers used in medical and laboratory applications.

Committee Action:
Reject

Committee Statement:
The committee did not have access to ASHRAE 191P for review, and the provided substantiation is ambiguous and lacks technical justification to support the proposed changes. Additionally, the proposed language is overly restrictive and requires rewording to improve clarity and enforceability. Furthermore, the committee requests that these requirements be reviewed by a working group to determine their applicability to either plumbing or mechanical systems, with any resulting recommendations submitted as public comments for further consideration.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
022

Code Number:
2023 WE-Stand

Sections(s):
408.3, Table 1501.1

Submitter Name:
Gary Klein

Organization Name:
WEStand/ASHRAE 191P Working Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

408.0 Medical and Laboratory Facilities.

408.3 Steam Sterilizers. ~~Controls shall be installed to limit the discharge temperature of condensate or water from steam sterilizers to 140°F (60°C) or less. The discharge waste from steam sterilizers shall not be tempered with potable water. A venturi type vacuum system shall not be utilized with vacuum sterilizers.~~Steam sterilizers shall comply with the following:
(1) Vacuum shall be produced by a mechanical vacuum pump. Venturi-type vacuum systems shall not be permitted.
(2) Sterilizers used for FDA-regulated devices and instruments and sterilizers with recirculation (closed-loop cooling systems) shall be provided with means for manual shutoff. Automatic shutoff shall not be permitted.
(3) Unless otherwise specified in Section 408.3(2), sterilizers shall be provided with means for manual or automatic shutoff.
(4) Discharge water temperature shall be maintained at not less than 120°F (49°C) and not more than 140°F (60°C) by a thermostatic mixing valve complying with ASSE/ANSI 1017.

TABLE 1501.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
ASSE/ANSI 1017-2023*	Temperature Actuated Mixing Valves for Hot Water Distribution Systems	408.3

(portions of table not shown remain unchanged)

Note: ASSE/ANSI 1017 meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:
Section 408.3 (Steam Sterilizers) is being revised to provide additional clarity and expand existing requirements.

Item (1): Venturi systems use a continuous flow of water to create vacuum, and all of that water goes to drain. In steam sterilizers, vacuum is used to remove air from the chamber before sterilization and to evacuate steam after the cycle is complete. If a venturi system is used, water flows to drain every time vacuum is needed during the sterilization process. In contrast, mechanical vacuum pumps do not consume any water.

Items (2) & (3): The use of manual versus automatic shutoff for sterilizers must consider specific sterilizer types and applications. For sterilizers used for FDA-regulated devices and instruments, as well as sterilizers with recirculation or closed-loop cooling systems, automatic shutoff may interrupt critical sterilization cycles. In such cases, manual shutoff is required.

Item (4): A thermostatic mixing valve complying with ASSE 1017 is needed to achieve the prescribed minimum and maximum discharge water temperatures. The maximum discharge temperature (140°F) is consistent with the plumbing code, and the minimum discharge temperature (120°F) prevents excessive use of tempering water.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
023

Code Number:
2023 WE-Stand

Section Number:
408.4

SUBMITTER:
Fred Betz

Organization Name:
NeuMod Labs

Organization Representation:

RECOMMENDATION:
Add new text

Proposed Text :

408.0 Medical and Laboratory Facilities.

408.4 Laboratory Faucets. Laboratory faucets connected to a nonpotable water system or laboratory waste system shall have a maximum flow rate of not more than 1.5 gpm (0.09 L/s). Laboratory sinks and faucets connected to the potable water supply or sanitary drainage system shall be in accordance with the plumbing code.

SUBSTANTIATION:
With respect to the established scope limitations of both ASHRAE 191P and WEStand, this code change proposal incorporates provisions from ASHRAE 191P relating to water consumption of laboratory faucets.

Committee Action:
Reject

Committee Statement:
The committee did not have access to ASHRAE 191P for review, and the provided substantiation is ambiguous and lacks technical justification to support the proposed changes. Furthermore, the committee requests that these requirements be reviewed by a working group to determine their applicability to either plumbing or mechanical systems, with any resulting recommendations submitted as public comments for further consideration.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
023

Code Number:
2023 WE-Stand

Sections(s):
408.4

Submitter Name:
Gary Klein

Organization Name:
WEStand/ASHRAE 191P Working Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

408.0 Medical and Laboratory Facilities.

408.4 Laboratory Waste Systems. Laboratory faucets discharging to a laboratory waste system required by the plumbing code shall have a maximum flow rate of 1.5 gpm (0.095 L/s).

Substantiation:
New Section 408.4 (Laboratory Waste Systems) establishes a maximum flow rate for laboratory faucets discharging to laboratory waste systems. Laboratory waste systems are designed to collect and treat chemical, biological, or other waste from laboratory fixtures prior to discharge to the drainage system.

Where such systems are required by the plumbing code to pretreat chemical or liquid wastes, the flow rate of the laboratory faucet must be limited to 1.5 gpm to allow for effective treatment before the waste enters the plumbing drainage system. Whether the system uses neutralization, dilution, or another treatment method, a maximum flow rate of 1.5 gpm provides a consistent baseline for treatment system design and helps maintain flow within the system's rated capacity.

> ***[2024 UPC]***
> ***811.0 Chemical Wastes.***
> ***811.1 Pretreatment.*** *Chemical or liquid industrial wastes that are likely to damage or increase maintenance costs on the sanitary sewer system, detrimentally affect sewage treatment or contaminate surface or subsurface waters shall be pretreated to render them innocuous before discharge into a drainage system. Detailed construction documents of the pretreatment facilities shall be required by the Authority Having Jurisdiction. […]*

Committee Action:
Reject

Committee Statement:
The proposed section contains ambiguous terms and provides unenforceable requirements. Specifically, the terms “laboratory faucet” and “laboratory waste system” are not currently defined in the WEStand, which may lead to inconsistent interpretation and enforcement. Additionally, maximum laboratory faucet flow rates do not directly correlate to the design, performance, or capacity of laboratory waste treatment systems.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
024

Code Number:
2023 WE-Stand

Section Number:
408.5

SUBMITTER:
Fred Betz

Organization Name:
NeuMod Labs

Organization Representation:

RECOMMENDATION:
Add new text

Proposed Text :

408.0 Medical and Laboratory Facilities.

408.5 Undercounter Glassware Washers. Undercounter laboratory glassware washers shall consume less than 7 gallons (26 L) of water per cycle.

SUBSTANTIATION:
With respect to the established scope limitations of both ASHRAE 191P and WEStand, this code change proposal incorporates provisions from ASHRAE 191P relating to water consumption of undercounter laboratory glassware washers.

Committee Action:
Reject

Committee Statement:
The committee did not have access to ASHRAE 191P for review, and the provided substantiation is ambiguous and lacks technical justification to support the proposed changes. Furthermore, the committee requests that these requirements be reviewed by a working group to determine their applicability to either plumbing or mechanical systems, with any resulting recommendations submitted as public comments for further consideration.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
024

Code Number:
2023 WE-Stand

Sections(s):
408.5

Submitter Name:
Gary Klein

Organization Name:
WEStand/ASHRAE 191P Working Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

408.0 Medical and Laboratory Facilities.

408.5 Undercounter Glassware Washers. Where installed in medical and laboratory facilities, undercounter laboratory glassware washers shall consume not more than 3 gallons (11 L) of water per phase of the wash cycle.

Substantiation:
New Section 408.5 (Undercounter Glassware Washers) establishes water efficiency standards for undercounter laboratory glassware washers installed in medical and laboratory facilities. Laboratory glassware washers are specialized equipment designed to clean beakers, flasks, test tubes, pipettes, and other laboratory items.

These units operate multiple wash and rinse cycles daily in active laboratory environments, and water consumption varies significantly based on design and efficiency. Each phase consumes water independently, and a complete cycle may include four or more phases.

After review of various available appliances on the market, including both efficient and inefficient models, it was determined that the original proposal's specified maximum water usage of 7 gallons per cycle is overly restrictive. Even the more efficient models consume roughly 2.6 gal per phase or 13 gallons per cycle.

Based on this research, 3 gallons per phase of each cycle is being prescribed. This limit reflects the consumption of efficient models currently available and ensures that total cycle water use remains reasonable while maintaining the cleaning and sanitization performance required in medical and laboratory settings.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Item #:
025

Code Number:
2023 WE-Stand

Section Number:
408.6

SUBMITTER:
Fred Betz

Organization Name:
NeuMod Labs

Organization Representation:

RECOMMENDATION:
Add new text

Proposed Text :

408.0 Medical and Laboratory Facilities.

408.6 Trench Flush Systems. Trench flush systems used in laboratory animal facilities shall be automatically controlled to flush trenches at predetermined durations based on animal requirements in accordance with the Authority Having Jurisdiction.
Exception: Trench flush systems using nonpotable water.

SUBSTANTIATION:
With respect to the established scope limitations of both ASHRAE 191P and WEStand, this code change proposal incorporates provisions from ASHRAE 191P relating to trench flush systems used in laboratory animal facilities.

Committee Action:
Reject

Committee Statement:
The committee did not have access to ASHRAE 191P for review, and the provided substantiation is ambiguous and lacks technical justification to support the proposed changes. Furthermore, the committee requests that these requirements be reviewed by a working group to determine their applicability to either plumbing or mechanical systems, with any resulting recommendations submitted as public comments for further consideration.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
025

Code Number:
2023 WE-Stand

Sections(s):
408.6

Submitter Name:
Gary Klein

Organization Name:
WEStand/ASHRAE 191P Working Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

408.0 Medical and Laboratory Facilities.

408.6 Trench Flush Systems. Trench flush systems used in laboratory animal facilities shall be automatically controlled to flush trenches at predetermined durations based on animal requirements in accordance with the Authority Having Jurisdiction.

Substantiation:
Trench flush systems are specialized drainage systems that use water to remove animal waste from housing areas. Flushing frequency requirements vary based on species, population density, waste output, and facility design. Automatic controls are needed to prevent excessive water consumption by flushing based on actual animal/facility requirements given "predetermined durations."

Committee Action:
Reject

Committee Statement:
The proposed section introduces an ambiguous and unenforceable requirement. Specifically, the provision relies on undefined "predetermined durations" and variable "animal requirements" that differ by facility and health authority, and it provides no objective criteria or minimum performance requirements for consistent application by the Authority Having Jurisdiction. Additionally, this is an operational/control requirement rather than a water-efficiency provision and does not establish measurable water-performance outcomes.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
026

Code Number:
2023 WE-Stand

Section Number:
408.7

SUBMITTER:
Fred Betz

Organization Name:
NeuMod Labs

Organization Representation:

RECOMMENDATION:
Add new text

Proposed Text :

408.0 Medical and Laboratory Facilities.

408.7 Vivarium Animal Watering Systems. Vivarium animal watering systems shall comply with the following:
(1) Cage and rack washers shall recycle water through a countercurrent rinsing process.
(2) Water shall be supplied to animals in accordance with one of the following methods:
(a) Bottled water.
(b) Recirculated water at the main supply and room level, but not at individual cage racks. The recirculation system shall adjust the flush duration to adequately match the pipe volume required for turnover.
(c) Recirculated water at the main level and flushed at the room level. The recirculation system shall adjust the flush duration to adequately match the pipe volume required for turnover.
(d) Complete recirculated water system through cage racks. Recirculated water shall be treated prior to reuse.
(3) Tunnel washers shall be used for washing of small cages.

SUBSTANTIATION:
With respect to the established scope limitations of both ASHRAE 191P and WEStand, this code change proposal incorporates provisions from ASHRAE 191P relating to vivarium animal watering systems.

Committee Action:
Reject

Committee Statement:
The committee did not have access to ASHRAE 191P for review, and the provided substantiation is ambiguous and lacks technical justification to support the proposed changes. Furthermore, the committee requests that these requirements be reviewed by a working group to determine their applicability to either plumbing or mechanical systems, with any resulting recommendations submitted as public comments for further consideration.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
026

Code Number:
2023 WE-Stand

Sections(s):
408.7 – 408.7.2

Submitter Name:
Gary Klein

Organization Name:
WEStand/ASHRAE 191P Working Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

408.0 Medical and Laboratory Facilities.

408.7 Vivarium Watering and Washing. Water use for vivarium watering and washing shall comply with Section 408.7.1 and Section 408.7.2.
408.7.1 Animal Watering. Potable water shall be provided to animals by either bottled water supply or a recirculating animal watering system. Where installed, recirculating animal watering systems shall be recirculated to the room level. Recirculated water in a closed-loop system shall be treated prior to reuse.
408.7.2 Cage and Rack Washers. Cage and rack washers shall recycle rinse water through a countercurrent rinsing process.

Substantiation:
The original proposal referred to "vivarium animal watering systems," but supplying bottled water is an alternative to installing a watering system, and the section also addresses washing equipment. Therefore, the title and charging statement now reference "vivarium watering and washing" to accurately reflect the scope of the provisions.

Rather than prescribing specific plumbing configurations that all attempt to solve the same issue, the language now focuses on the core requirements: recirculation to the room level and treatment in closed-loop systems. This approach addresses water conservation through recirculation and water quality through treatment without dictating exactly how the plumbing must be configured. Facilities can choose the configuration that works best for their layout, animal density, and operational needs while still meeting this intent.

Additionally, the requirement for tunnel washers was removed. The original language stated that tunnel washers must be used for washing small cages, but "small" is undefined and unenforceable. Tunnel washers are designed for high-volume continuous processing, not specifically for small cages.

Committee Action:
Reject

Committee Statement:
The proposed requirements do not establish clear or enforceable criteria for recirculating systems. Key parameters such as branch volume from the loop, turnover, and treatment requirements are not defined, resulting in ambiguity and inconsistent enforcement. Additionally, the prescriptive approach is not clearly linked to verifiable water-efficiency outcomes.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
027

Code Number:
2023 WE-Stand

Section Number:
409.0, 409.1

SUBMITTER:
Kyle Thompson

Organization Name:
WEStand Water-Conserving Plumbing Fixtures and Fittings Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

409.0 ~~Leak~~ Detection, Monitoring, and Control.
409.1 General. Where installed, ~~leak detection and control~~ devices for detection, monitoring, or control of water supply and distribution systems shall comply with IAPMO IGC 115, IAPMO IGC 349, or ANSI/CAN/IAPMO Z1349. Leak detection with control devices shall not restrict flow to fire suppression systems.

SUBSTANTIATION:
This code change proposal revises the charging statement of Section 409.1 (General) to align with the scope of products covered by IAPMO Z1349 (Devices for Detection, Monitoring or Control of Plumbing Systems). This proposal also serves a placeholder for future a public comment to remove superseded standards (IAPMO IGC 115 and IAPMO IGC 349). IAPMO Z1349 covers devices for detection, monitoring, or control of water supply and distribution systems in sizes DN 8 to DN 300 (NPS 1/4 to NPS 12) for commercial and residential applications and specifies requirements for materials, performance testing, environmental limitations, installation, and markings.

The WEStand Water-Conserving Plumbing Fixtures and Fittings Task Group requests input from the public and industry experts, via the submission of public comments, as to whether these revisions and the required product listings are appropriate as presented in Section 409.1.

Committee Action:
Accept As Amended by the TC

Proposed Text :

409.0 Detection, Monitoring, and Control.
409.1 General. Where installed, devices for detection, monitoring, or control of water supply and distribution systems shall comply with IAPMO IGC 115, IAPMO IGC 349, or ANSI/CAN/IAPMO Z1349. Leak detection with control devices shall not restrict flow to fire ~~suppression~~sprinkler systems.

Committee Statement:
Fire suppression systems may include gases (CO_2, Argon, FM-200), dry chemicals, foam, and other fire suppression agents. IAPMO IGC 115, IAPMO IGC 349, and IAPMO Z1349 specifically address water leak detection and control devices. However, the last sentence of Section 409.1 (General) extends these requirements to all fire suppression systems, which is inappropriate since certain fire suppression systems incorporate built-in leak detection to prevent unintended venting. The original term "fire sprinkler systems" is preferable, as sprinkler systems primarily rely on water supply and distribution.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
11	15	0	3

Failed Ballot Disclaimer:
NOTE: Item #027 failed to achieve the necessary 2/3 affirmative vote of returned ballots. In accordance with Section 6.8.2 of the Regulations Governing Consensus Development of WEStand, a public comment is requested for this proposal. The technical committee will reconsider this proposal as a public comment.

EXPLANATION OF NEGATIVE:
CUDAHY: The term "leak" should remain.

KEHOE: This needs additional clarity.

KENDZEL: It is not clear what is being "detected, monitored, or controlled" in the water supply. This language needs clarification before it can be included in the standard.

KLEIN: The intent of the changes to this section remains unclear.

LANDO: It is unclear what is being detected, "leak" should remain.

LENGER: This needs clarity.

MANN: I am in agreement with the comments by Phil Ribbs and Jim Kendzel. Removing the term "leak" makes the remaining language very unclear.

NICKELSON: I agree with other comments. The term "leak" should remain.

POTTS: The word "leak" should remain so that the intent is clear.

PREMER: This needs clarity.

RIBBS: I agree with Jim Kendzel. It is not clear what is being "detected, monitored, or controlled" in the water supply.

B. SMITH: It is unclear what is being detected. The term "leak" should remain.

SOVOCOOL: I agree that some reference to water loss or at least a specific condition is needed, as the language is now too vague.

TSENG: I agree with Jim Kendzel's comment.

WHITE: It is unclear what is being detected. The term "leak" should remain.

EXPLANATION OF AFFIRMATIVE:
BRABAND: For emergencies, all available pressure should be used.

KOELLER: This small clarification is a needed step forward, but overall, this provision has a long way to go before it actually addresses systems intended to detect leaks.

In fact, most of the "leak detection" systems in the marketplace today (there are dozens) do not detect "leaks" but rather detect water and do not actually determine whether small (or large) water flows are actually "leaks." Furthermore, the IAPMO standard currently being cited is entirely inadequate for the type of equipment and devices being marketed today.

VOTES NOT RETURNED:
Crawford, Granger, A. Smith

Comment 1

Item #:	**Code Number:**	**Sections(s):**
027	2023 WE-Stand	409.1

Submitter Name:	**Organization Name:**	**Organization Representation:**
Jazmin Curiel	Self	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

409.0 Leak Detection and Control.
409.1 General. ~~Where installed, leak detection and control devices~~Leak detection, control, and monitoring devices for water supply and distribution systems shall comply with IAPMO IGC 115, IAPMO IGC 349, or ANSI/CAN/IAPMO Z1349. ~~Leak detection with control d~~Devices equipped with automatic shut-off or flow control shall not restrict flow to fire ~~suppression~~sprinkler systems.

Substantiation:
IAPMO IGC 115, IAPMO IGC 349, and ANSI/CAN/IAPMO Z1349 are specific to water supply and distribution systems, as they apply only to devices that connect to, monitor, control, or shut off potable plumbing water systems. Their requirements are written around the hydraulic, material, safety, and performance characteristics of pressurized water piping, and their scopes explicitly reference water supply and distribution systems, including main and branch piping in defined pipe sizes used for plumbing applications.

As noted in the committee statement for amending Item #027: “Fire suppression systems may include gases (CO_2, Argon, FM-200), dry chemicals, foam, and other fire suppression agents. IAPMO IGC 115, IAPMO IGC 349, and IAPMO Z1349 specifically address water leak detection and control devices. However, the last sentence of Section 409.1 (General) extends these requirements to all fire suppression systems, which is inappropriate since certain fire suppression systems incorporate built-in leak detection to prevent unintended venting. The original term ‘fire sprinkler systems’ is preferable, as sprinkler systems primarily rely on water supply and distribution.”

Additionally, the revised phrase "devices equipped with automatic shut-off or flow control" ties the restriction to the specific functional characteristic that creates the hazard and applies it to any device with the ability to interrupt or reduce water flow to the fire sprinkler system.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
027	2023 WE-Stand	409.1

Submitter Name:	Organization Name:	Organization Representation:
Shuo-Jan Teng	CA Department of Water Resources	Self

Recommendation:
Reject the Code Change Proposal

Proposed Text:

Request to **reject** the code change proposal by this public comment.

Substantiation:
Removing the word “leak” from the section title and body creates ambiguity. The existing section is deliberately scoped to leak detection and control devices and ties compliance to specific product standards for those functions. The proposal obscures what is being detected or controlled within water supply and distribution systems and invites inconsistent interpretation by AHJs and installers.

Committee Action:
Reject

Committee Statement:
Public Comment #2 is being rejected in favor of the action taken on Public Comment #1.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
028

Code Number:
2023 WE-Stand

Section Number:
409.2, 411.1.2

SUBMITTER:
Avishai Moscovich

Organization Name:
WINT Water

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

409.0 Leak Detection and Control.

409.2 Unusual Flow. Leak detection and control devices shall be capable of detecting unusual flow conditions in accordance with Section 411.1.2 and shall be equipped with an alarm to notify building owners, tenants, or maintenance personnel when unusual flow conditions are detected. Where required by the Authority Having Jurisdiction, such devices shall automatically shut off or isolate the supply piping upon detection of unusual flow conditions. Where installed, cooling towers, evaporative coolers, chiller systems, and heating systems shall be monitored to detect water loss from drift, blowdown, and pipe leaks.

411.0 Meters.
411.1 Required. (remaining text unchanged)

411.1.2 Unusual Flow. Data reported during unusual flow conditions shall be capable of being analyzed. ~~when one or more of the following unusual flow conditions are met:~~
~~(1) Consumption measured is greater than 0.25 gallon per minute (gpm) (1.0 L/min) for more than 6 consecutive hours at a consistent (+/- 0.5 gpm) (+/- 2 L/min) measurement at each interval.~~
~~(2) Flow rate exceeds 0.25 gallon per minute (gpm) (1.0 L/min) more than 4 times within a 15-minute interval, where each peak is within 0.5 gpm (2.0 L/min) of each other during low water demand period(s).~~
~~(3) Average water consumption for a 15-minute interval exceeds the average water consumption by greater than 50 percent when compared to the average usage calculated in the previous measured intervals.~~
Unusual flow conditions shall include, but are not limited to, the following:
(1) Sustained low-flow anomalies in residential or irrigation systems.
(2) A sudden increase in demand that exceeds the average hourly water consumption during periods of low occupancy.
(3) Continuous flow events outside of the expected operational schedules.

SUBSTANTIATION:
Leak detection is critical across irrigation, HVAC, and domestic water distribution systems, each requiring specific monitoring strategies to prevent excessive water waste and infrastructure damage. Systems should provide real-time detection and response capabilities, including edge computing for rapid anomaly detection, alerts in various formats, and the ability to isolate affected systems. Integration with building automation systems (BAS) and smart water management platforms enhances operational efficiency and reduces downtime.

Committee Action:
Reject

Committee Statement:
Section 409.2 (Unusual Flow) proposes overly restrictive requirements on leak detection and control devices and includes monitoring requirements for “cooling towers, evaporative coolers, chiller systems, and heating systems,” which may fall outside the scope of the WEStand. Additionally, the language in Section 411.1.2 (Unusual Flow) requires rewording to improve clarity and enforceability. Furthermore, the committee requests that these requirements be reviewed by a working group to determine their applicability to either plumbing or mechanical systems, with any resulting recommendations submitted as public comments for further consideration.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	1	0	4

EXPLANATION OF NEGATIVE:
MOSCOVICH: I respectfully object to the rejection of this proposal. The original language in Section 411.1.2 (Unusual Flow) includes prescriptive heuristics that may inadvertently limit the adoption of modern and more effective leak detection technologies.

The proposed revision aimed to replace these rigid thresholds with more performance-based and adaptable criteria. This change would allow systems to:

• Continuously adapt detection parameters based on actual building usage patterns and seasonal variability.
• Utilize AI or machine learning algorithms for flow pattern recognition rather than fixed triggers.
• Identify a broader spectrum of water anomalies that traditional heuristics may miss, such as sustained low-flow leaks that do not trigger high-volume alarms.

Given the rapid innovation in smart metering and anomaly detection, codifying rigid thresholds at this stage risks obsolescence and may deter the market from introducing advanced solutions that exceed the current baseline. A more generalized performance-based approach would preserve the intent of accurate detection while fostering innovation.

EXPLANATION OF AFFIRMATIVE:
KLEIN: The ability to monitor flow rates, both normal and unusual, is critical to understanding water use in buildings. However, the proposal is unclear.

KOELLER: The subject of leak detection and related standards needs to be fully addressed before our next meeting. I suggest that a task group be established now to begin a thorough review and analysis, to be completed by spring of 2026.

LENGER: Different flow measurement technologies have different detection limits. The proposal is well intended but lacks specifics. This is a very important topic that needs to be addressed.

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
028	2023 WE-Stand	409.2

Submitter Name:	Organization Name:	Organization Representation:
Gary Klein	WEStand/ASHRAE 191P Working Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

409.0 Leak Detection and Control.

409.2 Unusual Flow. Leak detection and control devices shall be capable of detecting unusual flow conditions in accordance with Section 411.1.2 and shall be equipped with an alarm to notify building owners, tenants, or maintenance personnel when unusual flow conditions are detected. Where required by the Authority Having Jurisdiction, such devices shall automatically shut off or isolate the supply piping upon detection of unusual flow conditions.

(shown for information purposes only)

411.1.2 Unusual Flow. Data shall be capable of being analyzed when one or more of the following unusual flow conditions are met:
(1) Consumption measured is greater than 0.25 gpm (0.0158 L/s) for more than 6 consecutive hours at a consistent (+/- 0.5 gpm) (+/- 0.032 L/s) measurement at each interval.
(2) Flow rate exceeds 0.25 gpm (0.0158 L/s) more than 4 times within a 15-minute interval, where each peak is within 0.5 gpm (0.032 L/s) of each other during low water demand period(s).
(3) Average water consumption for a 15-minute interval exceeds the average water consumption by greater than 50 percent when compared to the average usage calculated in the previous measured intervals.

Substantiation:
This public comment aims to make the connection between leak detection and control devices, unusual flow conditions, and necessary responses or actions. Therefore, new Section 409.2 (Unusual Flow) requires leak detection and control devices to be capable of identifying the unusual flow conditions, as defined in Section 411.1.2, and providing alarm notifications upon detection to allow building owners or maintenance staff to respond quickly to potential leaks. Automatic shut-off capability offers additional protection but may not be appropriate for all building types, so this requirement is left to the Authority Having Jurisdiction.

Committee Action:
Reject

Committee Statement:
The proposed section raises significant enforcement and operational concerns. Specifically, the provisions may result in unintended interruption of essential operational or life-safety water services due to automatic responses from leak detection and control devices.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

EXPLANATION OF AFFIRMATIVE:
OSANN: I agree with John Koeller's comment on the original proposal that a task group should be formed on leak detection.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
030

Code Number:
2023 WE-Stand

Section Number:
415.7

SUBMITTER:
Fred Betz

Organization Name:
NeuMod Labs

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

415.0 Landscape Design and Installation.

415.7 Use of Alternate Water Sources for Irrigation. ~~Where available by pre-existing treatment, storage or distribution network, and where approved by the Authority Having Jurisdiction, alternate water source(s) complying with Chapter 7 shall be utilized for irrigation.~~Where approved by the Authority Having Jurisdiction, alternate water sources complying with Chapter 7 and available through pre-existing treatment, storage, or a distribution network within 1000 feet (305 m) of the property boundary shall be used for irrigation. Where adequate capacity and volumes of pre-existing alternative water sources are available, the irrigation system shall be designed to use a minimum of 75 percent of alternate water to meet the annual irrigation demand.
Exception: Plants grown for food production for direct human consumption.

SUBSTANTIATION:
With respect to the established scope limitations of both ASHRAE 191P and WEStand, this code change proposal incorporates provisions from ASHRAE 191P relating to the use of available alternate water sources for irrigation.

Committee Action:
Reject

Committee Statement:
The committee did not have access to ASHRAE 191P for review, and the provided substantiation is ambiguous and lacks technical justification to support the proposed changes.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
030

Code Number:
2023 WE-Stand

Sections(s):
415.7

Submitter Name:
Gary Klein

Organization Name:
WEStand/ASHRAE 191P Working Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to replace the code change proposal by this public comment.

415.0 Landscape Design and Installation.

415.7 Use of Alternate Water Sources for Irrigation. ~~Where available by pre-existing treatment, storage or distribution network, and where approved by the Authority Having Jurisdiction, alternate water source(s) complying with Chapter 7 shall be utilized for irrigation.~~Where approved by the Authority Having Jurisdiction, alternate water sources that comply with this standard and are available through pre-existing treatment, storage, or a distribution network within 1000 feet (305 m) of the property boundary shall be used for irrigation.
Where adequate capacity and volumes of pre-existing alternative water sources are available, the irrigation system shall be designed to use a minimum of 75 percent of alternate water to meet the annual irrigation demand.
Exception: Plants grown for food production for direct human consumption.

Substantiation:
The first requirement in Section 415.7 (Use of Alternate Water Sources for Irrigation) is being restructured for clarity and to provide a defined distance threshold for determining when alternate water sources are considered "available." The current text lacks specificity and may lead to inconsistent enforcement across jurisdictions.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
032

Code Number:
2023 WE-Stand

Section Number:
Chapter 2, 419.0 - 419.6

SUBMITTER:
Ed Osann

Organization Name:
WEStand Data Center Water Use Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

419.0 Data Centers.
419.1 Applicability. This section shall apply to data centers that, at 100 percent of design load, require more than 1 megawatt (MW) of electrical capacity to operate information technology equipment.
419.2 Water Use Effectiveness. Data centers shall be designed to achieve a Water Usage Effectiveness (WUE) of not more than 0.048 gal/kWh (0.182 L/kWh). The WUE shall be the ratio of the annual water usage (gal)(L) to the annual IT energy load (kWh) of the data center. The annual water usage (gal)(L) shall be the total volume of water supplied to the data center for all purposes minus the total volume of water supplied to the data center from alternate water sources.
419.3 Water Supplied to a Data Center. All water supplied to a data center shall be measured with one or more water service meters equipped with remote data transfer capability. Water supplied from an alternate water source shall be measured separately.
419.3.1 Water Used by a Data Center. Data centers shall be provided with a sub-metering system for water supplied to each critical operation including, but not limited to, cooling systems, process equipment, and outdoor irrigation. Sub-metering systems shall be equipped with remote data transfer capability to enable deviations from typical flow and consumption patterns to be detected in real time. Sub-metering systems shall be capable of initiating automated alerts in response to unusual changes in flow conditions. Metering and monitoring data shall be integrated into the facility's building management system.
419.4 Backup Water Supplies for Interrupted Service. Onsite water storage facilities for the purpose of maintaining uninterrupted availability of water shall be designed to provide water draw-down and replenishment at the frequency required to maintain water quality for its intended use. The site plan submitted by the project applicant shall identify the location to which water leaking or purged from an onsite water storage facility will be directed and the manner of its conveyance.
419.5 Documentation. Calculations of the estimated Water Usage Effectiveness of a data center shall be submitted in accordance with Section 105.0.
419.6 Validation. Where required by the Authority Having Jurisdiction, the WUE determined in accordance with Section 419.2 shall be validated through a third-party certification body or accredited auditor. The results of the third-party validation or audit shall be summarized in a validation report prepared by the registered design professional. The validation report shall include the seasonal variations in water usage and IT energy load, the WUE, and sub-metering data.

203.0 - A -
Alternate Water Source. Nonpotable source of water that includes, but is not limited to, gray water, on-site treated nonpotable water, rainwater, and reclaimed (recycled) water. This does not include water that has less than 1000 ppm of TDS and is self-supplied by a project applicant.

206.0 - D -

Data Center. An enclosed space, building, or group of buildings, whose function is the storage, management, and processing of digital data through the use of information technology equipment located therein.

211.0 - I -

Information Technology (IT) Equipment. Computers and associated components such as servers, data storage devices, and communications and network equipment.

Information Technology (IT) Energy Load. Electrical energy (kWh) provided to the information technology equipment installed in a data center.

225.0 - W -

Water Usage Effectiveness (WUE). A measure of the efficient use of water by a data center; the ratio of the annual water usage (gal)(L) to the annual IT energy load (kWh) of a data center.

(shown for information purposes only)

105.0 Plans and Specifications.
105.1 Construction Documents. Construction documents, engineering calculations, diagrams, and other data shall be submitted in two or more sets with each application for a permit. The construction documents, computations, and specifications shall be prepared by, and the plumbing designed by, a registered design professional. Construction documents shall be drawn to scale with clarity to identify that the intended work to be performed is in accordance with the code.
Exception: The Authority Having Jurisdiction shall be permitted to waive the submission of construction documents, calculations, or other data where the Authority Having Jurisdiction finds that the nature of the work applied for is such that reviewing of construction documents is not necessary to obtain compliance with this standard.
105.2 Supplemental Information. Supplemental information necessary to verify compliance with this standard, such as calculations, worksheets, compliance forms, product listings, or other data, shall be made available when required by the Authority Having Jurisdiction.

SUBSTANTIATION:
The WEStand Data Center Water Use Task Group has generated requirements for the water efficiency of large new data centers. An explanation of each proposed section is provided below.

Section 419.1 (Applicability): The proposed requirements are applicable to data centers requiring more than 1 MW of electrical capacity for operation of IT equipment. This threshold is established to avoid requirements on small operators or businesses with minor IT needs. Above this threshold, data centers are typically purpose-built facilities and considered large-scale due to their significant energy use, infrastructure, and environmental impact. The electrical capacity threshold is based on 100% of the design load. This prevents the use of partial loads when determining the applicability of these requirements. During initial phasing and scaling of operations, electrical loads are typically much lower than the maximum design load.

Section 419.2 (Water Use Effectiveness): Water Use Effectiveness (WUE) is a recognized sustainability metric used to describe how efficiently a data center uses water in relation to the IT equipment it supports. As stated by the definition for this term, the WUE is a ratio of the annual water usage (gal) to the annual IT energy load (kWh) of the data center. By prescribing a maximum WUE ratio, the WEStand promotes the use of water conserving or water-free cooling technologies. And by excluding alternate water sources from the WUE calculation, WEStand promotes the use of non-potable water where available.

The listed maximum WUE of 0.048 gal/kWh (0.18 L/kWh) is publicly reported as a company-wide average achieved by two major hyperscalers in 2023. If there is additional documentation of large data centers operating with lower WUE ratios, such information should be provided via public comment for review by the TC. Please note that the below values from Amazon Web Services (AWS) are self-reported.

From AWS Sustainability Report 2023: Water Use Effectiveness
"AWS minimizes water use by using real-time data to identify leaks, piloting new treatment technologies, and exploring a range of operational changes, such as installing sensors and alerts to track water use and detect anomalies. Global teams deploy water monitoring technology in AWS data centers to determine where they need to take action to maintain or improve WUE. In 2023, AWS installed thousands of sensors in its data centers to track water use. Automatic alerts inform AWS of any anomalies so that operators can investigate in near-real time. AWS also invested in on-site water treatment systems that remove scale-forming minerals and allow AWS to recycle more water on-site and minimize the water consumed for cooling. These technologies helped improve AWS's industry-leading global data center WUE to 0.18 liters of water per kilowatt-hour (L/kWh) in 2023 from 0.19 L/kWh in 2022—a 5% improvement year over year and a 28% improvement since 2021."

AWS Water Use Effectiveness	2021	2022	2023	YOY
Water use effectiveness (L/kWh)	0.25	0.19	0.18	-5%

Section 419.3 (Water Supplied to a Data Center) & Section 419.3.2 (Water Used by a Data Center): Service meters and sub-metering systems equipped with remote data transfer capability offer real-time monitoring, alerts for unusual flow patterns, and integration with Building Management Systems. Sub-metering systems are specifically needed for accurate tracking, monitoring, control, and reporting of water usage across individual systems or components. This monitoring and reporting capability is necessary for identifying operational inefficiencies. Because the WUE is intended to highlight a data center's impact on potable water supplies, separate metering is required for any alternate water sources.

Section 419.4 (Backup Water Supplies for Interrupted Service): Onsite water storage facilities may be used to ensure continuous operation in the event of water supply interruptions or restrictions. Such facilities must be designed to allow for regular draw-down and replenishment to maintain water quality. This prevents stagnation, bacterial build-up, and chemical imbalances and the resulting need to purge stored water to ensure the water is suitable for use.

Section 419.5 (Documentation): Users of the standard are directed to existing Section 105.0 (Plans and Specifications) which lays out the requirements for construction documents to be submitted to the AHJ.

Section 419.6 (Validation): To ensure that the WUE calculated for a data center at the time of approval is subsequently achieved in practice, it must be validated by a third-party certification body or accredited auditor. Furthermore, the audit must be summarized within a validation report that is prepared by a registered design professional who has the technical expertise to understand complex water and mechanical systems as well as interpret metering and submetering data accurately. This ensures that the validation report is technically sound and reflective of the actual design and operation of the data center. However, post-construction validation is only required when specifically called for by an Authority Having Jurisdiction.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

EXPLANATION OF AFFIRMATIVE:
KOELLER: A medium sized data center uses as much water as 10,000 people. A large data center uses the equivalent of 50,000 people. The WEStand Data Center Water Use Task Group should continue work on this very significant new area of water use and provide us with an update at the next WEStand committee meeting.

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
032	2023 WE-Stand	419.2

Submitter Name:	Organization Name:	Organization Representation:
Jim Majerowicz	Plumbers Local 130, UA	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

419.0 Data Centers.

419.2 Water Use Effectiveness. Data centers shall be designed to achieve a Water Usage Effectiveness (WUE) of not more than ~~0.048~~0.085 gal/kWh (~~0.182~~0.32 L/kWh). The WUE shall be the ratio of the annual water usage (gal)(L) to the annual IT energy load (kWh) of the data center. The annual water usage (gal)(L) shall be the total volume of water supplied to the data center for all purposes minus the total volume of water supplied to the data center from alternate water sources.

Substantiation:
The current WUE threshold of 0.182 L/kWh in Section 419.2 is not supported by data as a broadly achievable U.S. standard. It falls below the 2023 median for the specific segment of the data center industry regulated by this provision, is achievable only by operators whose global fleet averages are weighted toward cool climates, effectively prohibits evaporative cooling technologies, and risks increasing total system water consumption by shifting demand upstream to power generation.

Data centers requiring more than 1 megawatt of IT electrical capacity correspond precisely to the hyperscale and large colocation segment of the market. The publicly reported WUE figures from these operators are most relevant for benchmarking. Review of those figures demonstrates that the current threshold of 0.182 L/kWh is not achievable on a broad portfolio basis even by the most water-efficient operators.

According to the Lawrence Berkeley National Laboratory's 2024 United States Data Center Energy Usage Report, the aggregate median WUE for hyperscale data centers in 2023 was 0.32 L/kWh. The overall U.S. average WUE across all data center types stays just over 0.36 L/kWh through 2023, with the national average projected to rise to 0.45 to 0.48 L/kWh by 2028 as liquid cooling adoption increases. The current threshold of 0.182 L/kWh is significantly below both the hyperscale category median and the broader national average, and below even the most optimistic forward-looking projections for the broader market.

It is critical to note that the original WUE metric was selected based on AWS data, which achieves their global average by weighing their fleets heavily toward temperate or cool climates where free-air cooling eliminates most on-site water use. For example, AWS uses no water to cool its data centers for 95% of the year in Ireland and Sweden. These figures are not representative of what a broadly located U.S. facility (including those in Arizona, Nevada, Texas, or Florida) can realistically achieve. A single national threshold of 0.182 L/kWh would be unachievable for facilities in warm or arid U.S. climates regardless of the cooling technology employed.

Additionally, evaporative cooling equipment (including cooling towers, evaporative condensers, and adiabatic coolers) is the dominant heat rejection technology in U.S. data centers. These systems achieve energy efficiency (PUE) values of 1.05 to 1.2, but their on-site water consumption is typically 1.5 to 3.0 L/kWh depending on climate. A threshold of 0.182 L/kWh would functionally require all covered facilities to use closed-loop liquid cooling or air-side economization as their primary cooling strategy. Meanwhile, the proposed threshold of 0.32 L/kWh aligns with the LBNL-modeled aggregate median for the hyperscale category and can be achieved by well-optimized evaporative and hybrid cooling systems using best practices including high cycles of concentration, variable frequency drives, air-side economization, and alternate water sources, without mandating a specific technology.

Lastly, the WUE metric of 0.182 L/kWh measures only water delivered to the data center facility and does not account for water consumed upstream by electricity generation. Facilities that reduce on-site water use to comply with a stringent threshold will necessarily draw more electricity from the grid to power energy-intensive mechanical cooling systems. According to the Lawrence Berkeley National Laboratory's 2024 United States Data Center Energy Usage Report, the indirect water consumption footprint from electricity use of U.S. data centers was approximately 800 billion liters in 2023, equivalent to approximately 4.52 L/kWh of indirect water consumption nationally. A more achievable threshold of 0.32 L/kWh reduces the incentive to shift toward higher electricity-consuming cooling systems and therefore reduces this upstream water risk.

References:

1. Shehabi, Arman, Alex Newkirk, Sarah J. Smith, Alex Hubbard, Nuoa Lei, Md Abu Bakar Siddik, Billie Holecek, Jonathan Koomey, Eric Masanet, and Dale Sartor. *2024 United States Data Center Energy Usage Report*. Berkeley, CA: Lawrence Berkeley National Laboratory, December 2024. LBNL-2001637. https://eta-publications.lbl.gov/sites/default/files/2024-12/lbnl-2024-united-states-data-center-energy-usage-report_1.pdf.
2. Amazon Web Services. "How AWS Will Return More Water Than It Uses by 2030." https://www.aboutamazon.com/news/aws/aws-water-positive-by-2030.
3. Amazon Web Services. "Five Ways AWS Data Centres Benefit Local Communities in Ireland." https://www.aboutamazon.eu/news/aws/five-ways-aws-data-centres-benefit-local-communities-in-ireland.

Committee Action:

Reject

Committee Statement:

Public Comment #2 was heard prior to Public Comment #1. Public Comment #1 is being rejected in favor of the action taken on Public Comment #2.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
21	3	0	5

EXPLANATION OF NEGATIVE:
HARLAN: I agree with Phil Ribbs' logic.

RIBBS: Although Public Comment #1 and Public Comment #2 result in the same new proposed language, the substantiation provided with Public Comment #1 is acute, precisive, and verifiable. Whereas the substantiation provided with Public Comment #2 is incomplete and therefore inaccurate.

TSENG: I agree with Phil Ribbs' comment.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
032	2023 WE-Stand	419.2

Submitter Name:	Organization Name:	Organization Representation:
Ed Osann	Self	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

419.0 Data Centers.

419.2 Water Use Effectiveness. Data centers shall be designed to achieve a Water Usage Effectiveness (WUE) of not more than ~~0.048~~0.04 gal/kWh (~~0.182~~0.15 L/kWh). The WUE shall be the ratio of the annual water usage (gal)(L) to the annual IT energy load (kWh) of the data center. The annual water usage (gal)(L) shall be the total volume of water supplied to the data center for all purposes minus the total volume of water supplied to the data center from alternate water sources.

Substantiation:
Additional information on data center water use has become available since this proposal was originally filed. In its 2024 Sustainability Report, Amazon Web Services reported achieving a system-wide Water Use Effectiveness (WUE) of 0.15 L/kWh, a 17% improvement over its performance of 0.18 L/kWh in 2023, upon which the original proposal was based.

Microsoft did not report WUE in its 2024 Sustainability Report, but stated that it was on track to meet its goal of improving its WUE by 40% by 2030 compared with 2022 levels, thus committing to major improvements as well. Further, Microsoft stated that its "new data centers are designed and optimized to support AI workloads and will consume zero water for cooling."

Data center technology is a rapidly evolving field, backed by enormous financial resources. The forthcoming edition of WEStand should require new facilities to achieve the most water-efficient performance that is currently being reported by industry leaders. For that reason, the WUE requirement should be 0.15 L/kWh, rather than 0.18 L/kWh.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
21	3	0	5

EXPLANATION OF NEGATIVE:
HARLAN: I agree with Phil Ribbs' logic.

RIBBS: Although Public Comment #1 and Public Comment #2 result in the same new proposed language, the substantiation provided with Public Comment #1 is acute, precisive, and verifiable. Whereas the substantiation provided with Public Comment #2 is incomplete and therefore inaccurate.

TSENG: I agree with Phil Ribbs' comment.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:	Code Number:	Section Number:
034	2023 WE-Stand	501.1, 502.1, 502.2.2

SUBMITTER:	Organization Name:	Organization Representation:
Gary Klein	Self	
Michael McNally (Department of Safety and Professional Services)		

RECOMMENDATION:
Revise text

Proposed Text :

501.0 General.
501.1 Applicability. The provisions of this chapter shall establish the method for estimating the supply demand load for the building water supply and principal branches and risers that supply two or more fixtures, fixture fittings, and appliances for new construction of single- and multi-family dwellings. The plumbing code shall be used for all other occupancies.
Note: The requirements listed in this chapter are based on the technical paper entitled "Peak Water Demand Study." Both the Water Demand Calculator and a copy of this technical paper are available for download at: https://www.iapmo.org/water-demand-calculator/.

502.0 Demand Load.
502.1 Water Demand Calculator. The estimated supply demand flow rate for the building supply and principal branches and risers that supply two or more fixtures, fixture fittings, and appliances shall be determined by the IAPMO Water Demand Calculator.

502.2 Supply Demand. (remaining text unchanged)

502.2.2 Branches and Risers. To determine the supply demand flow rate for branches and risers, enter the total number of each plumbing fixture and appliance on each branch or riser into the Water Demand Calculator and run the Calculator. The flow rate for one fixture branch and one fixture supply shall be the design flow rate of the fixture, ~~according to~~fixture fitting, or appliance up to the maximum listed in Table 502.1.1.

SUBSTANTIATION:
The Water Demand Calculator is intended to be used to estimate the supply demand on branches or risers serving two or more fixtures, fixture fittings, or appliances. Several users of the chapter are unclear that this is the case.

Section 501.1 (Applicability): The proposed modification clarifies the intent in the charging paragraph for the appendix.

Section 502.1 (Water Demand Calculator): The proposed modification clarifies the intent in the section on estimating the demand load.

Section 502.2.2 (Branches and Risers): The proposed modification clarifies that the flow rate for each fixture branch or fixture supply can be the design flow rate up to the maximum allowed in the table.

Committee Action:
Accept As Amended by the TC

Proposed Text :

501.0 General.
501.1 Applicability. The provisions of this chapter shall establish the method for estimating the supply demand load for the building water supply and principal branches and risers that supply two or more ~~fixtures, fixture fittings, and appliances~~fixture branches for new construction of single- and multi-family dwellings. The plumbing code shall be used for all other occupancies.
Note: The requirements listed in this chapter are based on the technical paper entitled "Peak Water Demand Study." Both the Water Demand Calculator and a copy of this technical paper are available for download at: https://www.iapmo.org/water-demand-calculator/.

502.0 Demand Load.
502.1 Water Demand Calculator. The estimated supply demand flow rate for the building supply and principal branches and risers that supply two or more ~~fixtures, fixture fittings, and appliances~~fixture branches shall be determined by the IAPMO Water Demand Calculator.

502.2 Supply Demand. (remaining text unchanged)

502.2.2 Branches and Risers. To determine the supply demand flow rate for branches and risers, enter the total number of each plumbing fixture and appliance on each branch or riser into the Water Demand Calculator and run the Calculator. The flow rate for one fixture branch and one fixture supply shall be the design flow rate of the ~~fixture, fixture fitting, or appliance~~fixture branches up to the maximum listed in Table 502.1.1.

Committee Statement:
The term "appliance" is not currently defined within the WEStand, and depending on its definition, the proposed references may not be applicable or appropriate. Additionally, the references to "fixture fittings" are unsuitable in this context. Therefore, Item #034 is being amended to replace all proposed references to "fixture fittings and appliances" with "fixture branches," which aligns with the terminology used in the plumbing code.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
034	2023 WE-Stand	502.1

Submitter Name:
Gary Klein

Organization Name:
Gary Klein Associates

Organization Representation:
Self

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

502.0 Demand Load.
502.1 Water Demand Calculator. The estimated supply demand flow rate (gpm) (L/s) for the building supply and principal branches and risers that supply two or more fixture branches shall be determined by the IAPMO Water Demand Calculator. (See Appendix C for examples illustrating the use of the Water Demand Calculator to estimate the supply demand load for the building water supply and principal branches and risers for single- and multi-family dwellings.)

(shown for information purposes only)

C 101.0 General.
C 101.1 Applicability. This appendix provides examples illustrating the use of the Water Demand Calculator to estimate the supply demand load for the building water supply and principal branches and risers for single- and multi-family dwellings. See Chart 503.3(1) through Chart 503.3(9) for determining pipe size based on friction loss and maximum allowable pipe velocity.

Substantiation:
This revision simply clarifies that Appendix C contains examples pertaining to use of the Water Demand Calculator. Adding this reference improves usability and directs the reader to the appropriate appendix without changing any technical requirements.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
034	2023 WE-Stand	208.0

Submitter Name:	Organization Name:	Organization Representation:
Shuo-Jan Teng	CA Department of Water Resources	Self

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

208.0 - F -
Fixture Branch. A water supply pipe between the fixture supply pipe and the water distribution pipe.

Substantiation:
This definition is being added to align WEStand terminology with the Uniform Plumbing Code, which already includes a definition for “fixture branch.” Providing the same definition in WEStand ensures consistency and removes ambiguity when referencing water distribution piping.

Committee Action:
Reject

Committee Statement:
As noted in the provided substantiation, the proposed definition for “fixture branch” was gathered from the plumbing code. Repeating the same definition in the WEStand is unnecessary, as the plumbing code is the governing reference for this term, and duplicating the definition may create potential conflicts or inconsistencies in the future.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
037

Code Number:
2023 WE-Stand

Section Number:
601.1

SUBMITTER:
Pat Lando

Organization Name:
WEStand Ecological Sanitation Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

601.0 General.
601.1 Applicability. The provisions of this ~~section~~chapter shall apply to the design, construction, ~~performance, alteration,~~ and ~~repair~~installation of composting toilet and urine diversion systems.

SUBSTANTIATION:
Section 601.1 (Applicability) is being updated to improve code language and better align with the contents of the chapter. This verbiage is also consistent with the applicability sections found within the Uniform Codes.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
037

Code Number:
2023 WE-Stand

Sections(s):
601.1

Submitter Name:
Pat Lando

Organization Name:
WEStand Ecological Sanitation Systems Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

601.0 General.
601.1 Applicability. The provisions of this chapter shall apply to the design, construction, and installation of composting toilet and urine diversion systems.
Part I shall apply to composting toilet systems, Part II to urine diversion systems, and Part III to the construction and installation of storage tanks for leachate from compost processors or for diverted urine.

Substantiation:
During the proposal stage, the contents of Chapter 6 (Composting Toilet and Urine Diversion Systems) were reorganized into three parts: composting toilet systems; urine diversion systems; and storage tanks. Section 601.1 (Applicability) is therefore being revised to reflect this reorganization.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:	Code Number:	Section Number:
038	2023 WE-Stand	205.0, 601.2

SUBMITTER:	Organization Name:	Organization Representation:
Pat Lando	WEStand Ecological Sanitation Systems Task Group, Chair	

RECOMMENDATION:
Add new text

Proposed Text :

601.0 General.

601.2 Purpose. This chapter covers composting toilet and urine diversion systems designed to facilitate circular sanitation through waste management and the recovery of nutrients, water, or both from human waste for beneficial reuse.

205.0 - C -
Circular Sanitation. A waste management approach that recovers nutrients, water, or both from human waste for beneficial reuse. Also referred to as nutrient recovery systems or ecological sanitation systems.

SUBSTANTIATION:
Section 601.2 (Purpose) is being added to explain that systems covered by this chapter are intended to facilitate circular sanitation, where nutrients and water are recovered for beneficial reuse. The WEStand provides requirements for these systems to promote sustainability practices and not just methods for waste removal and disposal. In support of this new section, a definition for “circulation sanitation” is provided which includes alternative names used within the industry.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
17	9	0	3

Failed Ballot Disclaimer:
NOTE: Item #038 failed to achieve the necessary 2/3 affirmative vote of returned ballots. In accordance with Section 6.8.2 of the Regulations Governing Consensus Development of WEStand, a public comment is requested for this proposal. The technical committee will reconsider this proposal as a public comment.

EXPLANATION OF NEGATIVE:
KENDZEL: I agree with Chuck White's position.

KLEIN: The wording in this proposal needs clarification. I recommend removing the words "circular sanitation" and instead convey the underlying intent.

MANN: I am in complete agreement with Chuck White.

POTTS: I agree with Chuck White's comments. Also, more clarification is needed on these systems.

PREMER: I agree with David Mann.

RIBBS: I agree with Chuck White's comments. Also, more clarification is needed on these systems.

B. SMITH: I agree with Chuck White.

TSENG: I agree with Chuck White's comments. More clarification is needed.

WHITE: The proposal effectively restates the title of the chapter as the purpose of the chapter. It then goes on to create the term "circular sanitation." There is no substantiation that "circular sanitation" is an accepted term in the industry. The purpose statement goes on to attempt to repeat the proposed definition of circular sanitation. It would be better to stop at the statement that the purpose is to facilitate circular sanitation, that is, use the definition. I say this because the continuation of the statement does not match the proposed definition. It is not necessary to repeat the language.

While the concept of these systems does indeed facilitate circular sanitation, the systems do not actually perform circular sanitation. Another means of handling the recovered materials must occur to complete the process. These other means are not addressed in the WEStand, resulting in systems that have no mandate to complete the circle.

VOTES NOT RETURNED:
Crawford, Granger, A. Smith

Comment 1

Item #:
038

Code Number:
2023 WE-Stand

Sections(s):
601.2

Submitter Name:
Pat Lando

Organization Name:
WEStand Ecological Sanitation Systems Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

601.0 General.

601.2 Purpose. This chapter covers composting toilet and urine diversion systems designed to facilitate the management and recovery of nutrients, water, or both from human waste for beneficial reuse.

(renumber remaining sections)

Substantiation:
The WEStand Ecological Sanitation Systems Task Group reviewed the negative ballot comments on Item #038 and generated this public comment to address the stated concerns. The proposed text offers a simplified purpose statement that avoids restating the chapter title, excludes reference to the term “circular sanitation," and no longer attempts to repeat or reference a separate definition. Additionally, the revised language more accurately reflects what composting toilet and urine diversion systems are designed to do without implying that these systems alone complete an entire circular process.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:	Code Number:	Section Number:
040	2023 WE-Stand	602.0 – 602.1.3, 605.0, 605.1

SUBMITTER:	Organization Name:	Organization Representation:
Pat Lando	WEStand Ecological Sanitation Systems Task Group, Chair	

RECOMMENDATION:
Revise text

Proposed Text :

Part I – Composting Toilet Systems.

~~605.0 Composting Toilet System Design.~~

602.0 General.
~~605.1~~602.1 System Requirements. ~~The design and installation of c~~Composting toilet systems shall be in accordance with Section ~~605.2~~602.1.1, ~~through~~ Section ~~605.7~~602.1.2, or Section 602.1.3.
602.1.1 ~~Composting Toilets and Composting Toilet~~Listed Systems. Composting toilets and composting toilet systems shall ~~be listed to~~comply with NSF/ANSI 41 ~~or approved by the Authority Having Jurisdiction~~and shall be installed in accordance with the manufacturer's installation instructions.
602.1.2 Site-Built Systems. Site-built composting toilet systems shall be in accordance with Section 603.0 through Section 607.3.
~~602.1.2~~602.1.3 Alternative Engineered Designs ~~Systems~~. ~~Where approved by the Authority Having Jurisdiction, composting toilets, urine diverting toilets, urine diverting dry toilets (UDDTs), and urine diversion systems for residential and commercial applications shall comply with the provisions of Section 602.2 through Section 606.1.~~Alternative engineered designs for composting toilet systems shall be in accordance with Section 301.4.

~~602.0 Design and Construction.~~
~~602.1 Requirements. Composting toilets, composting toilet systems, and urine diversion systems shall meet the design, construction, and performance requirements of Section 602.1.1 or Section 602.1.2.~~

(shown for information purposes only)

301.4 Alternative Engineered Design. An alternative engineered design shall comply with the intent of the provisions of this standard and shall provide an equivalent level of quality, strength, effectiveness, fire resistance, durability, and safety. Material, equipment, or components shall be designed and installed in accordance with the manufacturer's installation instructions.
301.4.1 Permit Application. The registered design professional shall indicate on the design documents that the system, or parts thereof, is an alternative engineered design so that it is noted on the construction permit application. The permit and permanent permit records shall indicate that an alternative engineered design was part of the approved installation.
301.4.2 Technical Data. The registered design professional shall submit sufficient technical data to substantiate the proposed alternative engineered design and to prove that the performance meets the intent of this standard.
301.4.3 Design Documents. The registered design professional shall provide two complete sets of signed and sealed design documents for the alternative engineered design for submittal to the Authority Having Jurisdiction. The design documents shall include floor plans of the work. Where appropriate, the design documents shall indicate location, sizing, and loading of appurtenances, equipment, appliances, and devices.

301.4.4 Design Approval. An approval of an alternative engineered design shall be at the discretion of the Authority Having Jurisdiction. The exercise of this discretionary approval by the Authority Having Jurisdiction shall have no effect beyond the jurisdictional boundaries of said Authority Having Jurisdiction. An alternative engineered design so approved shall not be considered as in accordance with the requirements, intent, or both of this standard for a purpose other than that granted by the Authority Having Jurisdiction.
301.4.5 Design Review. The Authority Having Jurisdiction shall have the authority to require testing of the alternative engineered design in accordance with Section 301.4, including the authority to require an independent review of the design documents by a registered design professional selected by the Authority Having Jurisdiction and at the expense of the applicant.
301.4.6 Inspection and Testing. The alternative engineered design shall be tested and inspected in accordance with the submitted testing and inspection plan and the requirements of this standard.

SUBSTANTIATION:
The WEStand Ecological Sanitation Systems Task Group has generated proposals to improve enforceability and reorganize the provisions of Chapter 6. This reorganization splits requirements into 3 parts: composting toilet systems, urine diversion systems, and storage tanks. For reference, this proposal is part of a series of Task Group submissions relating to this topic.

The provisions for composting toilet systems are being relocated into Part I and organized into the following categories: system types, materials, dry toilets, compost processors, testing, and operation and maintenance.

The intent of Section 602.0 (General) is to specify requirements for listed systems versus site-built systems versus alternative engineered designs, which are regulated differently in the WEStand. Listed systems must be designed in accordance with their listing and installed per the manufacturer's instructions.

In contrast, site-built systems are subject to the design and installation requirements outlined in this chapter, and alternative engineered designs are governed by Section 301.4.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
040	2023 WE-Stand	602.1.1, 602.1.2

Submitter Name:
Pat Lando

Organization Name:
WEStand Ecological Sanitation Systems Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

Part I – Composting Toilet Systems.

602.0 General.
602.1 System Requirements. (remaining text unchanged)
602.1.1 ~~Listed~~**Factory-Built Systems.** Factory-built ~~C~~composting toilets and composting toilet systems shall comply with NSF/ANSI 41 and shall be installed in accordance with the manufacturer's installation instructions.
602.1.2 ~~Site-Built~~**Field-Constructed Systems.** ~~Site-built~~Field-constructed composting toilet systems shall be in accordance with Section 603.0 through Section 607.3.

Substantiation:
The compliance pathway for composting toilet systems is determined by whether the system is "factory-built" versus "field-constructed." Factory-built systems rely on manufacturer certification and installation instructions, while field-constructed systems must meet the detailed prescriptive requirements outlined in Chapter 6.

Factory-built systems are manufactured in a controlled facility and arrive at the site as complete or partially assembled units. These systems are designed, engineered, and tested by the manufacturer prior to shipment. Examples include self-contained composting toilets and modular systems requiring minimal on-site assembly.

Field-constructed systems are built on-site using components and materials specified by the designer or required by WEStand. Because they are not prefabricated or certified as complete systems, they must comply with prescriptive WEStand requirements.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Item #:
042

Code Number:
2023 WE-Stand

Section Number:
605.4 – 605.4.3

SUBMITTER:
Pat Lando

Organization Name:
WEStand Ecological Sanitation Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

~~605.4~~**604.0 Dry Toilets.**
604.1 General. Dry toilets shall comply with Section ~~605.4.1~~604.2 through Section ~~605.4.3~~604.4.

~~605.4.1~~**604.2 Odor.** Dry toilets ~~design or use shall mitigate~~shall be designed and installed to prevent the infiltration of odors into the building during normal operation and in the event of temporary power failure.

~~605.4.2~~**604.3 Contact.** Dry toilets shall transport excreta into the compost processor or contain excreta for transfer ~~as designed according to the owner's~~in accordance with the operation and maintenance manual.

~~605.4.3~~**604.4** ~~**Vectors**~~**Vermin (Rodent) Proofing.** Dry toilets shall ~~limit vectors and~~be protected to prevent ~~human contact except for regular maintenance as designed according to the owner's manual~~the entrance or rodents, vermin, and insects.

SUBSTANTIATION:
The WEStand Ecological Sanitation Systems Task Group has generated proposals to improve enforceability and reorganize the provisions of Chapter 6. This reorganization splits requirements into 3 parts: composting toilet systems, urine diversion systems, and storage tanks.

For reference, this proposal is part of a series of Task Group submissions relating to this topic. The provisions for composting toilet systems are being relocated into Part I and organized into the following categories: system types, materials, dry toilets, compost processors, testing, and operation and maintenance. This recommendation proposes the following updates:

Section 604.0 (Dry Toilets): All existing requirements that are specific to dry toilets are provided within this section.

Section 604.2 (Odor): Reference to "use" of dry toilets in unenforceable as user operation is outside of the regulatory scope of the code. Instead, dry toilets should be "designed and installed" to prevent infiltration of odors.

Section 604.3 (Contact): As part of the recommendations generated by this Task Group, all references to "owner's manual" have been replaced with "operation and maintenance manual."

Section 604.4 [Vermin (Rodent) Proofing]: The updates to this section are consistent with the Uniform Codes. The term "vector" in this context refers to rodents, vermin, and insects. Although this term is technically valid in sanitation and public health contexts, it is not appropriate in codes or enforceable text as it may be misinterpreted.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
042	2023 WE-Stand	604.1, 609.1

Submitter Name:	Organization Name:	Organization Representation:
Pat Lando	WEStand Ecological Sanitation Systems Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal as modified by this public comment.

604.0 Dry Toilets.
604.1 General. Dry toilets, including urine diverting dry toilets (UDDT), shall comply with Section 604.2 through Section 604.4.

609.0 Materials.
609.1 General. Pipe, pipe fittings, traps, fixtures, materials, and devices used in urine diversion systems shall comply with this section and Section 301.2. Where installed, dry toilets, including UDDT, shall comply with Section 604.0. Materials used in urine diversion systems shall be impermeable and corrosion resistant.

Substantiation:
While urine diverting dry toilets (UDDT) are a type of dry toilet, this relationship may not be immediately apparent to users of WEStand. The updated language eliminates any ambiguity about whether these fixtures must comply with the requirements in Section 604.0 (Dry Toilets). For reference, the WEStand currently provides the following definition:

> ***[2023 WEStand]***
> ***223.0 – U –***
> ***Urine Diverting Dry Toilet (UDDT).*** *A fixture for collecting, containing, or transporting urine and feces separately without the use of water through independent piping.*

Committee Action:
Accept As Amended by the TC

Proposed Text (Modified by TC) :

604.0 Dry Toilets.
604.1 General. Dry toilets, including urine diverting dry toilets ~~(UDDT)~~, shall comply with Section 604.2 through Section 604.4.

609.0 Materials.
609.1 General. Pipe, pipe fittings, traps, fixtures, materials, and devices used in urine diversion systems shall comply with this section and Section 301.2. Where installed, dry toilets, including ~~UDDT~~urine diverting dry toilets, shall comply with Section 604.0. Materials used in urine diversion systems shall be impermeable and corrosion resistant.

Committee Statement:
For clarity and consistency, the full term "urine diverting dry toilets" is being used in place of the abbreviation.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
042	2023 WE-Stand	224.0

Submitter Name:	Organization Name:	Organization Representation:
Pat Lando	WEStand Ecological Sanitation Systems Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal as modified by this public comment.

224.0 - V -

~~**Vectors.** An organism that has the potential to transmit disease.~~

Substantiation:

All references to the term “vector” were replaced with “rodents, vermin, and insects” during the proposal stage for consistency with the Uniform Codes. The definition is therefore no longer necessary.

Committee Action:

Accept As Submitted

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:

Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
046

Code Number:
2023 WE-Stand

Section Number:
605.5.3, 605.5.5, 605.5.7, 605.7

SUBMITTER:
Pat Lando

Organization Name:
WEStand Ecological Sanitation Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

~~605.5.5~~605.6 **Vermin (Rodent) Proofing.** The compost processor shall be protected to prevent the entrance of rodents, vermin, and insects. ~~No u~~Unsecured openings, other than vents, drainage piping, ~~or~~and dry toilets, ~~may~~shall not exceed ½-inch (12 mm) in the ~~least~~smallest dimension.

~~605.5.7~~605.7 **Secondary Composting.** Humus to be transferred to secondary composting shall first be tested according to Section 605.6.2. Secondary composting shall be labeled and protected from human contact. Contact with precipitation and surface waters ~~is~~shall be prohibited.

~~605.5.3~~605.8 **Transfer.** ~~Where unfinished excreta or diverted urine is transferred between processors or from dry toilet to processor, transfer and cleaning of containers and provisions for limiting user exposure shall be according to the owner's manual.~~The transfer of excreta and diverted urine and the cleaning of equipment or containers used for this purpose shall be conducted in accordance with the operation and maintenance manual.

~~605.7~~605.9 **Humus Removal.** Humus shall be removed according to the owner's manual. Humus from the compost processor used around ornamental shrubs, flowers, trees, or fruit trees shall be mixed with soil or mulch and covered with no less than 3 inches (76 mm) of cover material. Depositing humus from any composting toilet system around any edible vegetable or vegetation shall be prohibited.

SUBSTANTIATION:
This proposal is an extension of the previous Task Group submission which relocates all requirements pertaining to the design and installation of compost processors under Section 605.0 (Compost Processors). The updates to each section are as follows:

Section 605.6 [Vermin (Rodent) Proofing]: These updates are for compliance with IAPMO's Manual of Style and use of enforceable language.

Section 605.7 (Secondary Composting): Same as above.

Section 605.8 (Transfer): The section is being rewritten for enforceability and to provide clearer provisions while maintaining the same intent. As part of the recommendations generated by this Task Group, all references to "owner's manual" have been replaced with "operation and maintenance manual."

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
046	2023 WE-Stand	222.0

Submitter Name:	Organization Name:	Organization Representation:
Jazmin Curiel	Self	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

222.0 - T -
~~**Transfer.** The controlled transfer of excreta or partially processed humus between dry toilet and composting processor or between multi-stage composting processors.~~

Substantiation:
The definition is unnecessary because Chapter 6 already covers the meaning and use of the term "transfer." Clear operational requirements for transfer activities are provided in Section 604.3, Section 605.8, and Section 607.3(5), making a separate definition redundant.

> ***[2023 WEStand ROP]***
> ***604.0 Dry Toilets.***
> ***604.3 Contact.*** *Dry toilets shall transport excreta into the compost processor or contain excreta for transfer in accordance with the operation and maintenance manual.*
>
> ***605.0 Compost Processors.***
> ***605.8 Transfer.*** *The transfer of excreta and diverted urine and the cleaning of equipment or containers used for this purpose shall be conducted in accordance with the operation and maintenance manual.*
>
> ***607.0 Operation and Maintenance.***
> ***607.3 Operation and Maintenance Manual.*** *An operation and maintenance manual for the composting toilet system shall be provided to the owner. Upon transfer of property, the manual shall be provided to the new owner. The operation and maintenance manual shall contain not less than the following information:*
> *(5) Plan for container transfer and cleaning where transfer is used.*
> *(6) – (9) […]*

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:	Code Number:	Section Number:
049	2023 WE-Stand	606.1, 606.2, 608.0 – 608.2.2

SUBMITTER:	Organization Name:	Organization Representation:
Pat Lando	WEStand Ecological Sanitation Systems Task Group, Chair	

RECOMMENDATION:
Revise text

Proposed Text :

Part II – Urine Diversion Systems.

608.0 General.
~~606.2~~**608.1 Purpose.** The purpose of this section is to enable the installation of urine ~~reuse~~diversion systems for beneficial use and to prevent nutrient pollution of ground and surface waters.
~~606.1~~**608.2 System Requirements.** ~~The design and installation of u~~Urine diversion systems shall be in accordance with Section ~~606.2~~608.2.1 ~~through~~or Section ~~606.14~~608.2.2.
608.2.1 Site-Built Systems. Site-built urine diversion systems shall be in accordance with Section 609.0 through Section 612.3.
608.2.2 Alternative Engineered Design. Alternative engineered designs for urine diversion systems shall be in accordance with Section 301.4.

(shown for information purposes only)

301.4 Alternative Engineered Design. An alternative engineered design shall comply with the intent of the provisions of this standard and shall provide an equivalent level of quality, strength, effectiveness, fire resistance, durability, and safety. Material, equipment, or components shall be designed and installed in accordance with the manufacturer's installation instructions.
301.4.1 Permit Application. The registered design professional shall indicate on the design documents that the system, or parts thereof, is an alternative engineered design so that it is noted on the construction permit application. The permit and permanent permit records shall indicate that an alternative engineered design was part of the approved installation.
301.4.2 Technical Data. The registered design professional shall submit sufficient technical data to substantiate the proposed alternative engineered design and to prove that the performance meets the intent of this standard.
301.4.3 Design Documents. The registered design professional shall provide two complete sets of signed and sealed design documents for the alternative engineered design for submittal to the Authority Having Jurisdiction. The design documents shall include floor plans of the work. Where appropriate, the design documents shall indicate location, sizing, and loading of appurtenances, equipment, appliances, and devices.
301.4.4 Design Approval. An approval of an alternative engineered design shall be at the discretion of the Authority Having Jurisdiction. The exercise of this discretionary approval by the Authority Having Jurisdiction shall have no effect beyond the jurisdictional boundaries of said Authority Having Jurisdiction. An alternative engineered design so approved shall not be considered as in accordance with the requirements, intent, or both of this standard for a purpose other than that granted by the Authority Having Jurisdiction.
301.4.5 Design Review. The Authority Having Jurisdiction shall have the authority to require testing of the alternative engineered design in accordance with Section 301.4, including the authority to require an independent review of the design documents by a registered design professional selected by the Authority Having Jurisdiction and at the expense of the applicant.

301.4.6 Inspection and Testing. The alternative engineered design shall be tested and inspected in accordance with the submitted testing and inspection plan and the requirements of this standard.

SUBSTANTIATION:
The WEStand Ecological Sanitation Systems Task Group has generated proposals to improve enforceability and reorganize the provisions of Chapter 6. This reorganization splits requirements into 3 parts: composting toilet systems, urine diversion systems, and storage tanks. For reference, this proposal is part of a series of Task Group submissions relating to this topic.

The provisions for urine diversion systems are being relocated into Part II and organized into the following categories: system types, materials, urine diversion piping, treatment/reuse/disposal, and operation and maintenance.

Similar to the proposed updates for composting toilet systems, the intent of Section 608.0 (General) is to specify requirements for site-built systems versus alternative engineered designs, which are regulated differently in the WEStand. Site-built systems are subject to the design and installation requirements outlined in this chapter, and alternative engineered designs are governed by Section 301.4.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
049	2023 WE-Stand	608.2.1

Submitter Name:	Organization Name:	Organization Representation:
Pat Lando	WEStand Ecological Sanitation Systems Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal <u>as modified</u> by this public comment.

Part II – Urine Diversion Systems.

608.0 General.

608.2 System Requirements. (remaining text unchanged)
608.2.1 ~~Site-Built~~Field-Constructed Systems. ~~Site-built~~Field-constructed urine diversion systems shall be in accordance with Section 609.0 through Section 612.3.

Substantiation:
In alignment with the Task Group's public comment to Item #040, reference to "site-built system" is being updated to "field-constructed system."

As stated in that substantiation: Field-constructed systems are built on-site using components and materials specified by the designer or required by WEStand. Because they are not prefabricated or certified as complete systems, they must comply with prescriptive WEStand requirements.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
059

Code Number:
2023 WE-Stand

Section Number:
605.5.1.5, 606.12.7

SUBMITTER:
Pat Lando

Organization Name:
WEStand Ecological Sanitation Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

~~606.12.7~~**613.8 Below Grade.** ~~Urine s~~Storage tanks installed below grade shall comply with the following:
(1) ~~b~~Be ~~structurally~~ designed to withstand ~~all anticipated earth or other~~imposed loads.
(2) Be provided with ~~T~~tank covers ~~shall be~~ capable of supporting ~~an earth~~a load of not less than 300 pounds-force per square foot (lbf/ft^2) (14.4 kPa)~~ when the tank is designed for underground installation~~.
(3) ~~Below grade urine tanks installed underground shall b~~Be provided with manholes for inspection and maintenance. The manhole openings shall be ~~a minimum diameter of~~not less than 20 inches (508 mm) in diameter and located ~~a minimum of~~not less than 4 inches (102 mm) above the ~~surrounding~~adjoining grade. The ~~surrounding~~adjoining grade shall be sloped away from the manholes.
(4) ~~Underground tanks shall b~~Be ballasted~~,~~ or anchored~~, or otherwise secured, to prevent the tank from floating out of the ground when empty~~ to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding. ~~The combined weight of the tank and hold down system shall meet or exceed the buoyancy force of the tank.~~
(5) Be provided with an audible and visual alarm, readily accessible, that signals an overload condition.

~~**605.5.1.5 Below Grade.** Leachate storage tanks installed below grade shall be structurally designed to withstand all anticipated earth or other loads. Tank covers shall be capable of supporting an earth load of not less than 300 pounds-force per square foot (lbf/ft^2) (14.4 kPa) when the tank is designed for underground installation. Below grade leachate tanks installed underground shall be provided with manholes. The manhole opening shall be a minimum diameter of 20 inches (508 mm) and located a minimum of 4 inches (102 mm) above the surrounding grade. The surrounding grade shall be sloped away from the manhole. Underground tanks shall be ballasted, anchored, or otherwise secured, to prevent the tank from floating out of the ground when empty. The combined weight of the tank and hold down system should meet or exceed the buoyancy force of the tank. The below grade leachate storage tank level shall be provided with an audible and visual high water alarm.~~

SUBSTANTIATION:
This proposal is an extension of the previous Task Group submission which relocates all construction and installation requirements for storage tanks under Section 613.0 (General) and removes duplicate provisions.

The proposed updates to Section 613.8 (Below Grade) convert the existing requirements into an itemized list for clarity. Each requirement is clearly separated to reduce the risk of misinterpretation. Revisions are also made for compliance with IAPMO's Manual of Style, use of clearer terminology, and removal of ambiguous and potentially subjective language.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
059	2023 WE-Stand	1103.6.2 - 1103.6.4

Submitter Name:	Organization Name:	Organization Representation:
Jazmin Curiel	Self	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal as modified by this public comment.

1103.0 Design and Installation.

1103.6 Rainwater Storage Tanks. (remaining text unchanged)

1103.6.2 Location. Rainwater storage tanks shall be installed above grade in accordance with Section 1103.6.2.1 or below grade in accordance with Section 1103.6.2.2.

~~1103.6.3~~1103.6.2.1 **Above Grade.** Above grade storage tanks shall be of an opaque material, approved for aboveground use in direct sunlight or shall be shielded from direct sunlight. Tanks shall be installed in an accessible location to allow for inspection and cleaning. The tank shall be installed on a foundation or platform that is constructed to accommodate all loads in accordance with the building code.

~~1103.6.4~~1103.6.2.2 **Below Grade.** Rainwater storage tanks installed below grade shall comply with the following:
(1) ~~b~~Be ~~structurally~~ designed to withstand ~~all anticipated earth or other~~imposed loads. ~~Holding tank covers shall be~~
(2) Be provided with tank covers capable of supporting a~~n earth~~ load of not less than 300 pounds-force per square foot (lbf/ft^2) (14 360 Pa)~~ when the tank is designed for underground installation~~. ~~Below grade rainwater tanks installed underground shall be~~
(3) Be provided with manholes for inspection and maintenance. The manhole openings shall not be less than 20 inches (508 mm) in diameter and located not less than 4 inches (102 mm) above the ~~surrounding~~adjoining grade. The ~~surrounding~~adjoining grade shall be sloped away from the manholes. ~~Underground tanks shall be~~

(4) Be ballasted~~;~~ or anchored~~, or otherwise secured, to prevent the tank from floating out of the ground when empty~~ to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding. ~~The combined weight of the tank and hold down system should meet or exceed the buoyancy force of the tank.~~

Substantiation:
Similar to the revisions approved under Item #059, this update reorganizes the below-grade storage tank requirements found in Chapter 11 (Nonpotable Rainwater Catchment Systems). Although the systems addressed here differ, the purpose is similar: to present storage-tank construction and installation requirements in a clear, itemized format that avoids duplication and improves usability. Applying the same structure promotes uniformity across the standard.

For reference, a separate public comment has been submitted to address these same requirements found in Appendix A (Potable Rainwater Catchment Systems).

Committee Action:
Reject

Committee Statement:
There are concerns regarding the lack of product listings for storage tanks across Chapter 6, Chapter 11, and Appendix A, which creates challenges in verifying and enforcing requirements. Additionally, the reference to "structural design" in item (1) is needed to establish enforceable criteria for resisting imposed loads and to ensure consistency with recognized engineering practices and building code requirements.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
059	2023 WE-Stand	A 103.7.2, A 103.7.2.2

Submitter Name:	Organization Name:	Organization Representation:
Jazmin Curiel	Self	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

A 103.0 System Requirements.

A 103.7 Rainwater Storage Tanks. (remaining text unchanged)

A 103.7.2 Location. Rainwater storage tanks shall be installed above grade in accordance with Section A 103.7.2.1 or below grade in accordance with Section A 103.7.2.2.

A 103.7.2.2 Below Grade. Rainwater storage tanks installed below grade shall comply with the following:
(1) ~~b~~Be ~~structurally~~ designed to withstand ~~all anticipated earth or other~~imposed loads. ~~Holding tank covers shall be~~
(2) Be provided with tank covers capable of supporting a~~n earth~~ load of not less than 300 pounds-force per square foot (lbf/ft^2) (14 360 Pa)~~ when the tank is designed for underground installation~~. ~~Below grade rainwater tanks installed underground shall be~~
(3) Be provided with manholes for inspection and maintenance. The manhole openings shall be ~~a minimum diameter of~~not less than 20 inches (508 mm) in diameter and located not less than 4 inches (102 mm) above the ~~surrounding~~adjoining grade. The ~~surrounding~~adjoining grade shall be sloped away from the manholes. ~~Underground tanks shall be~~
(4) Be ballasted~~;~~ or anchored~~, or otherwise secured, to prevent the tank from floating out of the ground when empty~~ to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding. ~~The combined weight of the tank and hold down system shall meet or exceed the buoyancy force of the tank.~~

(shown for information purposes only)

A 103.7.2.1 Above Grade. Above grade storage tanks shall be of an opaque material, approved for aboveground use in direct sunlight, or shall be shielded from direct sunlight. Tanks shall be installed in an accessible location to allow for inspection and cleaning. The tank shall be installed on a foundation or platform that is constructed to accommodate the weight and loads when filled to maximum capacity in accordance with the building code.

Substantiation:
Similar to the revisions approved under Item #059, this update reorganizes the below-grade storage tank requirements found in Appendix A (Potable Rainwater Catchment Systems). Although the systems addressed here differ, the purpose is similar: to present storage-tank construction and installation requirements in a clear, itemized format that avoids duplication and improves usability. Applying the same structure promotes uniformity across the standard.

Committee Action:
Reject

Committee Statement:
There are concerns regarding the lack of product listings for storage tanks across Chapter 6, Chapter 11, and Appendix A, which creates challenges in verifying and enforcing requirements. Additionally, the reference to “structural design” in item (1) is needed to establish enforceable criteria for resisting imposed loads and to ensure consistency with recognized engineering practices and building code requirements.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
061

Code Number:
2023 WE-Stand

Section Number:
605.5.1.7, 605.5.2, 606.12.9

SUBMITTER:
Pat Lando

Organization Name:
WEStand Ecological Sanitation Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

~~606.12.9~~**613.10 Openings.** ~~All~~Storage tank openings shall be covered and secured to prevent tampering. Openings shall be screened or covered to ~~prevent rodent infiltration and be protected~~restrict the entrance of rodents or vermin and to protect against unauthorized human entry.
Exception: Where urine storage tanks have a volume not exceeding 5 gallons (19 L) and comply with one of the following:
(1) Are connected to a fixture(s) with active ventilation, or
(2) Have an integrated seal.

~~**605.5.1.7 Openings.** All openings shall be covered and secured to prevent tampering. Openings shall be screened or covered to prevent rodent, vermin, and insect infiltration and be protected against unauthorized human entry.~~

~~**605.5.2 Vectors.** The compost processor shall be designed and installed to limit vector access through management as required in the owner's manual.~~

SUBSTANTIATION:
This proposal is an extension of the previous Task Group submission which relocates all construction and installation requirements for storage tanks under Section 613.0 (General) and removes duplicate provisions.

Section 613.10 (Openings): The revisions to this section are needed to specify that the requirements are specific to "storage tank openings." The other revisions are for consistent terminology with the Uniform Codes with regards to rodents and vermin.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
061

Code Number:
2023 WE-Stand

Sections(s):
A 103.7.4 – A 103.7.4.3

Submitter Name:
Jazmin Curiel

Organization Name:
Self

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

A 103.0 System Requirements.

A 103.7 Rainwater Storage Tanks. (remaining text unchanged)

A 103.7.4 Openings~~ and Access Protection~~. ~~Rainwater tank openings shall comply with Section A 103.7.4.1 through Section A 103.7.4.3.~~
~~**A 103.7.4.1 Animals and Insects.** Rainwater tank openings to the atmosphere shall be protected to prevent the entrance of insects, birds, or rodents into the tank.~~
~~**A 103.7.4.2 Human Access.** Rainwater tank access openings exceeding 12 inches (305 mm) in diameter shall be secured to prevent tampering and unintended entry by either a lockable device or other approved method.~~
~~**A 103.7.4.3 Exposure to Sunlight.** ~~Rainwater storage tank openings shall not be exposed to direct sunlight. Openings shall be covered and secured to prevent tampering and shall be screened or covered to restrict the entrance of rodents or vermin and protect against unauthorized human entry.

Substantiation:
The revised language improves clarity by presenting all requirements for rainwater tank openings in a single section. Additionally, the diameter threshold is unnecessary and being removed because all rainwater storage tank openings, regardless of size, pose potential risks related to tampering, vermin intrusion, and unauthorized human entry. Furthermore, the added language aligns with similar provisions addressed in Item #061.

Committee Action:
Reject

Committee Statement:
The committee disagrees with the removal of Section A 103.7.4.2 (Human Access) as it contains a necessary requirement for securing access openings exceeding 12 inches in diameter. Such openings present a greater risk for unintended human entry and create a safety and security vulnerability if not secured properly.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
061	2023 WE-Stand	Appendix D

Submitter Name:	Organization Name:	Organization Representation:
Pat Lando	WEStand Ecological Sanitation Systems Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal <u>as modified</u> by this public comment.

~~APPENDIX D~~
~~COMPOSTING TOILET AND URINE DIVERSION INSPECTION CHECKLIST~~

~~**D 101.0 General.**~~
~~**D 101.1 Applicability.** This appendix provides an inspection checklist for composting toilet and urine diversion systems designed in accordance with Section 602.1.2. This is only a general checklist and is not intended to address all the provisions required by Section 602.1.2.~~

~~**D 201.0 Composting Toilet and Urine Diversion Inspection Checklist.**~~
~~**D 201.1 General.** This section includes the inspection checklist form.~~

~~System Materials and Components~~
~~o Verify that the system is approved by the Authority Having Jurisdiction as indicated in the approved design.~~ ~~o All components expected to contact excreta or leachate shall be constructed of corrosion resistant material such as stainless steel or durable polymers (ABS, PVC Schedule 40, Polypropylene, High-density polyethylene, Fiber reinforced polyester, or material of equivalent durability).~~

~~Concrete Construction~~
~~o Verify site built concrete mix, loading weight.~~ ~~o Site built concrete construction shall be reinforced and without cracking, spaulding or other observed faults.~~ ~~o Verify site built concrete watertightness.~~ ~~o Verify site built concrete adequate drainage where required. Floors of processors shall be sloped not less than ¼ inch per foot (in/ft) (20.8 mm/m).~~ ~~**Note:** The flange of each sub-drain shall be set level.~~

~~Dry Toilet~~
~~o If dry toilet uses repurposed container for transporting excreta into compost processor, container meets third part listing by a listing agency, including US 49 CFR Section 178.274 Specifications for UN Portable Tanks.~~

~~Compost Processors~~
~~o Compost processors shall have a leachate collection, recirculation, evaporation, or drainage system. See also Leachate Storage Tank checklist.~~ ~~o Compost processor is rodent proof. No unsecured opening other than vents, drainage, or dry toilet may exceed ½ inch (12.7 mm) in the least dimension.~~ ~~o All composting processors shall be labeled and protected from human contact, surface water and precipitation.~~ ~~o Compost processor must pass a water tightness test by filling the system to the maximum designed liquid storage capacity of the unit for a duration of 24 hours.~~ ~~o Where unprocessed excreta or diverted urine is transferred from dry toilet to processor(s), provide tools and cleaning materials as described in the owner's manual.~~ ~~o Dry toilets connected to compost processor without a trap shall maintain negative ventilation. If compost processor is not connected to the dry toilet no vent is required.~~ ~~o Vent stacks terminate at exterior of the building as required by the plumbing or mechanical code.~~ ~~o The compost processor is sized in accordance with the approved design.~~

~~Leachate Storage Tanks~~
~~o Leachate storage tanks, where provided, shall be constructed of polyethylene terephthalate (PET), polyethylene naphtha- late (PEN), polyamide (Nylon) or a blend of PET, PEN, ethyl vinyl alcohol (EVOH), Nylon, HDPE, or other tanks listed or certified to US 49 CFR Section 178.274 Specifications for UN Portable Tanks.~~ ~~o Above grade storage tanks are prohibited where subject to freezing conditions or shall be provided with an adequate means of freeze protection. The above grade leachate storage tank shall be provided with a high-water alarm. The alarm shall report when 80 percent volume is reached.~~ ~~o Where openings are provided to allow a person to enter the tank, the opening is marked "DANGER-CONFINED SPACE."~~ ~~o All openings are covered and secured to prevent tampering. Openings shall be screened or covered to prevent rodent infiltration and be protected against unauthorized human entry.~~ ~~o Below grade storage tanks shall be in accordance with the approved design.~~ ~~o If pressure equalization vents are specified in the design, they are installed as designed.~~ ~~o The connection of storage tank vents to the plumbing venting system shall be six inches above the flood level rim of the highest fixture.~~ ~~o Vents extending to the outdoor shall terminate no less than 12 inches (305 mm) above grade.~~ ~~o The vent terminal shall be directed downward and covered with a 3/32 of an inch (2.4 mm) mesh screen to prevent the entry of vermin and insects.~~ ~~o Where storage tank overflows are installed they shall be connected to the plumbing drainage system.~~ ~~o All leachate storage tanks shall have a high-water alarm. The alarm shall report when 80 percent volume is reached.~~ ~~o Storage tank overflows shall be provided with a backwater valve or check valve at the point of connection to the plumbing drainage system when connected to a public sewer system. The backwater valve shall be accessible for inspections and maintenance.~~

~~Urine Storage Tanks~~

~~o Below grade urine storage tanks shall be in accordance with the approved design.~~
~~o Above grade storage urine storage tanks are constructed of polyethylene terephthalate (PET), polyethylene naphthalate (PEN), polyamide (Nylon) or a blend of PET, PEN, ethyl vinyl alcohol (EVOH), Nylon, HDPE, or other tanks listed or certified to US 49 CFR Section 178.274 Specifications for UN Portable Tanks.~~
~~o Above grade storage tanks are prohibited where subject to freezing conditions or shall be provided with an adequate means of freeze protection.~~
~~o If a vent is required for pressure equalization, then the vent shall extend above the top of the tank.~~
~~o The connection of storage tank vents to the plumbing venting system shall be six inches above the flood level rim of the highest fixture.~~
~~o Vents extending to the outdoor shall terminate no less than 12 inches (305 mm) above grade.~~
~~o Vent terminal is directed downward and covered with a 3/32 of an inch (2.4 mm) mesh screen to prevent the entry of vermin and insects.~~
~~o Pressure equalization vents that prevent nitrogen loss by the use of restrictions or use of piping or tubing that is less than the minimum pipe diameter required in the plumbing code shall be approved by the Authority Having Jurisdiction.~~
~~o If storage tank overflows are installed they shall be connected to a plumbing drainage system.~~
~~o Storage tank overflows have a backwater valve or check valve at the point of connection to the plumbing drainage system when connected to a public sewer system.~~
~~o The backwater valve is accessible for inspections and maintenance.~~
~~o Storage tank trap is a P-trap, mechanical trap, submerged inlet piping, or other means approved by the Authority Having Jurisdiction. Urine storage tanks of five gallons or less connected to fixtures with active ventilation or having an integrated seal do not require traps.~~
~~o If submerged inlet piping is used as trap, the inlet piping must remain submerged during use and after pumpout.~~

~~Urine Diversion System~~

~~o Material used for urine diversion shall be stainless steel or non metallic pipe. Concrete piping is prohibited.~~
~~o Urine diversion piping is identifiable and labeled. Pipe diameters are sized in accordance with Authority Having Juris- diction and the plumbing code.~~
~~o Where unprocessed urine is transferred from dry toilet to processor(s), provide tools and cleaning materials as described in the owner's manual.~~
~~o Changes in direction of urine diversion piping shall be made by a long-sweep 90-degree fitting or other approved fittings of equivalent sweep.~~
~~o Fixtures discharging into urine diversion piping connected to the plumbing drainage system shall be trapped and vented according to the plumbing code.~~
~~o Urine diversion piping is installed at a minimum gradient of ½ inch per foot (in/ft) (41.7 mm/m), or 4 percent toward the point of disposal.~~
~~o Urine is diverted to a storage tank or an approved plumbing drainage system.~~
~~o A maintenance plan shall be included per the design system.~~

~~Cleanouts~~

~~o Cleanouts installed at each aggregate horizontal change of direction exceeding 135 degrees (2.4 rad).~~
~~o A cleanout provided at the upper terminal of each drain line every 50 feet (15 240 mm).~~

~~Venting~~
~~o Dry toilet fixtures connected directly to compost processor(s) without traps require a ventilation system.~~ ~~o Nonwater urinals used as urine diversion systems shall be connected to a dry toilet ventilation stack or a urine diversion ventilation stack.~~

~~**Operation & Maintenance Manual:** An owner's manual is on site and accessible to the inspector and includes the following:~~
~~**Product Information**~~ ~~o Model/Serial number~~ ~~o Product certification references~~ ~~o Intended treatment capacity with regard to number of users and uses per day~~ ~~o Initial setup~~
~~**Start Up and Operation**~~ ~~o Schedule for addition of necessary compost additives.~~ ~~o Source or provider of necessary compost additives. Source may be on site.~~ ~~o Schedule and instructions for all regular maintenance tasks.~~ ~~o Expected input of and capacity for excreta and compost additives to compost toilet system specifying loading of dry toilet(s) and compost processor(s).~~
~~**Annual Maintenance**~~ ~~o Plan for container transfer and cleaning where transfer is used.~~ ~~o Expected schedule for removing humus from composting processors and where used secondary composting bins.~~ ~~o Plan for on-site disposal of humus or professional removal.~~ ~~o Plan for managing leachate.~~ ~~o Special conditions; cold climate operation and/or winterization.~~
~~**Testing**~~ ~~o Plan for microbial testing.~~ ~~o Humus Sampling.~~ ~~o A laboratory is under contract to perform testing of finished compost.~~ ~~o A sample of the previous treatment period shall be on hand with fecal coliform/gram results.~~
~~**Troubleshooting**~~ ~~o Guide to troubleshooting basic operating functions.~~

Substantiation:
Appendix D is being deleted because the inspection checklist no longer aligns with the requirements in Chapter 6. During the proposal stage, Chapter 6 was reorganized and heavily revised. As a result, the checklist contains outdated requirements that no longer reflect the current text.

Additionally, inspection checklists are more appropriately developed at the local level. Jurisdictions have varying local amendments, and a standardized checklist in WEStand may not account for these differences. Enforcement agencies are better positioned to create checklists tailored to their specific needs.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
062

Code Number:
2023 WE-Stand

Section Number:
Chapter 7

SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

CHAPTER 7
~~ALTERNATE WATER SOURCES FOR NONPOTABLE APPLICATIONS~~
UNTREATED GRAY WATER SYSTEMS FOR IRRIGATION

701.0 General.
701.1 Scope. The provisions of this chapter shall apply to the construction, alteration, and repair of ~~alternate water source~~untreated gray water systems for ~~nonpotable applications~~subsoil and subsurface irrigation.
701.1.1 Allowable Use of ~~Alternate~~Untreated Gray Water. Where approved or required by the Authority Having Jurisdiction, ~~alternate water sources [reclaimed (recycled) water,~~ untreated gray water ~~and onsite treated nonpotable water]~~ used in lieu of potable water shall be in accordance with the provisions of this chapter.

701.5 Maintenance and Inspection. ~~Alternate water source~~Untreated gray water systems and components shall be inspected and maintained in accordance with Section 701.5.1 through Section 701.5.3, the manufacturer's recommendations, or as required by the Authority Having Jurisdiction.
701.5.1 Frequency. ~~Alternate water source~~Untreated gray water systems and components shall be inspected and maintained in accordance with Table 701.5.1 unless more frequent inspection and maintenance is required by the manufacturer.

TABLE 701.5.1
MINIMUM ~~ALTERNATE WATER SOURCE~~UNTREATED GRAY WATER TESTING, INSPECTION, AND MAINTENANCE FREQUENCY

(portions of table not shown remain unchanged)

701.5.2 Maintenance Log. A maintenance log for untreated gray water ~~and on-site treated nonpotable water~~ systems is required to have a permit in accordance with Section 701.3 and shall be maintained by the property owner and be available for inspection. The property owner or designated appointee shall ensure that a record of testing, inspection and maintenance as required by Table 701.5.1 is maintained in the log. The log will indicate the frequency of inspection and maintenance for each system.
701.5.3 Maintenance Responsibility. The required maintenance and inspection of ~~alternate water source~~untreated gray water systems shall be the responsibility of the property owner, unless otherwise required by the Authority Having Jurisdiction.

701.8 Material Compatibility. ~~Alternate water source~~Untreated gray water systems shall be constructed of materials that are compatible with the type of pipe and pipe fitting materials, ~~water treatment,~~ and water conditions in the system.

701.9 System Controls. Controls for pumps, valves, and other devices that contain mercury that come in contact with ~~alternate water source~~untreated gray water supply ~~are prohibited~~shall not be permitted.

701.11 Inspection and Testing. ~~Alternate water source~~Untreated gray water systems shall be inspected and tested in accordance with Section 701.11.1 and Section 701.11.2.
Exception: Non-pressurized untreated gray water ~~or on-site nonpotable water~~ systems without any connection to a potable water system.
701.11.1 Supply System Inspection and Test. ~~Alternate water source~~Untreated gray water systems shall be inspected and tested in accordance with the plumbing code for testing of potable water piping.
701.11.2 Annual Cross-Connection Inspection and Testing. An initial and subsequent annual inspection and test shall be performed on both the potable and ~~alternate water source~~untreated gray water systems. The potable and ~~alternate water source~~untreated gray water system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 701.11.2.1 through Section 701.11.2.4.
701.11.2.1 Visual System Inspection. Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Authority Having Jurisdiction as follows:
(1) Meter locations of the ~~alternate water source~~untreated gray water and potable water lines shall be checked to verify that no modifications were made, and that no cross-connections are visible.
(2) – (3) (remaining text unchanged)

701.11.2.2 Cross-Connection Test. The procedure for determining cross-connection shall be followed by the applicant in the presence of the Authority Having Jurisdiction to determine whether a cross-connection has occurred as follows:
(1) The potable water system shall be activated and pressurized. The ~~alternate water source~~untreated gray water system shall be shut down, depressurized, and drained.
(2) The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the ~~alternate water source~~untreated gray water system is empty. The minimum period the ~~alternate water source~~untreated gray water system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and the ~~alternate water source~~untreated gray water distribution systems, but in no case shall that period be less than 1 hour.
(3) The drain on the ~~alternate water source~~untreated gray water system shall be checked for flow during the test and all fixtures, potable and ~~alternate water source~~untreated gray water, shall be tested and inspected for flow. Flow from any ~~alternate water source~~untreated gray water system outlet indicates a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the ~~alternate water source~~untreated gray water system.
(4) (remaining text unchanged)
(5) The ~~alternate water source~~untreated gray water system shall then be activated and pressurized.
(6) The ~~alternate water source~~untreated gray water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.
(7) All fixtures, potable and ~~alternate water source~~untreated gray water, shall be tested and inspected for flow. Flow from any potable water system outlet indicates a cross-connection. No flow from an ~~alternate water source~~untreated gray water outlet will indicate that it is connected to the potable water system.
(8) – (9) (remaining text unchanged)

701.11.2.3 Discovery of Cross-Connection. In the event that a cross-connection is discovered, the following procedure, in the presence of the Authority Having Jurisdiction, shall be activated immediately:

(1) The ~~alternate water source~~untreated gray water piping to the building shall be shut down at the meter, and the ~~alternate water source~~untreated gray water riser shall be drained.
(2) – (6) (remaining text unchanged)

701.11.2.4 Annual Inspection. An annual inspection of the ~~alternate water source~~untreated gray water system, following the procedures listed in Section 701.11.2.1 shall be required. Annual cross-connection testing, following the procedures listed in Section 701.11.2.2 shall be required by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test occur less than once in 4 years. Alternate testing requirements shall be approved by the Authority Having Jurisdiction.

701.13 Abandonment. All ~~alternate water source~~untreated gray water systems that are no longer in use or fails to be maintained in accordance with Section 701.5 shall be abandoned. Abandonment shall comply with Section 307.0.

702.0 Untreated Gray Water Systems.
702.1 General. ~~The provisions of this section shall apply to the construction, alteration, and repair of~~Untreated gray water systems shall be designed and installed in accordance with this section.

702.4 Surge Capacity. Untreated ~~G~~gray water systems shall be designed to have the capacity to accommodate flow rates entering the system and distribute the total amount of estimated gray water entering the system on a daily basis to a subsurface irrigation field, subsoil irrigation field, or mulch basin without surfacing, ponding, or runoff. A surge tank is required for systems that are unable to accommodate peak flow rates and distribute the total amount of gray water by gravity drainage. The water discharge for gray water systems shall be determined in accordance with Section 702.12.1 or Section 702.12.2. Systems that produce more gray water than needed by the landscape shall discharge excess water into the sewer or private sewage disposal system.
702.5 Diversion. The untreated gray water system shall connect to the sanitary drainage system downstream of fixture traps and vent connections through a diverter valve(s) approved by the Authority Having Jurisdiction. The diverter shall be installed in an accessible location and clearly indicate the direction of flow.
Exception: A clothes washer system in compliance with Section 701.3.1.

702.8 Location. No untreated gray water system or part thereof shall be located on any lot other than the lot that is the site of the building or structure that discharges the gray water, nor shall any gray water system or part thereof be located at any point having less than the minimum distances indicated in Table 702.8.

TABLE 702.8
LOCATION OF UNTREATED GRAY WATER SYSTEM

(portions of table not shown remain unchanged)

702.10 Prohibited Location. Untreated ~~G~~gray water systems are prohibited where there is insufficient lot area or inappropriate soil conditions for adequate absorption to prevent the ponding, surfacing or runoff of the gray water, or on any property in a geologically sensitive area as determined by the Authority Having Jurisdiction.
702.11 Drawings and Specifications. The Authority Having Jurisdiction shall require any or all of the following information to be included with or in the plot plan before a permit is issued for an untreated gray water system, or at any time during the construction thereof:
(1) – (5) (remaining text unchanged)

SUBSTANTIATION:
The WEStand Gray Water Systems Task Group has generated proposals which revise Chapter 7 to only dictate provisions for untreated gray water systems. Currently, the chapter covers various alternate water sources which should all be addressed separately. By definition, alternate water sources include gray water, onsite treated nonpotable water, rainwater, and reclaimed (recycled) water. While rainwater systems as well as specific types of onsite treated nonpotable water systems are covered under separate chapters, so should the provisions for untreated gray water and reclaimed (recycled) water systems.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
062	2023 WE-Stand	104.1, 106.2.1 - 106.3.1, 108.1, 108.6, 109.1

Submitter Name:	Organization Name:	Organization Representation:
Pat Lando	WEStand Gray Water Systems Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

104.0 Permits.
104.1 Permits Required. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any composting toilet system, urine diversion system, or alternate water source system~~, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or blackwater treatment system~~ in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction, except as permitted in Section 104.2. Alternate water source systems shall include, but are not limited to, untreated gray water systems, reclaimed (recycled) water systems, rainwater catchment systems, and onsite treatment systems for stormwater, gray water, and blackwater.

106.0 Inspections and Testing.

106.2 Required Inspections. (remaining text unchanged)
106.2.1 Uncovering. Where a composting toilet system, urine diversion system, or alternate water source system, ~~reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or blackwater treatment system,~~ or part thereof, which is installed, altered, or repaired, is covered or concealed before being inspected, tested, and approved as prescribed in this standard, it shall be uncovered for inspection after notice to uncover the work has been issued to the responsible person by the Authority Having Jurisdiction. The requirements of this section shall not be considered to prohibit the operation of the composting toilet system, urine diversion system, or alternate water source system~~, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or blackwater treatment system~~ installed to replace existing equipment serving an occupied portion of the building in the event a request for inspection of such equipment has been filed with the Authority Having Jurisdiction not more than 72 hours after such replacement work is completed, and before a portion of system is concealed by a permanent portion of the building.
106.3 Testing of Systems. The composting toilet system, urine diversion system, or alternate water source system~~, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or blackwater treatment system~~ shall be tested and approved in accordance with this standard or the Authority Having Jurisdiction. Tests shall be conducted in the presence of the Authority Having Jurisdiction or the Authority Having Jurisdiction's duly appointed representative.
No test or inspection shall be required where a composting toilet system, urine diversion system, or alternate water source system, ~~reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or blackwater treatment system,~~ or part thereof, is set up for exhibition purposes and has no connection with water or the drainage system. In cases where it would be impractical to provide the required water or air tests, or for minor installations and repairs, the Authority Having Jurisdiction shall be permitted to make such inspection as deemed advisable in order to be assured that the work has been performed in accordance with the intent of this standard. Joints and connections in the composting toilet system, urine diversion system, or alternate water source system~~, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or blackwater treatment system~~ shall be airtight, gastight and watertight for the pressures required by the test.
106.3.1 Defective Systems. In buildings or premises condemned by the Authority Having Jurisdiction because of an insanitary condition of a composting toilet system, urine diversion system, or alternate water source system, ~~reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or blackwater treatment system,~~ or part thereof, the alterations in such system shall be in accordance with the requirements of this standard.

108.0 Violations and Penalties.
108.1 General. It shall be unlawful for a person, firm, or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, equip, use, or maintain a composting toilet system, urine diversion system, or alternate water source system~~, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or blackwater treatment system, materials, equipment, appurtenances, and other associated components~~ or permit the same to be done in violation of this standard.

108.6 Authority to Condemn. Where the Authority Having Jurisdiction ascertains that a composting toilet system, urine diversion system, or alternate water source system, ~~reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or blackwater treatment system~~ or portion thereof, regulated by this standard, has become hazardous to life, health, or property, or has become insanitary, the Authority Having Jurisdiction shall order in writing that such system, either be removed or placed in a safe or sanitary condition. The order shall fix a reasonable time limit for compliance. No person shall use or maintain a defective system after receiving such notice.

Where such system is to be disconnected, written notice shall be given. In cases of immediate danger to life or property, such disconnection shall be permitted to be made immediately without such notice.

109.0 Board of Appeals.
109.1 General. In order to hear and decide appeals of orders, decisions, or determinations made by the Authority Having Jurisdiction relative to the application and interpretations of this standard, there shall be and is hereby created a Board of Appeals consisting of members who are qualified by experience and training to pass upon matters pertaining to composting toilet system, urine diversion system, or alternate water source system~~, reclaimed (recycled) water system, stormwater treatment system, rainwater catchment system, or blackwater treatment system~~ design, construction, and maintenance and the public health aspects of such systems and who are not employees of the jurisdiction. The Authority Having Jurisdiction shall be an ex-officio member and shall act as secretary to said board but shall have no vote upon a matter before the board. The Board of Appeals shall be appointed by the governing body and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business and shall render decisions and findings in writing to the appellant with a duplicate copy to the Authority Having Jurisdiction.

(shown for information purposes only)

104.2 Exempt Work. A permit shall not be required for the following:
(1) The stopping of leaks in drains, soil, waste, or vent pipe, provided, however, that a trap, drainpipe, soil, waste, or vent pipe become defective, and it becomes necessary to remove and replace the same with new material, the same shall be considered as new work and a permit shall be procured and inspection made as provided in this standard.
(2) The clearing of stoppages, or the repairing of leaks in pipes, valves, or fixtures, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes, or fixtures.
(3) Where specified within this standard and approved by the Authority Having Jurisdiction.
Exemption from the permit requirements of this standard shall not be deemed to grant authorization for work to be done in violation of the provisions of the standard or other laws or ordinances of this jurisdiction.

Substantiation:
Based on the definition for “alternate water source,” all of the following would be included as alternate water sources: onsite treated gray water, onsite treated blackwater, onsite treated stormwater, untreated gray water, rainwater, and reclaimed (recycled) water. Their corresponding systems would then be classified as types of alternate water source systems.

> ***[2025 WEStand ROP Preprint]***
> ***203.0 (- A -)***
> ***Alternate Water Source.*** *Nonpotable source of water that includes, but is not limited to, gray water, onsite treated nonpotable water, rainwater, and reclaimed (recycled) water. This does not include water that has less than 1000 ppm of total dissolved solids (TDS) and is self-supplied by a project applicant.*

However, as currently written, the requirements list these system types separately, which could be misread as indicating they are distinct from and not included within the scope of alternate water sources. To avoid this confusion and properly align with the definition, existing sections are being revised to remove the separate list of alternate water source system types.

Additionally, to correct an oversight, “composting toilet systems” are being included where missing from these sections.

Section 104.1 (Permits Required) includes the phrase “except as permitted in Section 104.2” as this section contains a list of exceptions to Section 104.1. Such verbiage is also consistent with the other Uniform Codes.

> *[2024 UPC]*
> ***104.1 Permits Required.*** *It shall be unlawful for a person, firm, or corporation to make an installation, alteration, repair, replacement, or remodel a plumbing system regulated by this code except as permitted in Section 104.2, or to cause the same to be done without first obtaining a separate plumbing permit for each separate building or structure.*

Section 108.1 (General) contains further revisions to remove unnecessary verbiage and align with the same requirements presented in the other Uniform Codes. More specifically, the phrase “materials, equipment, appurtenances, and other associated components” is being stricken. See below for the relevant sections from the UPC and USHGC:

> *[2024 UPC]*
> ***106.1 General.*** *It shall be unlawful for a person, firm, or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, equip, use, or maintain a system or permit the same to be done in violation of this code.*

> *[2024 USHGC]*
> ***106.1 General.*** *It shall be unlawful for a person, firm, or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert, demolish, equip, use, or maintain plumbing or permit the same to be done in violation of this code.*

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
062	2023 WE-Stand	415.4.2, 415.7, Table 1101.5.1

Submitter Name:	Organization Name:	Organization Representation:
Pat Lando	WEStand Gray Water Systems Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

415.0 Landscape Design and Installation.

415.4 Plant and Irrigation System Limitations. (remaining text unchanged)

415.4.2 Athletic Fields. Athletic fields shall be irrigated with ~~either reclaimed (recycled) or~~ onsite alternate water sources ~~provided~~ in accordance with ~~Chapter 7 through Chapter 11~~this standard. Golf courses shall be planted in landscaping which does not require supplemental irrigation except for tees, fairways, and greens. The use of potable water on newly installed athletic fields shall be permitted for a period of not more than 18 months after installation or as approved by the Authority Having Jurisdiction.

415.7 Use of Alternate Water Sources for Irrigation. Where available by pre-existing treatment, storage or distribution network, and where approved by the Authority Having Jurisdiction, alternate water source(s) complying with ~~Chapter 7~~this standard shall be utilized for irrigation. Where adequate capacity and volumes of pre-existing alternative water sources are available, the irrigation system shall be designed to use a minimum of 75 percent of alternate water to meet the annual irrigation demand.
Exception: Plants grown for food production for direct human consumption.

TABLE 1101.5.1
MINIMUM ~~ALTERNATE WATER SOURCE~~ TESTING, INSPECTION, AND MAINTENANCE FREQUENCY FOR NONPOTABLE RAINWATER CATCHMENT SYSTEMS

DESCRIPTION	MINIMUM FREQUENCY
Inspect and clean filters and screens, and replace (if necessary)	Every 3 months
Inspect and verify that disinfection, filters and water quality treatment devices and systems are operational and maintaining minimum water quality requirements as determined by the Authority Having Jurisdiction	In accordance with manufacturer's instructions, and the Authority Having Jurisdiction
Inspect and clear debris from rainwater gutters, downspouts, and roof washers	Every 6 months
Inspect and clear debris from roof or other aboveground rainwater collection surfaces	Every 6 months
Remove tree branches and vegetation overhanging roof or other aboveground rainwater collection surfaces	As needed
Inspect pumps and verify operation	After initial installation and every 12 months thereafter
Inspect valves and verify operation	After initial installation and every 12 months thereafter
Inspect pressure tanks and verify operation	After initial installation and every 12 months thereafter
Clear debris from and inspect storage tanks, locking devices, and verify operation	After initial installation and every 12 months thereafter

Inspect caution labels and marking	After initial installation and every 12 months thereafter
Cross-connection inspection and test*	After initial installation and every 12 months thereafter
Test water quality of rainwater catchment systems required by Section 1103.5 to maintain a minimum water quality	Every 12 months. After system renovation or repair.

* The cross-connection test shall be performed in the presence of the Authority Having Jurisdiction in accordance with the requirements of this chapter.

Substantiation:
In the 2023 WEStand, Chapter 7 provided requirements applicable to alternate water source systems including untreated gray water systems, onsite treated nonpotable water systems, and reclaimed (recycled) water systems. During the proposal stage, these provisions were reorganized: Chapter 7 is now limited to untreated gray water systems; Chapter 12 includes relocated requirements for reclaimed (recycled) water systems; and onsite treatment systems for nonpotable water are covered by Chapters 8 through 10. Because requirements for alternate water source systems are distributed across multiple chapters, the above sections are being revised to reference "this standard" to ensure all alternate water source systems are included.

Table 1101.5.1 specifically applies to rainwater catchment systems for nonpotable applications. However, the title of the table incorrectly refers to “alternate water source” which implies that the testing, inspection, and maintenance requirements are applicable to all alternate water source systems. To correct this, the title of Table 1101.5.1 is being updated to “Minimum Testing, Inspection, and Maintenance Frequency for Nonpotable Rainwater Catchment Systems.”

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 3

Item #:	Code Number:	Sections(s):
062	2023 WE-Stand	309.0 - 309.5, 701.9.2 - 701.9.2.4, 804.8, 904.8, 1004.8, 1103.15.2 - 1103.15.2.4, 1203.3 - 1203.3.4

Submitter Name:	Organization Name:	Organization Representation:
Jim Majerowicz	Plumbers Local 130, UA	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

309.0 Cross-Connection Inspection and Testing.
309.1 General. Where required by this standard, an initial and subsequent annual cross-connection inspection and test shall be performed on both the potable and alternate water source systems. The potable and alternate water source systems shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 309.2 through Section 309.5.

309.2 Visual System Inspection. Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Authority Having Jurisdiction as follows:
(1) Meter locations of the alternate water source and potable water lines shall be checked to verify that no modifications were made, and that no cross-connections are visible.
(2) Pumps and equipment, equipment room signs, and exposed piping in equipment room shall be checked.
(3) Valves shall be checked to ensure that valve lock seals are still in place and intact. Valve control door signs shall be checked to verify that no signs have been removed.

309.3 Cross-Connection Test. The procedure for determining cross-connection shall be followed by the applicant in the presence of the Authority Having Jurisdiction to determine whether a cross-connection has occurred as follows:
(1) The potable water system shall be activated and pressurized. The alternate water source system shall be shut down, depressurized, and drained.
(2) The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the alternate water source system is empty. The minimum period the alternate water source system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and the alternate water source distribution systems, but in no case shall that period be less than 1 hour.
(3) The drain on the alternate water source system shall be checked for flow during the test and all fixtures, potable and alternate water source , shall be tested and inspected for flow. Flow from any alternate water source system outlet indicates a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the alternate water source system.
(4) The potable water system shall then be depressurized and drained.
(5) The alternate water source system shall then be activated and pressurized.
(6) The alternate water source system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.
(7) All fixtures, potable and alternate water source, shall be tested and inspected for flow. Flow from any potable water system outlet indicates a cross-connection. No flow from a alternate water source outlet will indicate that it is connected to the potable water system.
(8) The drain on the potable water system shall be checked for flow during the test and at the end of the test.
(9) If there is no flow detected in any of the fixtures which would indicate a cross-connection, the potable water system shall be repressurized.

309.4 Discovery of Cross-Connection. In the event that a cross-connection is discovered, the following procedure, in the presence of the Authority Having Jurisdiction, shall be activated immediately:
(1) The alternate water source piping to the building shall be shut down at the meter, and the alternate water source riser shall be drained.
(2) Potable water piping to the building shall be shut down at the meter.
(3) The cross-connection shall be uncovered and disconnected.
(4) The building shall be retested following procedures listed in Section 309.2 and Section 309.3.
(5) The potable water system shall be chlorinated with 50 parts per million (ppm) chlorine for 24 hours.
(6) The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. If test results are acceptable, the potable water system shall be recharged.

309.5 Annual Inspection. An annual inspection of the alternate water source system, following the procedures listed in Section 309.1 shall be required. Annual cross-connection testing, following the procedures listed in Section 309.3 shall be required by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test occur less than once in 4 years. Alternate testing requirements shall be approved by the Authority Having Jurisdiction.

701.0 General.

701.9 Inspection and Testing. (remaining text unchanged)

701.9.2 ~~Annual~~ **Cross-Connection Inspection and Testing.** An initial and subsequent annual cross-connection inspection and test shall be performed on both the potable and untreated gray water systems in accordance with Section 309.0. ~~The potable and untreated gray water system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 701.9.2.1 through Section 701.9.2.4.~~

~~**701.9.2.1 Visual System Inspection.** Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Authority Having Jurisdiction as follows:~~
~~(1) Meter locations of the untreated gray water and potable water lines shall be checked to verify that no modifications were made, and that no cross-connections are visible.~~
~~(2) Pumps and equipment, equipment room signs, and exposed piping in equipment room shall be checked.~~
~~(3) Valves shall be checked to ensure that valve lock seals are still in place and intact. Valve control door signs shall be checked to verify that no signs have been removed.~~

~~**701.9.2.2 Cross-Connection Test.** The procedure for determining cross-connection shall be followed by the applicant in the presence of the Authority Having Jurisdiction to determine whether a cross-connection has occurred as follows:~~
~~(1) The potable water system shall be activated and pressurized. The untreated gray water system shall be shut down, depressurized, and drained.~~
~~(2) The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the untreated gray water system is empty. The minimum period the untreated gray water system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and the untreated gray water distribution systems, but in no case shall that period be less than 1 hour.~~
~~(3) The drain on the untreated gray water system shall be checked for flow during the test and all fixtures, potable and untreated gray water, shall be tested and inspected for flow. Flow from any untreated gray water system outlet indicates a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the untreated gray water system.~~
~~(4) The potable water system shall then be depressurized and drained.~~

~~(5) The untreated gray water system shall then be activated and pressurized.~~
~~(6) The untreated gray water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.~~
~~(7) All fixtures, potable and untreated gray water, shall be tested and inspected for flow. Flow from any potable water system outlet indicates a cross-connection. No flow from an untreated gray water outlet will indicate that it is connected to the potable water system.~~
~~(8) The drain on the potable water system shall be checked for flow during the test and at the end of the test.~~
~~(9) If there is no flow detected in any of the fixtures which would indicate a cross-connection, the potable water system shall be repressurized.~~

~~**701.9.2.3 Discovery of Cross-Connection.** In the event that a cross-connection is discovered, the following procedure, in the presence of the Authority Having Jurisdiction, shall be activated immediately:~~
~~(1) The untreated gray water piping to the building shall be shut down at the meter, and the untreated gray water riser shall be drained.~~
~~(2) Potable water piping to the building shall be shut down at the meter.~~
~~(3) The cross-connection shall be uncovered and disconnected.~~
~~(4) The building shall be retested following procedures listed in Section 701.9.2.1 and Section 701.9.2.2.~~
~~(5) The potable water system shall be chlorinated with 50 parts per million (ppm) chlorine for 24 hours.~~
~~(6) The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. If test results are acceptable, the potable water system shall be recharged.~~

~~**701.9.2.4 Annual Inspection.** An annual inspection of the untreated gray water system, following the procedures listed in Section 701.9.2.1 shall be required. Annual cross-connection testing, following the procedures listed in Section 701.9.2.2 shall be required by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test occur less than once in 4 years. Alternate testing requirements shall be approved by the Authority Having Jurisdiction.~~

(renumber remaining sections)

804.0 System Requirements.

804.8 Cross-Connection Inspection and Testing. An initial and subsequent annual cross-connection inspection and test is required in accordance with Section ~~701.11.2~~309.0. Before the building is occupied or the system is activated, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

904.0 System Requirements.

904.8 Cross-Connection Inspection and Testing. An initial and subsequent annual cross-connection inspection and test is required in accordance with Section ~~701.11.2~~309.0. Before the building is occupied or the system is activated, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

1004.0 System Requirements.

1004.8 Cross-Connection Inspection and Testing. An initial and subsequent annual cross-connection inspection and test is required in accordance with Section ~~701.11.2~~309.0. Before the building is occupied or the system is

activated, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

1103.0 Design and Installation.

1103.15 Inspection and Testing. (remaining text unchanged)

1103.15.2 Annual Cross-Connection Inspection and Testing. An initial and subsequent annual cross-connection inspection and test shall be performed on both the potable and rainwater catchment systems in accordance with Section 309.0. ~~The potable and rainwater catchment system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1103.15.2.1 through Section 1103.15.2.4.~~

~~**1103.15.2.1 Visual System Inspection.** Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Authority Having Jurisdiction as follows:~~
~~(1) Meter locations of the rainwater and potable water lines shall be checked to verify that no modifications were made and that no cross-connections are visible.~~
~~(2) Pumps and equipment, equipment room signs, and exposed piping in equipment room shall be checked.~~
~~(3) Valves shall be checked to ensure that valve lock seals are still in place and intact. Valve control door signs shall be checked to verify that no signs have been removed.~~

~~**1103.15.2.2 Cross-Connection Test.** The procedure for determining cross-connection shall be followed by the applicant in the presence of the Authority Having Jurisdiction to determine whether a cross-connection has occurred as follows:~~
~~(1) The potable water system shall be activated and pressurized. The rainwater catchment system shall be shut down, depressurized, and drained.~~
~~(2) The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the rainwater catchment system is empty. The minimum period the rainwater catchment system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and the rainwater catchment distribution systems, but in no case shall that period be less than 1 hour.~~
~~(3) The drain on the rainwater catchment system shall be checked for flow during the test and all fixtures, potable and alternate water source, shall be tested and inspected for flow. Flow from any rainwater catchment system outlet indicates a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the rainwater catchment system.~~
~~(4) The potable water system shall then be depressurized and drained.~~
~~(5) The rainwater catchment system shall then be activated and pressurized.~~
~~(6) The rainwater catchment system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.~~
~~(7) All fixtures, potable and rainwater, shall be tested and inspected for flow. Flow from any potable water system outlet indicates a cross-connection. No flow from a rainwater outlet will indicate that it is connected to the potable water system.~~
~~(8) The drain on the potable water system shall be checked for flow during the test and at the end of the test.~~
~~(9) If there is no flow detected in any of the fixtures which would indicate a cross-connection, the potable water system shall be repressurized.~~

~~**1103.15.2.3 Discovery of Cross-Connection.** In the event that a cross-connection is discovered, the following procedure, in the presence of the Authority Having Jurisdiction, shall be activated immediately:~~

~~(1) The rainwater piping to the building shall be shut down at the meter, and the rainwater riser shall be drained.~~
~~(2) Potable water piping to the building shall be shut down at the meter.~~
~~(3) The cross-connection shall be uncovered and disconnected.~~
~~(4) The building shall be retested following procedures listed in Section 1103.15.2.1 and Section 1103.15.2.2.~~
~~(5) The potable water system shall be chlorinated with 50 parts per million (ppm) chlorine for 24 hours.~~
~~(6) The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. If test results are acceptable, the potable water system shall be recharged.~~

~~**1103.15.2.4 Annual Inspection.** An annual inspection of the rainwater catchment system, following the procedures listed in Section 1103.15.2.1 shall be required. Annual cross-connection testing, following the procedures listed in Section 1103.15.2.2 shall be required by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test occur less than once in 4 years. Alternate testing requirements shall be approved by the Authority Having Jurisdiction.~~

1203.0 Inspection and Testing.

1203.3 ~~Annual~~ Cross-Connection Inspection and Testing. An initial and subsequent annual cross-connection inspection and test shall be performed on both the potable and reclaimed (recycled) water systems in accordance with Section 309.0. ~~The potable and reclaimed (recycled) water system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1203.3.1 through Section 1203.3.4.~~

~~**1203.3.1 Visual System Inspection.** Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Authority Having Jurisdiction as follows:~~
~~(1) Meter locations of the reclaimed (recycled) water and potable water lines shall be checked to verify that no modifications were made, and that no cross-connections are visible.~~
~~(2) Pumps and equipment, equipment room signs, and exposed piping in equipment room shall be checked.~~
~~(3) Valves shall be checked to ensure that valve lock seals are still in place and intact. Valve control door signs shall be checked to verify that no signs have been removed.~~

~~**1203.3.2 Cross-Connection Test.** The procedure for determining cross-connection shall be followed by the applicant in the presence of the Authority Having Jurisdiction to determine whether a cross-connection has occurred as follows:~~
~~(1) The potable water system shall be activated and pressurized. The reclaimed (recycled) water system shall be shut down, depressurized, and drained.~~
~~(2) The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the reclaimed (recycled) water system is empty. The minimum period the reclaimed (recycled) water system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and the reclaimed (recycled) water distribution systems, but in no case shall that period be less than 1 hour.~~
~~(3) The drain on the reclaimed (recycled) water system shall be checked for flow during the test and all fixtures, potable and reclaimed (recycled) water, shall be tested and inspected for flow. Flow from any reclaimed (recycled) water system outlet indicates a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the reclaimed (recycled) water system.~~
~~(4) The potable water system shall then be depressurized and drained.~~
~~(5) The reclaimed (recycled) water system shall then be activated and pressurized.~~
~~(6) The reclaimed (recycled) water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.~~

~~(7) All fixtures, potable and reclaimed (recycled) water, shall be tested and inspected for flow. Flow from any potable water system outlet indicates a cross-connection. No flow from a reclaimed (recycled) water outlet will indicate that it is connected to the potable water system.~~
~~(8) The drain on the potable water system shall be checked for flow during the test and at the end of the test.~~
~~(9) If there is no flow detected in any of the fixtures which would indicate a cross-connection, the potable water system shall be repressurized.~~

~~**1203.3.3 Discovery of Cross-Connection.** In the event that a cross-connection is discovered, the following procedure, in the presence of the Authority Having Jurisdiction, shall be activated immediately:~~
~~(1) The reclaimed (recycled) water piping to the building shall be shut down at the meter, and the reclaimed (recycled) water riser shall be drained.~~
~~(2) Potable water piping to the building shall be shut down at the meter.~~
~~(3) The cross-connection shall be uncovered and disconnected.~~
~~(4) The building shall be retested following procedures listed in Section 1203.3.1 and Section 1203.3.2.~~
~~(5) The potable water system shall be chlorinated with 50 parts per million (ppm) chlorine for 24 hours.~~
~~(6) The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. If test results are acceptable, the potable water system shall be recharged.~~

~~**1203.3.4 Annual Inspection.** An annual inspection of the reclaimed (recycled) water system, following the procedures listed in Section 1203.3 shall be required. Annual cross-connection testing, following the procedures listed in Section 1203.3.2 shall be required by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test occur less than once in 4 years. Alternate testing requirements shall be approved by the Authority Having Jurisdiction.~~

Substantiation:
Cross-connection inspection and testing requirements are essential for all alternate water source systems; however, the current structure of the standard creates inconsistency and redundancy.

Following the actions of the ROP, Chapter 7 and its related sections are now written specifically for untreated gray water systems, leaving onsite blackwater, gray water, and stormwater treatment systems to reference outdated Chapter 7 inspection and testing requirements that no longer apply broadly.

At the same time, inspection and testing requirements for reclaimed (recycled) water and onsite nonpotable rainwater catchment systems are repeated in separate chapters, each tailored to those specific systems. To address these issues, the cross-connection inspection and testing requirements are being added to Chapter 3 (General Regulations) with reference to alternate water source systems. The repeated requirements throughout the standard are being deleted, and sections that previously contained those requirements are being updated to reference the consolidated provisions now in Chapter 3.

Committee Action:
Accept As Submitted

Committee Statement:
Item #089 Public Comment #1 was heard prior to Item #062 Public Comment #3. The committee recognizes that Section 804.8, Section 904.8, and Section 1004.8 are addressed in both of these comments, and the last action prevails.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
065

Code Number:
2023 WE-Stand

Section Number:
701.3.1

SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

701.0 General.

701.3 Permit. (remaining text unchanged)
701.3.1 Clothes Washer System. ~~A clothes washer system in compliance with all of the following is exempt from the construction permit specified in Section 701.3 and shall be permitted to be installed or altered without a construction permit~~Permits shall not be required for clothes washer systems complying with all of the following:
(~~3~~1) The installation, ~~change,~~ alteration, or repair of the system ~~does~~shall not ~~include a potable water connection or a pump and does not~~ affect other building, plumbing, electrical, or mechanical components including, but not limited to, structural features, egress, fire-life safety, sanitation, potable water supply piping, or accessibility. ~~The pump in a clothes washer shall not be considered part of the gray water system.~~
(~~11~~2) Exemption from construction permit requirements of this code shall not be deemed to grant authorization for any gray water system to be installed in a manner that violates other provisions of this code or any other laws or ordinances of the Authority Having Jurisdiction.
(~~2~~3) The design shall allow the user to direct the ~~flow~~clothes washer discharge to the irrigation or disposal field, or the ~~building sewer~~existing plumbing drainage system for the clothes washer. The direction control of the gray water shall be clearly labeled and readily accessible to the user.
(4) The system shall not include a potable water connection or a pump. The pump in the clothes washer shall not be considered part of the gray water system.
(~~4~~5) The gray water shall be contained on the site where it is generated.
(~~5~~6) Gray water shall be directed to and contained within an irrigation or disposal field.
(~~6~~7) Ponding or runoff ~~is prohibited~~shall not be permitted and shall be considered a nuisance.
(~~7~~8) Gray water shall be permitted to be released above the ground surface provided ~~at least~~not less than 2 inches (51 mm) of mulch, rock, or soil, or a solid shield covers the release point. Other methods which provide equivalent separation ~~are~~shall also ~~acceptable~~be permitted.
~~(8) Gray water systems shall be designed to minimize contact with humans and domestic pets.~~
(9) ~~Water used to~~Clothes washer discharge from washing diapers or similarly soiled or infectious garments ~~shall not be used and~~ shall be diverted to the ~~building sewer~~plumbing drainage system.
(10) Gray water shall not contain hazardous chemicals derived from activities such as cleaning car parts, washing greasy or oily rags, or disposing of waste solutions from home photo labs or similar hobbyist or home occupational activities.
(~~12~~11) An operation and maintenance manual shall be provided to the owner. Directions shall indicate that the manual is to remain with the building throughout the life of the system and upon change of ownership or occupancy.
(~~13~~12) ~~Gray water discharge from a~~Standpipes for gray water clothes washer systems ~~through a standpipe~~ shall be ~~properly trapped in accordance with the plumbing code~~separate from the plumbing system and shall be designed to prevent the entry of vermin and insects.

(~~1~~13) Where required, ~~notification has been provided to the enforcing agency regarding~~documentation identifying the proposed location and installation of ~~a~~the gray water irrigation system or disposal ~~system~~field shall be provided to the Authority Having Jurisdiction.

SUBSTANTIATION:
Section 701.3.1 (Clothes Washer System) is being revised to remove redundant language that is already stated in the exception to Section 701.3. Item (3) is being relocated to the first position (now Item 1) on the list, as it functions as a lead-in provision specifying all components and systems that should not be affected by the gray water system. In other words, if any part of the systems referenced in this item is impacted by the gray water system, a permit will be required. The last sentence regarding pumps in clothes washers is being removed and restructured as a new, separate Item (4). Additionally, Item (11) is being relocated to become Item (2), as it complements the newly positioned Item (1). The remaining items will be renumbered accordingly.

Item (2) is being relocated to Item (3). The phrase "clothes washer discharge" is replacing the term "flow" to more accurately reflect the specific nature of gray water originating from clothes washers. Also, instead of using the terms "existing drain line" or "building sewer," the phrase "existing plumbing drainage system" is preferred, as it better encompasses discharge from a clothes washer, whether it enters a standpipe or a laundry sink. The new Item (4) has been separated from the original Item (3), as the provisions related to a pump, or specifically a clothes washer pump, warrant their own dedicated section.

Item (8) is being removed. The code already requires gray water systems to be subsurface, with no direct contact with humans or domestic animals. As such, this item is no longer necessary. Item (9) is being updated to clarify that it refers to clothes washer discharge containing waste from diapers or similarly soiled garments. The term "plumbing drainage system" is used here instead of "building sewer" because it is more inclusive, covering the point of discharge from the diverter valve to either a standpipe or a laundry sink.

Item (13) is being relocated to Item (12). This provision concerns the standpipe that is part of the clothes washer system and is separate from the standard plumbing system. The section is being revised to clarify that it is the standpipe that must be designed to prevent the entry of vermin and insects. The phrase "properly trapped in accordance with the plumbing code" is being removed, as the standpipe is considered part of the gray water system and operates independently from the traditional plumbing system.

Item (1) is being relocated to Item (13). Written notification is required under the exception clause of Section 701.3 to inform the Authority Having Jurisdiction (AHJ) of the proposed location and installation of the irrigation or disposal field. The term "documentation" is now being used instead of "notification" to better express the requirement for formal submission.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
065

Code Number:
2023 WE-Stand

Sections(s):
701.3, 701.3.1

Submitter Name:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

701.0 General.

701.3 Permit. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any untreated gray water system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction, except as permitted in Section 701.3.1.
~~**Exception:** For single family dwellings, a construction permit shall not be required for a clothes washer only system meeting the requirements of Section 701.3.1.~~

701.3.1 ~~**Clothes Washer System**~~**Exempt Work**. ~~Permits shall not be required for clothes washer systems complying with all of the following:~~A permit shall not be required for an untreated gray water system that receives discharge from not more than one residential clothes washing machine in a single-family dwelling, is used for subsoil or subsurface irrigation, is independent from the plumbing drainage system, and complies with all of the following:
(1) The installation, alteration, or repair of the system shall not adversely affect other building, plumbing, electrical, or mechanical components including, but not limited to, structural features, egress, fire-life safety, sanitation, potable water supply piping, or accessibility.
~~(2) Exemption from construction permit requirements of this code shall not be deemed to grant authorization for any gray water system to be installed in a manner that violates other provisions of this code or any other laws or ordinances of the Authority Having Jurisdiction.~~
~~(3) The design shall allow the user to direct the clothes washer discharge to the irrigation or disposal field, or the existing plumbing drainage system for the clothes washer. The direction control of the gray water shall be clearly labeled and readily accessible to the user.~~
(2) The system shall allow the user to direct clothes washer discharge to either the gray water irrigation or disposal field, or to the plumbing drainage system. Controls shall be clearly labeled and readily accessible to the user.
(~~4~~3) The gray water system shall not include a potable water supply connection or a pump. The integral pump within the clothes washer shall not be considered part of the gray water system.
~~(5) The gray water shall be contained on the site where it is generated.~~
~~(6) Gray water shall be directed to and contained within an irrigation or disposal field.~~
(4) Gray water used for irrigation shall be directed to and contained within an irrigation or disposal field on the property where it is generated.
(~~7~~5) Surface ~~P~~ponding or runoff shall not be permitted and shall be considered a nuisance.

(~~8~~6) Gray water shall be permitted to be ~~released~~discharged above the ground surface provided not less than 2 inches (51 mm) of mulch, rock, or soil, or a solid shield covers the release point. Other methods which provide equivalent separation shall also be permitted.
(~~9~~7) Clothes washer discharge from washing diapers or similarly soiled or infectious garments shall be diverted to the plumbing drainage system.
(~~10~~8) Gray water shall not contain hazardous chemicals derived from activities such as cleaning ~~car~~automotive parts, washing greasy or oily rags, or disposing of waste solutions from home photo labs or similar ~~hobbyist or~~ home-based occupational activities.
(~~11~~9) An operation and maintenance manual shall be provided to the property owner~~. Directions shall indicate~~ with instructions indicating that the manual ~~is to~~shall remain with the building throughout the life of the system and be transferred upon change of ownership or occupancy.
(~~12~~10) Standpipes for gray water clothes washer systems shall be ~~separate~~independent from the plumbing drainage system and shall be designed to prevent the entry of vermin and insects.
(~~13~~11) Where required, documentation identifying the proposed location and installation of the gray water irrigation system or disposal field shall be provided to the Authority Having Jurisdiction.
Exemption from construction permit requirements of this standard shall not be deemed to grant authorization for any gray water system to be installed in a manner that violates other provisions of this code or any other laws or ordinances of the Authority Having Jurisdiction.

Substantiation:
Based on the committee statement provided for Item #064, the Gray Water Systems Task Group reviewed the existing exemptions for untreated gray water systems receiving discharge from clothes washers.

> ***Item #064, Committee Statement:*** *"The proposed definition restricts clothes washer systems solely to gray water systems, potentially leading to misinterpretation of provisions. The committee recommends reviewing all references to the term "clothes washer system" within the WEStand and proposing consistent terminology via public comment."*

Rather than referring to these systems as "clothes washer systems" and proposing a corresponding definition, the exemption is being revised to clearly distinguish applicability to untreated gray water systems receiving discharge from one residential clothes washing machine in a single-family dwelling, where used for subsoil or subsurface irrigation and independent from the plumbing drainage system.

The proposed format offers clarity and aligns with the existing permitting requirements in Chapter 1. This includes revising the title of Section 701.3.1 to "Exempt Work" and relocating item (2) to the end of the section. Item (2) is not considered an exemption but rather a clause regarding the intent of the section. The remaining revisions are to improve clarity and enforceability.

> ***[2025 WEStand ROP Preprint]***
> ***104.0 Permits.***
> ***104.2 Exempt Work.*** *A permit shall not be required for the following:*
> *(1) The stopping of leaks in drains, soil, waste, or vent pipe, provided, however, that a trap, drainpipe, soil, waste, or vent pipe become defective, and it becomes necessary to remove and replace the same with new material, the same shall be considered as new work and a permit shall be procured and inspection made as provided in this standard.*
> *(2) The clearing of stoppages, or the repairing of leaks in pipes, valves, or fixtures, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes, or fixtures.*
> *(3) Where specified within this standard and approved by the Authority Having Jurisdiction.*
> *Exemption from the permit requirements of this standard shall not be deemed to grant authorization for work to be done in violation of the provisions of the standard or other laws or ordinances of this jurisdiction.*

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
066

Code Number:
2023 WE-Stand

Section Number:
701.6

SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

701.0 General.

701.6 Operation and Maintenance Manual. An operation and maintenance manual for untreated gray water ~~and on-site treated water~~ systems required to have a permit in accordance with Section 701.3 shall be supplied to the building owner by the system designer. The operating and maintenance manual shall include the following:
(1) Diagram of the entire system and the location of system components.
(2) Instructions on operating and maintaining the system.
~~(3) Details on maintaining the required water quality for on-site nonpotable water systems.~~
(~~4~~3) Details on deactivating the system for maintenance, repair, or other purposes.
(~~5~~4) Applicable testing, inspection, and maintenance frequencies as required by Table 701.5.1.
(~~6~~5) A method of contacting the manufacturer(s).
(~~7~~6) Directions to the owner or occupant that the manual shall remain with the building throughout the life of the structure.

SUBSTANTIATION:
In alignment with the other submissions by the WEStand Gray Water Systems Task Group which revise Chapter 7 to only dictate provisions for untreated gray water systems, Section 701.6 (Operation and Maintenance Manual) is being updated to remove requirements pertaining to onsite nonpotable water systems.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
066	2023 WE-Stand	701.6, 806.1, 906.1, 1006.1

Submitter Name:	Organization Name:	Organization Representation:
Pat Lando	WEStand Gray Water Systems Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

701.0 General.

701.6 Operation and Maintenance Manual. An operation and maintenance manual ~~for untreated gray water systems required to have a permit in accordance with Section 701.3 shall be supplied to the building owner by the system designer~~shall be provided to the building owner for untreated gray water systems required to have a permit in accordance with this chapter. The ~~operating and maintenance~~ manual shall include not less than the following information:
(1) ~~Diagram of the entire system and~~As-built drawings of the installed system showing the location of system components.
(2) Instructions ~~on~~for operating and maintaining the system.
(3) ~~Details on~~Procedures for deactivating the system for maintenance, repair, or other purposes.
(4) Applicable testing, inspection, and maintenance frequencies as required by Table 701.5.1.
(5) ~~A method of contacting the manufacturer(s).~~Manufacturer contact information for system components.
(6) ~~Directions to the owner or occupant that the manual shall remain with the building throughout the life of the structure.~~A statement that the manual shall remain with the building throughout the life of the system and be transferred upon change of ownership or occupancy.

806.0 Operation and Maintenance Manual.
806.1 General. An operation and maintenance manual shall be provided ~~in accordance with Section 701.6 and shall also include the following~~ to the building owner and shall include not less than the following information:
(1) As-built drawings of the installed system showing the location of system components.
(~~1~~2) Instructions on operating and maintaining the system, including treatment process operations, instrumentation and alarms, and chemicals storage and handling.
(3) Procedures for deactivating the system for maintenance, repair, or other purposes.
(4) Applicable testing, inspection, and maintenance schedule.
(5) Manufacturer contact information for system components.
(~~2~~6) Site equipment inventory and maintenance notes.
(~~3~~7) Equipment~~/~~ and system warranty documentation ~~and information~~.
~~(4) "As Built" design drawings.~~
(~~5~~8) ~~Details on t~~Training requirements and qualifications of personnel responsible for operating the system.
~~(6) Maintenance schedule.~~

(9) A statement that the manual shall remain with the building throughout the life of the system and be transferred upon change of ownership or occupancy.

906.0 Operation and Maintenance Manual.

906.1 General. An operation and maintenance manual shall be provided ~~in accordance with Section 701.6 and shall also include the following~~to the building owner and shall include not less than the following information:

(1) As-built drawings of the installed system showing the location of system components.

(~~1~~2) Instructions on operating and maintaining the system, including treatment process operations, instrumentation and alarms, and chemicals storage and handling.

(3) Procedures for deactivating the system for maintenance, repair, or other purposes.

(4) Applicable testing, inspection, and maintenance schedule.

(5) Manufacturer contact information for system components.

(~~2~~6) Site equipment inventory and maintenance notes.

(~~3~~7) Equipment~~/~~ and system warranty documentation~~ and information~~.

~~(4) "As-Built" design drawings.~~

(~~5~~8) ~~Details on t~~Training requirements and qualifications of personnel responsible for operating the system.

~~(6) Maintenance schedule.~~

(9) A statement that the manual shall remain with the building throughout the life of the system and be transferred upon change of ownership or occupancy.

1006.0 Operation and Maintenance Manual.

1006.1 General. An operation and maintenance manual shall be provided ~~in accordance with Section 701.6 and shall also include the following~~to the building owner and shall include not less than the following information:

(1) As-built drawings of the installed system showing the location of system components.

(~~1~~2) Instructions on operating and maintaining the system, including treatment process operations, instrumentation and alarms, and chemicals storage and handling.

(3) Procedures for deactivating the system for maintenance, repair, or other purposes.

(4) Applicable testing, inspection, and maintenance schedule.

(5) Manufacturer contact information for system components.

(~~2~~6) Site equipment inventory and maintenance notes.

(~~3~~7) Equipment~~/~~ and system warranty documentation~~ and information~~.

~~(4) "As-Built" design drawings.~~

(~~5~~8) ~~Details on t~~Training requirements and qualifications of personnel responsible for operating the system.

~~(6) Maintenance schedule.~~

(9) A statement that the manual shall remain with the building throughout the life of the system and be transferred upon change of ownership or occupancy.

Substantiation:

In Item #066, the operation and maintenance manual requirements in Section 701.6 were revised to limit applicability to untreated gray water systems. However, the requirements of Section 701.6 are referenced elsewhere in the standard for onsite treatment systems and cannot be appropriately applied.

Additionally, there exists overlap and inconsistent verbiage across these sections. To mitigate these problems, the Gray Water Systems Task Group reviewed these sections, identified which requirements are applicable to each chapter, and proposed revisions to provide consistent enforceable requirements.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
068

Code Number:
2023 WE-Stand

Section Number:
701.10, 701.10.1

SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

308.0 Identification of a Potable and Nonpotable Water System.

~~701.10~~**308.1.5 Commercial, Industrial, and Institutional Restroom Signs.** A sign shall be installed in all restrooms in commercial, industrial, and institutional occupancies using reclaimed (recycled) water and on-site treated water for water closets, urinals, or both. Each sign shall contain letters of a highly visible color on a contrasting background, and letters shall be at least ½ inch (12.7 mm) in height. The location of the sign(s) shall be such that the sign(s) shall be visible to all users. The location of the sign(s) shall be approved by the Authority Having Jurisdiction and shall contain the following text:
TO CONSERVE WATER, THIS BUILDING USES *_____* TO FLUSH TOILETS AND URINALS.
~~701.10.1~~**308.1.5.1 Equipment Room Signs.** Each room containing reclaimed (recycled) water and on-site treated water, equipment shall have a sign posted in a location that is visible to anyone working on or near nonpotable water equipment with the following wording in not less than 1 inch (25.4 mm) in height letters:
CAUTION: NONPOTABLE *_____*, DO NOT DRINK. DO NOT CONNECT TO DRINKING WATER SYSTEM.
NOTICE: CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.
_____ Shall indicate RECLAIMED (RECYCLED) WATER or ON-SITE TREATED WATER accordingly.

(renumber remaining sections)

SUBSTANTIATION:
In alignment with the other submissions by the WEStand Gray Water Systems Task Group which revise Chapter 7 to only dictate provisions for untreated gray water systems, Section 701.10 (Commercial, Industrial, and Institutional Restroom Signs) and Section 701.10.1 (Equipment Room Signs) are being relocated to Chapter 3 to serve as general provisions for signage.

Committee Action:
Accept As Submitted

Committee Statement:
The committee acknowledges that these sections are no longer applicable within Chapter 7 based on the actions taken on Item #062 through Item #067. To assist users of the WEStand, the committee recommends that these sections be referenced within the chapters that address the corresponding systems.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
068	2023 WE-Stand	804.1, 804.9, 904.1, 904.9, 1004.1, 1004.9

Submitter Name:	Organization Name:	Organization Representation:
Pat Lando	WEStand Gray Water Systems Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

804.0 System Requirements.
804.1 General. Onsite blackwater treatment systems shall be installed in accordance with Section 804.2 through Section ~~804.8~~804.9.

804.9 Signage. Onsite blackwater systems shall be clearly identified with signage in accordance with Section 308.0.

904.0 System Requirements.
904.1 General. Onsite gray water treatment systems shall be installed in accordance with Section 904.2 through Section ~~904.8~~904.9.

904.9 Signage. Onsite gray water systems shall be clearly identified with signage in accordance with Section 308.0.

1004.0 System Requirements.
1004.1 General. Onsite stormwater treatment systems shall be installed in accordance with Section 1004.2 through Section ~~1004.8~~1004.9.

1004.9 Signage. Onsite stormwater systems shall be clearly identified with signage in accordance with Section 308.0.

(shown for information purposes only)

308.0 Identification of a Potable and Nonpotable Water System.
308.1 General. In buildings where potable water and nonpotable water systems are installed, each system shall be clearly identified in accordance with Section 308.1.1 through Section 308.1.6.
308.1.1 Potable Water. Potable water systems shall be labeled using a green background with white lettering.
308.1.2 Color and Information. Each system shall be identified with a colored pipe or band and coded with paints, wraps, and materials compatible with the piping. Except as required by Section 308.1.3, nonpotable water systems shall have a yellow background with black uppercase lettering, with the words:
"CAUTION: NONPOTABLE WATER, DO NOT DRINK."
Each nonpotable system shall be identified to designate the liquid being conveyed, and the direction of normal flow shall be clearly shown. The minimum size of the letters and length of the color field shall comply with Table 308.1.2. The background color and required information shall be indicated every 20 feet (6096 mm) but not less than once per room, and shall be visible from the floor level.

TABLE 308.1.2
MINIMUM LENGTH OF COLOR FIELD AND SIZE OF LETTERS

OUTSIDE DIAMETER OF PIPE OR COVERING (inches)	MINIMUM LENGTH OF COLOR FIELD (inches)	MINIMUM SIZE OF LETTERS (inches)
½ to 1¼	8	½
1½ to 2	8	¾
2½ to 6	12	1¼
8 to 10	24	2½
Over 10	32	3½

For SI units: 1 inch = 25.4 mm

308.1.3 Alternate Water Sources. Alternate water source systems shall have a purple (Pantone color No. 512, 522C, or equivalent) background with uppercase lettering and shall be field or factory marked as follows:
(1) Gray water systems shall be marked in accordance with this section with the words:
"CAUTION: NONPOTABLE GRAY WATER, DO NOT DRINK" in black letters.
(2) Reclaimed (recycled) water systems shall be marked in accordance with this section with the words:
"CAUTION: NONPOTABLE RECLAIMED (RECYCLED) WATER, DO NOT DRINK" in black letters.
(3) Onsite treated water systems shall be marked in accordance with this section with the words:
"CAUTION: ONSITE TREATED NONPOTABLE WATER, DO NOT DRINK" in black letters.
(4) Rainwater catchment systems shall be marked in accordance with this section with the words:
"CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK" in black letters.
308.1.4 Outlets. Each outlet on the nonpotable water line that is used for special purposes shall be posted with black uppercase lettering as follows:
"CAUTION: NONPOTABLE WATER, DO NOT DRINK."
308.1.5 Commercial, Industrial, and Institutional Restroom Signs. A sign shall be installed in all restrooms in commercial, industrial, and institutional occupancies using reclaimed (recycled) water and onsite treated water for water closets, urinals, or both. Each sign shall contain letters of a highly visible color on a contrasting background, and letters shall be at least ½ inch (12.7 mm) in height. The location of the sign(s) shall be such that the sign(s) shall be visible to all users. The location of the sign(s) shall be approved by the Authority Having Jurisdiction and shall contain the following text:
TO CONSERVE WATER, THIS BUILDING USES *_____* TO FLUSH TOILETS AND URINALS.

308.1.6 Equipment Room Signs. Each room containing reclaimed (recycled) water and onsite treated water, equipment shall have a sign posted in a location that is visible to anyone working on or near nonpotable water equipment with the following wording in not less than 1 inch (25.4 mm) in height letters:
CAUTION: NONPOTABLE *_____*, DO NOT DRINK. DO NOT CONNECT TO DRINKING WATER SYSTEM.
NOTICE: CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.
_____ Shall indicate RECLAIMED (RECYCLED) WATER or ONSITE TREATED WATER accordingly.

Substantiation:
During the previous WEStand Technical Committee (TC) meeting, it was requested that relocated requirements for signage be reviewed to determine if appropriate references are made within the remaining chapters of the standard.

Upon review, the Gray Water Systems Task Group generated recommendations corresponding to the following identified issues:

(1) Chapters 8 through 10, addressing onsite treatment systems for nonpotable water, are missing references to identification and signage requirements in Section 308.0 (Identification of a Potable and Nonpotable Water System).

(2) Chapters 4, 11 and 12 include partial identification and signage requirements. (Addressed in a separate public comment.)

(3) Chapters 4, 11 and 12 include requirements for outside hose bibbs, which are more suitable within Section 308.0. (Addressed in a separate public comment.)

This public comment resolves the issues identified in **item (1)** by adding new subsections within Chapter 8 (Onsite Blackwater Treatment Systems), Chapter 9 (Onsite Gray Water Treatment Systems), and Chapter 10 (Onsite Stormwater Treatment Systems) which reference the identification and signage requirements in Section 308.0.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
068	2023 WE-Stand	415.7.2, 1102.8, 1103.14 - 1103.14.2, 1202.5

Submitter Name:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

415.0 Landscape Design and Installation.

415.7 Use of Alternate Water Sources for Irrigation. (remaining text unchanged)

415.7.2 Identification. Where alternate water sources supply an irrigation system, the ~~sprinkler heads, valve boxes, the continuously pressurized line supplying the irrigation master valve, or any other components required by the Authority Having Jurisdiction, shall be colored purple. The~~ piping supplying the irrigation master valve shall be identified in accordance with ~~Chapter 7~~Section 308.1.3.
~~**415.7.3 Additional Zones.**~~ Newly installed zones shall ~~have purple pipe~~be identified in accordance with Section 308.0.

1102.0 Nonpotable Rainwater Catchment Systems.

~~**1102.8 Rainwater Catchment Water System Color and Marking Information.** Rainwater catchment systems shall have a colored background in accordance with the plumbing code. Rainwater catchment systems shall be marked or field-marked, in lettering in accordance with the plumbing code, with the words: "CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK."~~

1103.0 Design and Installation.

1103.14 Signage. In buildings where nonpotable rainwater systems are installed, the system shall be clearly identified with signage in accordance with Section 308.0.
~~**1103.14 Signs.** Signs in buildings using rainwater water shall be in accordance with Section 1103.14.1 and Section 1103.14.2.~~
~~**1103.14.1 Commercial, Industrial, and Institutional Restroom Signs.** A sign shall be installed in all restrooms in commercial, industrial, and institutional occupancies using nonpotable rainwater for water closets, urinals, or both. Each sign shall contain not less than ½ inch (12.7 mm) letters of a highly visible color on a contrasting background. The location of the sign(s) shall be such that the sign(s) shall be visible to all users. The number and location of the sign(s) shall be approved by the Authority Having Jurisdiction and shall contain the following text:~~
~~TO CONSERVE WATER, THIS BUILDING USES RAINWATER TO FLUSH TOILETS AND URINALS.~~
~~**1103.14.2 Equipment Room Signs.** Each equipment room containing nonpotable rainwater equipment shall have a sign posted with the following wording in not less than 1 inch (25.4 mm) letters:~~
~~CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK. DO NOT CONNECT TO DRINKING WATER SYSTEM. NOTICE: CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.~~
~~This sign shall be posted in a location that is visible to anyone working on or near rainwater equipment.~~

1202.0 System Requirements.

1202.5 ~~Reclaimed (Recycled) Water System Color and Marking Information~~**Signage.** Reclaimed (recycled) water systems shall ~~have a colored background in accordance with the plumbing code~~be clearly identified with signage in accordance with Section 308.0. ~~Reclaimed (recycled) water systems shall be marked or field-marked, in lettering in accordance with the plumbing code, with the words: "CAUTION: NONPOTABLE RECLAIMED (RECYCLED) WATER, DO NOT DRINK."~~

(shown for information purposes only)

308.0 Identification of a Potable and Nonpotable Water System.
308.1 General. In buildings where potable water and nonpotable water systems are installed, each system shall be clearly identified in accordance with Section 308.1.1 through Section 308.1.6.
308.1.1 Potable Water. Potable water systems shall be labeled using a green background with white lettering.
308.1.2 Color and Information. Each system shall be identified with a colored pipe or band and coded with paints, wraps, and materials compatible with the piping. Except as required by Section 308.1.3, nonpotable water systems shall have a yellow background with black uppercase lettering, with the words:
"CAUTION: NONPOTABLE WATER, DO NOT DRINK."
Each nonpotable system shall be identified to designate the liquid being conveyed, and the direction of normal flow shall be clearly shown. The minimum size of the letters and length of the color field shall comply with Table 308.1.2. The background color and required information shall be indicated every 20 feet (6096 mm) but not less than once per room, and shall be visible from the floor level.

TABLE 308.1.2
MINIMUM LENGTH OF COLOR FIELD AND SIZE OF LETTERS

OUTSIDE DIAMETER OF PIPE OR COVERING (inches)	MINIMUM LENGTH OF COLOR FIELD (inches)	MINIMUM SIZE OF LETTERS (inches)
½ to 1¼	8	½
1½ to 2	8	¾
2½ to 6	12	1¼
8 to 10	24	2½
Over 10	32	3½

For SI units: 1 inch = 25.4 mm

308.1.3 Alternate Water Sources. Alternate water source systems shall have a purple (Pantone color No. 512, 522C, or equivalent) background with uppercase lettering and shall be field or factory marked as follows:
(1) Gray water systems shall be marked in accordance with this section with the words:
"CAUTION: NONPOTABLE GRAY WATER, DO NOT DRINK" in black letters.
(2) Reclaimed (recycled) water systems shall be marked in accordance with this section with the words:
"CAUTION: NONPOTABLE RECLAIMED (RECYCLED) WATER, DO NOT DRINK" in black letters.
(3) Onsite treated water systems shall be marked in accordance with this section with the words:
"CAUTION: ONSITE TREATED NONPOTABLE WATER, DO NOT DRINK" in black letters.
(4) Rainwater catchment systems shall be marked in accordance with this section with the words:
"CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK" in black letters.

308.1.4 Outlets. Each outlet on the nonpotable water line that is used for special purposes shall be posted with black uppercase lettering as follows:
"CAUTION: NONPOTABLE WATER, DO NOT DRINK."
308.1.5 Commercial, Industrial, and Institutional Restroom Signs. A sign shall be installed in all restrooms in commercial, industrial, and institutional occupancies using reclaimed (recycled) water and onsite treated water for water closets, urinals, or both. Each sign shall contain letters of a highly visible color on a contrasting background, and letters shall be at least ½ inch (12.7 mm) in height. The location of the sign(s) shall be such that the sign(s) shall be visible to all users. The location of the sign(s) shall be approved by the Authority Having Jurisdiction and shall contain the following text:
TO CONSERVE WATER, THIS BUILDING USES *_____* TO FLUSH TOILETS AND URINALS.
308.1.6 Equipment Room Signs. Each room containing reclaimed (recycled) water and onsite treated water, equipment shall have a sign posted in a location that is visible to anyone working on or near nonpotable water equipment with the following wording in not less than 1 inch (25.4 mm) in height letters:
CAUTION: NONPOTABLE *_____*, DO NOT DRINK. DO NOT CONNECT TO DRINKING WATER SYSTEM.
NOTICE: CONTACT BUILDING MANAGEMENT BEFORE PERFORMING ANY WORK ON THIS WATER SYSTEM.
_____ Shall indicate RECLAIMED (RECYCLED) WATER or ONSITE TREATED WATER accordingly.

Substantiation:
During the previous WEStand Technical Committee (TC) meeting, it was requested that relocated requirements for signage be reviewed to determine if appropriate references are made within the remaining chapters of the standard.

Upon review, the Gray Water Systems Task Group generated recommendations corresponding to the following identified issues:

(1) Chapters 8 through 10, addressing onsite treatment systems for nonpotable water, are missing references to identification and signage requirements in Section 308.0 (Identification of a Potable and Nonpotable Water System). (Addressed in a separate public comment.)

(2) Chapters 4, 11 and 12 include either repetitive or partial identification and signage requirements.

(3) Chapters 4, 11 and 12 include requirements for outside hose bibbs, which are more suitable within Section 308.0. (Addressed in a separate public comment.)

This public comment resolves the issues identified in **item (2)** by removing detailed signage and identification requirements from Chapter 4 (Water Efficiency and Conservation), Chapter 11 (Nonpotable Rainwater Catchment Systems) and Chapter 12 [Reclaimed (Recycled) Water Systems] and replacing them with direct references to Section 308.0. This ensures consistent application of requirements and avoids potential conflicts that could arise if chapters are revised independently in the future.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 3

Item #:
068

Code Number:
2023 WE-Stand

Sections(s):
308.1.4, 415.15, 1103.2, 1202.7, Figure 1103.2, Figure 1202.7

Submitter Name:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

308.0 Identification of a Potable and Nonpotable Water System.
308.1 General. (remaining text unchanged)

308.1.4 Outlets. Each outlet on the nonpotable water line that is used for special purposes shall be posted with black uppercase lettering as follows:
"CAUTION: NONPOTABLE WATER, DO NOT DRINK."
Outside hose bibbs shall also display the symbol shown in Figure 308.1.4.

FIGURE ~~1103.2~~**308.1.4**

415.0 Landscape Design and Installation.

415.15 Outside Hose Bibbs. ~~Outside hose bibbs shall be allowed on irrigation pipe downstream of the backflow preventer. Hose bibbs supplying water from the irrigation system shall be indicated by posted signs marked with the words: "CAUTION: NONPOTABLE WATER. DO NOT DRINK." and the symbol in Figure 1202.7.~~Where installed, outside hose bibbs shall be posted with signage in accordance with Section 308.1.4.

1103.0 Design and Installation.

1103.2 Outside Hose Bibbs. ~~Outside hose bibbs shall be allowed on rainwater piping systems. Hose bibbs supplying rainwater shall be indicated by posted signs marked with the words: "CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK" and the symbol in Figure 1103.2.~~Where installed, outside hose bibbs shall be posted with signage in accordance with Section 308.1.4.

1202.0 System Requirements.

1202.7 ~~Hose Bibbs~~**Access**. Hose bibbs shall not be ~~allowed~~permitted on reclaimed (recycled) water piping systems ~~located~~ in areas accessible to the public. Where installed, outside hose bibbs shall be posted with signage in accordance with Section 308.1.4. ~~Access to reclaimed (recycled) water at points in the system~~Where reclaimed (recycled) water is accessible to the public, access shall be through a quick-disconnect device that differs from those installed on the potable water system. ~~Hose bibbs supplying reclaimed (recycled) water shall be indicated by posted signs marked with the words: "CAUTION: NONPOTABLE RECLAIMED WATER, DO NOT DRINK," and the symbol in Figure 1202.7.~~

~~FIGURE 1202.7~~

Substantiation:
During the previous WEStand Technical Committee (TC) meeting, it was requested that relocated requirements for signage be reviewed to determine if appropriate references are made within the remaining chapters of the standard.

Upon review, the Gray Water Systems Task Group generated recommendations corresponding to the following identified issues:

(1) Chapters 8 through 10, addressing onsite treatment systems for nonpotable water, are missing references to identification and signage requirements in Section 308.0 (Identification of a Potable and Nonpotable Water System). (Addressed in a separate public comment.)

(2) Chapters 4, 11 and 12 include either repetitive or partial identification and signage requirements. (Addressed in a separate public comment.)

(3) Chapters 4, 11 and 12 include requirements for outside hose bibbs, which are more suitable within Section 308.0.

This public comment resolves the issues identified in **item (3)** by relocating the symbol for outside hose bibbs from Figure 1103.2 to Figure 308.1.4, removing detailed signage and identification requirements for outlets from Chapter 4 (Water Efficiency and Conservation), Chapter 11 (Nonpotable Rainwater Catchment Systems), and Chapter 12 [Reclaimed (Recycled) Water Systems], and replacing them with direct references to Section 308.1.4 (Outlets). This ensures consistent application of requirements and avoids potential conflicts that could arise if chapters are revised independently in the future. Section 1202.7 was also revised to improve enforceability and clarity.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 4

Item #:	Code Number:	Sections(s):
068	2023 WE-Stand	308.1.3

Submitter Name:	Organization Name:	Organization Representation:
Pat Lando	WEStand Gray Water Systems Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal <u>as modified</u> by this public comment.

308.0 Identification of a Potable and Nonpotable Water System.
308.1 General. (remaining text unchanged)

308.1.3 Alternate Water Sources. Alternate water source systems shall have a purple (Pantone color No. 512, 522C, or equivalent) background with uppercase lettering and shall be field or factory marked as follows:
(1) Gray water systems shall be marked in accordance with this section with the words:
“CAUTION: NONPOTABLE GRAY WATER, DO NOT DRINK” in black letters.
(2) Reclaimed (recycled) water systems shall be marked in accordance with this section with the words:
“CAUTION: NONPOTABLE RECLAIMED (RECYCLED) WATER, DO NOT DRINK” in black letters.
(3) Onsite treated nonpotable water systems shall be marked in accordance with this section with the words:
“CAUTION: ONSITE TREATED NONPOTABLE WATER, DO NOT DRINK” in black letters.
(4) Rainwater catchment systems shall be marked in accordance with this section with the words:
“CAUTION: NONPOTABLE RAINWATER, DO NOT DRINK” in black letters.

Substantiation:
Section 308.1.3(3) is being revised to correctly align with the required marking by including the term “nonpotable.”

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
073

Code Number:
2023 WE-Stand

Section Number:
702.7

SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

702.7 Connections to Potable and Reclaimed (Recycled) Water Systems. Gray water systems shall have no direct connection to any potable water supply, on-site treated nonpotable water supply, or reclaimed (recycled) water systems. Potable, on-site treated nonpotable, or reclaimed (recycled) water ~~is~~shall be permitted to be used as makeup water for a non-pressurized storage tank provided the connection is protected by an ~~airgap~~approved backflow preventer in accordance with the plumbing code.

SUBSTANTIATION:
The update to Section 702.7 [Connections to Potable and Reclaimed (Recycled) Water Systems] replaces the term "airgap" with "approved backflow preventer" to allow for the use of other devices that meet or exceed the minimum requirements for backflow prevention.

Committee Action:
Accept As Submitted

Committee Statement:
Based on the actions taken on Item #062 through Item #072, which limit the applicability of Chapter 7 to "untreated gray water systems," the committee requests that Section 702.7 [Connections to Potable and Reclaimed (Recycled) Water Systems] be reviewed by a task group to determine its continued suitability within Chapter 7. The committee further requests that the task group evaluate these requirements to ensure there are no conflicts with the plumbing code related to backflow prevention.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
073

Code Number:
2023 WE-Stand

Sections(s):
702.7

Submitter Name:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

702.0 Untreated Gray Water Systems.

702.7 Connections to Potable and Reclaimed (Recycled) Water Systems. Gray water systems shall have no direct connection to any potable water supply, onsite treated nonpotable water supply, or reclaimed (recycled) water systems. Potable, onsite treated nonpotable, or reclaimed (recycled) water shall be permitted to be used as makeup water for a non-pressurized storage tank ~~provided the connection is protected by an approved backflow preventer~~where backflow protection is provided in accordance with the plumbing code.

Substantiation:
Section 702.7 [Connections to Potable and Reclaimed (Recycled) Water Systems] is being revised to reference the plumbing code for appropriate backflow protection requirements. Backflow protection encompasses various methods including air gaps, reduced pressure principle assemblies, double check valves, and other devices, and the appropriate method depends on the degree of hazard. Compliance with the plumbing code is therefore needed to ensure the selected backflow protection method matches the established hazard classification.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
076

Code Number:
2023 WE-Stand

Section Number:
702.13.7

SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

702.13 Gray Water System Components. (remaining text unchanged)

702.13.7 Backwater Valve. A backwater valve shall be installed on ~~all~~ gray water drain connections to the sanitary drain or sewer that are subject to backflow.

SUBSTANTIATION:
Not all gray water systems are subject to backflow. The update to Section 702.13.7 (Backwater Valve) removes the overly stringent requirement by only mandating the installation of a backwater valve where there is a potential for contamination.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	1	4

EXPLANATION OF ABSTAIN:
SOVOCOOL: I am not sure I follow the logic behind the removal of this seemingly safety-oriented requirement. Since I cannot determine whether it compromises safety or if I am misunderstanding the proposal, I am voting to abstain.

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
076

Code Number:
2023 WE-Stand

Sections(s):
702.13.7

Submitter Name:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

702.0 Untreated Gray Water Systems.

702.13 Gray Water System Components. (remaining text unchanged)

702.13.7 Backwater Valve. ~~A backwater valve shall be installed on gray water drain connections to the sanitary drain or sewer that are subject to backflow.~~Where subject to backflow, gray water drain connections to the sanitary drainage system shall be protected by a backwater valve. The backwater valve shall be accessible for inspection and maintenance.

Substantiation:
Section 702.13.7 (Backwater Valve) is being rewritten to add the clause "where subject to backflow" at the beginning of the sentence to clearly establish when the requirement applies. The term "sanitary drain or sewer" is being updated to "sanitary drainage system" to properly encompass building drains, building sewers, and related piping. The revised language also clarifies that the intent is to provide protection and adds an accessibility requirement to ensure the backwater valve can be inspected, maintained, and replaced when necessary.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
080

Code Number:
2023 WE-Stand

Section Number:
703.0 - 703.14, Chapter 12

SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

CHAPTER 12
RECLAIMED (RECYCLED) WATER SYSTEMS

~~703.0 Reclaimed (Recycled) Water Systems.~~
~~703.1~~1201.0 **General.**
1201.1 Applicability. The provisions of this ~~section~~chapter shall apply to the installation, construction, alteration, and repair of reclaimed (recycled) water ~~and stormwater~~ systems ~~intended to supply~~for nonpotable use.
1201.2 Allowable Use of Reclaimed (Recycled) Water. Where approved or required by the Authority Having Jurisdiction, reclaimed (recycled) water shall be permitted to be used in lieu of potable water for uses such as water closets, urinals, trap primers for floor drains and floor sinks, aboveground and subsurface irrigation, industrial or commercial cooling, or air conditioning~~ and other uses approved by the Authority Having Jurisdiction~~.
~~703.2~~1201.3 **Permit.** It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any reclaimed (recycled) water system within a building or on a premises without first obtaining a permit to do such work from the Authority Having Jurisdiction.
~~703.2.1~~1201.3.1 **Plumbing Plan Submission.** No permit for any reclaimed (recycled) water system shall be issued until complete plumbing plans, with appropriate data satisfactory to the Authority Having Jurisdiction, have been submitted and approved.
~~703.3~~1201.4 **System Changes.** No changes or connections shall be made to either the reclaimed (recycled) water system or the potable water system within any site containing a reclaimed (recycled) water system without approval by the Authority Having Jurisdiction.

1202.0 System Requirements.
~~703.4~~1202.1 **Connections to Potable or Reclaimed (Recycled) Water Systems.** Reclaimed (recycled) water systems shall have no connection to any potable water supply or alternate water source system. Potable water is permitted to be used as makeup water for a reclaimed (recycled) water storage tank provided the water supply inlet is protected by an airgap or reduced-pressure principle backflow preventer complying with the plumbing code.
~~703.5~~1202.2 **Water Pressure.** Reclaimed (recycled) water systems supplying water to water closets, urinals, and trap primers shall be capable of delivering not less than 15 pounds-force per square inch (psi) (103 kPa) residual pressure at the highest and most remote outlet served. Where the water pressure in the reclaimed water supply system within the building exceeds 80 psi (552 kPa), a pressure reducing valve reducing the pressure to 80 psi (552 kPa) or less to water outlets in the building shall be installed.
~~703.6~~1202.3 **Initial Cross-Connection Test.** A cross-connection test is required in accordance with Section ~~701.11.2~~1203.3. Before the building is occupied or the system is activated, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

~~703.7~~1202.4 **Reclaimed (Recycled) Water System Materials.** Reclaimed (recycled) water supply and distribution system materials shall comply with the requirements of the plumbing code for potable water supply and distribution systems, unless otherwise provided for in this section.

~~703.8~~1202.5 **Reclaimed (Recycled) Water System Color and Marking Information.** Reclaimed (recycled) water systems shall have a colored background in accordance with the plumbing code. Reclaimed (recycled) water systems shall be marked or field-marked, in lettering in accordance with the plumbing code, with the words: "CAUTION: NONPOTABLE RECLAIMED (RECYCLED) WATER, DO NOT DRINK."

~~703.9~~1202.6 **Valves.** Valves, except fixture supply control valves, shall be equipped with a locking feature.

~~703.10~~1202.7 **Hose Bibbs.** Hose bibbs shall not be allowed on reclaimed (recycled) water piping systems located in areas accessible to the public. Access to reclaimed (recycled) water at points in the system accessible to the public shall be through a quick-disconnect device that differs from those installed on the potable water system. Hose bibbs supplying reclaimed (recycled) water shall be indicated by posted signs marked with the words: "CAUTION: NONPOTABLE RECLAIMED WATER, DO NOT DRINK," and the symbol in Figure ~~703.10~~1202.7.

FIGURE ~~703.10~~1202.7

~~703.11~~1202.8 **Required Appurtenances.** The reclaimed (recycled) water system and the potable water system within the building shall be provided with the required appurtenances (valves, air/vacuum relief valves, etc.) to allow for deactivation or drainage as required for cross-connection test in Section ~~701.11.2~~1203.3.

~~703.12~~1202.9 **Same Trench as Potable Water Pipes.** Reclaimed (recycled) water pipes run or laid in the same trench as potable water pipes shall have 12 inches (305 mm) minimum vertical and horizontal separation when both pipe materials are approved for use within a building. When piping materials do not meet this requirement the minimum horizontal separation shall be increased to 60 inches (1524 mm). The potable water piping shall be installed at an elevation above the reclaimed (recycled) water piping. Reclaimed (recycled) water pipes laid in the same trench or crossing building sewer or drainage piping shall be installed in accordance with the plumbing code for potable water piping.

~~703.13~~1202.10 **Signs.** Rooms and water closet tanks in buildings using reclaimed (recycled) water shall be in accordance with Section 701.10.

~~703.14~~1203.0 **Inspection and Testing.**

1203.1 General. Reclaimed (recycled) water systems shall be inspected and tested in accordance with Section ~~701.11~~1203.2 through Section 1203.3.4.

1203.2 Supply System Inspection and Test. Reclaimed (recycled) water systems shall be inspected and tested in accordance with the plumbing code for testing of potable water piping.

1203.3 Annual Cross-Connection Inspection and Testing. An initial and subsequent annual inspection and test shall be performed on both the potable and reclaimed (recycled) water systems. The potable and reclaimed (recycled) water system shall be isolated from each other and independently inspected and tested to ensure there is no cross-connection in accordance with Section 1203.3.1 through Section 1203.3.4.

1203.3.1 Visual System Inspection. Prior to commencing the cross-connection testing, a dual system inspection shall be conducted by the Authority Having Jurisdiction as follows:
(1) Meter locations of the reclaimed (recycled) water and potable water lines shall be checked to verify that no modifications were made, and that no cross-connections are visible.
(2) Pumps and equipment, equipment room signs, and exposed piping in equipment room shall be checked.
(3) Valves shall be checked to ensure that valve lock seals are still in place and intact. Valve control door signs shall be checked to verify that no signs have been removed.
1203.3.2 Cross-Connection Test. The procedure for determining cross-connection shall be followed by the applicant in the presence of the Authority Having Jurisdiction to determine whether a cross-connection has occurred as follows:
(1) The potable water system shall be activated and pressurized. The reclaimed (recycled) water system shall be shut down, depressurized, and drained.
(2) The potable water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the reclaimed (recycled) water system is empty. The minimum period the reclaimed (recycled) water system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and the reclaimed (recycled) water distribution systems, but in no case shall that period be less than 1 hour.
(3) The drain on the reclaimed (recycled) water system shall be checked for flow during the test and all fixtures, potable and reclaimed (recycled) water, shall be tested and inspected for flow. Flow from any reclaimed (recycled) water system outlet indicates a cross-connection. No flow from a potable water outlet shall indicate that it is connected to the reclaimed (recycled) water system.
(4) The potable water system shall then be depressurized and drained.
(5) The reclaimed (recycled) water system shall then be activated and pressurized.
(6) The reclaimed (recycled) water system shall remain pressurized for a minimum period of time specified by the Authority Having Jurisdiction while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis, but in no case shall that period be less than 1 hour.
(7) All fixtures, potable and reclaimed (recycled) water, shall be tested and inspected for flow. Flow from any potable water system outlet indicates a cross-connection. No flow from a reclaimed (recycled) water outlet will indicate that it is connected to the potable water system.
(8) The drain on the potable water system shall be checked for flow during the test and at the end of the test.
(9) If there is no flow detected in any of the fixtures which would indicate a cross-connection, the potable water system shall be repressurized.
1203.3.3 Discovery of Cross-Connection. In the event that a cross-connection is discovered, the following procedure, in the presence of the Authority Having Jurisdiction, shall be activated immediately:
(1) The reclaimed (recycled) water piping to the building shall be shut down at the meter, and the reclaimed (recycled) water riser shall be drained.
(2) Potable water piping to the building shall be shut down at the meter.
(3) The cross-connection shall be uncovered and disconnected.
(4) The building shall be retested following procedures listed in Section 1203.3.1 and Section 1203.3.2.
(5) The potable water system shall be chlorinated with 50 parts per million (ppm) chlorine for 24 hours.
(6) The potable water system shall be flushed after 24 hours, and a standard bacteriological test shall be performed. If test results are acceptable, the potable water system shall be recharged.
1203.3.4 Annual Inspection. An annual inspection of the reclaimed (recycled) water system, following the procedures listed in Section 1203.3 shall be required. Annual cross-connection testing, following the procedures listed in Section 1203.3.2 shall be required by the Authority Having Jurisdiction, unless site conditions do not require it. In no event shall the test occur less than once in 4 years. Alternate testing requirements shall be approved by the Authority Having Jurisdiction.

SUBSTANTIATION:
The scope of Chapter 7 has been updated to focus on untreated gray water systems. Previously, Chapter 7 included a variety of alternate water sources and systems. This caused confusion and thus, has been updated to streamline the chapter focus.

Section 703.0 [Reclaimed (Recycled) Water] was lost within Chapter 7, however, because of the change in scope of the Chapter, this concept no longer had a place there, and a new chapter (12) is being generated to focus on these systems. The section is being relocated in its entirety. The reference sections are being updated for the new location.

Additionally, the new Section 1201.15 (Inspection and Testing) is a copy of the existing provisions located in Section 701.11 (Inspection and Testing).

Since Section 701.11 was updated in Chapter 7 to focus on untreated gray water, it was not directly referenced here in the new Chapter 12. Instead, it is a copy with updated intent towards “reclaimed (recycled) water source systems.”

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
080	2023 WE-Stand	1102.4, 1202.1

Submitter Name:	Organization Name:	Organization Representation:
Pat Lando	WEStand Gray Water Systems Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal <u>as modified</u> by this public comment.

1102.0 Nonpotable Rainwater Catchment Systems.

1102.4 Connections to Potable or Reclaimed (Recycled) Water Systems. Rainwater catchment systems shall have no direct connection to any potable water supply or other alternate water source system. Potable or reclaimed (recycled) water shall be permitted to be used as makeup water for a rainwater catchment system provided the potable or reclaimed (recycled) water supply connection is protected by an airgap or reduced-pressure principle backflow preventer in accordance with the plumbing code.

1202.0 System Requirements.
1202.1 Connections to Potable or Reclaimed (Recycled) Water Systems. Reclaimed (recycled) water systems shall have no connection to any potable water supply or other alternate water source system. Potable water is permitted to be used as makeup water for a reclaimed (recycled) water storage tank provided the water supply inlet is protected by an airgap or reduced-pressure principle backflow preventer complying with the plumbing code.

Substantiation:
Based on the definition for "alternate water source," rainwater and reclaimed (recycled) water are types of alternate water sources. Their corresponding systems would then be classified as types of alternate water source systems. However, as currently written, the requirements in Section 1102.4 and Section 1202.1 [Connections to Potable or Reclaimed (Recycled) Water Systems] imply otherwise. To avoid this confusion and properly align with the definition, these sections are being revised to refer to "other" alternate water source systems.

> ***[2025 WEStand ROP Preprint]***
> ***203.0 (- A -)***
> ***Alternate Water Source.*** *Nonpotable source of water that includes, but is not limited to, gray water, onsite treated nonpotable water, rainwater, and reclaimed (recycled) water. This does not include water that has less than 1000 ppm of total dissolved solids (TDS) and is self-supplied by a project applicant.*

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
082

Code Number:
2023 WE-Stand

Section Number:
801.1, 1001.1

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

801.0 General.
801.1 Applicability. The provisions of this chapter shall apply to the ~~water quality, monitoring,~~ design, installation, construction, ~~alteration, repair,~~ and ~~operation requirements~~maintenance of onsite ~~blackwater~~sewage treatment systems for non-potable reuse.

1001.0 General.
1001.1 Applicability. The provisions of this chapter shall apply to the ~~water quality, monitoring,~~ design, installation, construction, ~~alteration, repair,~~ and ~~operation requirements~~maintenance of onsite stormwater treatment systems for non-potable use.

SUBSTANTIATION:
Section 801.1 (Applicability) and Section 1001.1 (Applicability) are being updated to align with Section 901.1 (Applicability) for consistency. These chapters establish requirements for the design, installation, construction, and maintenance of the respective onsite treatment systems. Since additions, alterations, renovations, and repairs are already addressed in Chapter 1 (Administration) and must comply with new construction provisions, mentioning these is unnecessary and does not improve Section 801.1 and Section 1001.1. Additionally, monitoring requirements are inherent to system design and are therefore already covered.

> ***[2023 WEStand]***
> ***102.4 Additions, Alterations, Renovations, or Repairs.*** *Additions, alterations, renovations, or repairs shall not cause an existing system to become unsafe, insanitary, or overloaded. Additions, alterations, renovations, or repairs to existing installations shall comply with the provisions for new construction unless such deviations are found to be necessary and are first approved by the Authority Having Jurisdiction.*
>
> ***901.1 Applicability.*** *The provisions of this chapter shall apply to the design, installation, construction, and maintenance of residential and commercial onsite gray water treatment systems for non-potable reuse.*

Committee Action:
Reject

Committee Statement:
The proposed updates to these sections are unnecessary, as the current language addressing applicability is consistent with the contents of each chapter and does not pose any conflicts. Additionally, the substantiation lacks technical justification for the proposed changes, particularly with respect to the removal of “water quality” from these sections.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	1	0	4

EXPLANATION OF NEGATIVE:
LANDO: We need to remove the term "blackwater." Let's find a way to do this. I am open to suggestions.

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
082	2023 WE-Stand	801.1, 901.1, 1001.1

Submitter Name:	Organization Name:	Organization Representation:
Markus Lenger	WEStand Log Reduction Targets Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to replace the code change proposal by this public comment.

801.0 General.
801.1 Applicability. The provisions of this chapter shall apply to the water quality, monitoring, design, construction, ~~alteration, repair~~installation, and ~~operation requirements~~ maintenance of onsite blackwater treatment systems for nonpotable reuse.

901.0 General.
901.1 Applicability. The provisions of this chapter shall apply to the water quality, monitoring, design, construction, installation, ~~construction,~~ and maintenance of ~~residential and commercial~~ onsite gray water treatment systems for nonpotable reuse.

1001.0 General.
1001.1 Applicability. The provisions of this chapter shall apply to the water quality, monitoring, design, construction, ~~alteration, repair~~installation, and ~~operation requirements~~maintenance of onsite stormwater treatment systems for nonpotable use.

Substantiation:
The revisions improve consistency across the chapters by aligning the applicability language for blackwater, gray water, and stormwater onsite treatment systems. The original text listed different combinations of design, construction, installation, operation, alteration, and repair, which created uncertainty about whether similar onsite treatment systems were regulated under the same scope. The revised wording removes this inconsistency and provides a uniform description of what each chapter covers.

Additionally, alterations and repairs are already governed by Section 101.2, Section 102.4, and Section 301.2.3, and repeating those activities in each applicability statement is unnecessary.

Furthermore, the requirements in Chapters 8, 9, and 10 apply to both residential and commercial onsite treatment systems, as covered by the broad applicability set by Section 101.2. Mentioning “residential and commercial” only in Chapter 9 implies otherwise and should be removed.

> ***[2023 WEStand]***
> ***101.2 Scope.*** *The provisions of this standard shall apply to the erection, installation, alteration, repair, relocation, replacement, addition to, use, or maintenance of plumbing and mechanical systems covered by the scope of this standard within this jurisdiction.*
>
> ***102.4 Additions, Alterations, Renovations, or Repairs.*** *Additions, alterations, renovations, or repairs shall not cause an existing system to become unsafe, insanitary, or overloaded. Additions, alterations, renovations, or repairs to existing installations shall comply with the provisions for new construction unless such deviations are found to be necessary and are first approved by the Authority Having Jurisdiction.*
>
> ***301.2.3 Existing Buildings.*** *In existing buildings or premises in which system installations are to be altered, repaired, or renovated, the Authority Having Jurisdiction has discretionary powers to permit deviation from the provisions of this standard, provided that such proposal to deviate is first submitted for proper determination in order that health and safety requirements, as they pertain to the system, shall be observed.*

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
083

Code Number:
2023 WE-Stand

Section Number:
801.2, 901.2, 1001.2

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

801.0 General.

801.2 Allowable Use of ~~Blackwater~~Treated Sewage. Where approved ~~or required~~ by the Authority Having Jurisdiction, ~~blackwater~~treated sewage shall be permitted to be used in lieu of potable water for uses ~~such as~~including, but not limited~~,~~ to, water closets, urinals, clothes washers, ~~ornamental plant irrigation, and~~ dust suppression, and the irrigation of plants not including crops intended for human consumption that have come in contact with soil.

901.0 General.

901.2 Allowable Use of Treated Gray Water. Where approved ~~or required~~ by the Authority Having Jurisdiction, treated gray water shall be permitted to be used in lieu of potable water for uses ~~such as~~including, but not limited to, cooling towers, water closets, urinals, clothes washers, ~~and surface irrigation~~dust suppression, and the irrigation of plants not including crops intended for human consumption that have come in contact with soil. Potable water shall be supplied to personal hygiene devices (bidet and bidet seats). ~~Gray water systems used for subsoil irrigation shall comply with Section 702.0.~~

1001.0 General.

1001.2 Allowable Use of Treated Stormwater. Where approved ~~or required~~ by the Authority Having Jurisdiction, treated stormwater shall be permitted to be used in lieu of potable water for uses ~~such as~~including, but not limited to, water closets, urinals, clothes washers, ~~ornamental plant irrigation, and~~ dust suppression, and the irrigation of plants not including crops intended for human consumption that have come in contact with soil.

SUBSTANTIATION:
The above sections are being revised to provide consistent allowable uses for treated water from onsite treatment systems covered by the WEStand. Additionally, the Task Group reviewed and revised the permitted uses of treated water from onsite systems in alignment with the updated Log_{10} Reduction Targets (LRTs) submitted in a separate proposal. This included the addition of dust suppression for allowable uses of treated gray water as well as more detailed specifications regarding the irrigation of plants.

Chapter 8 and Chapter 10 currently permit treated water to be used for ornamental plant irrigation. However, this needs to be expanded to include non-edible plants and fruit trees (if applied to the soil and not the fruit directly). This excludes application to edible plants where the part consumed grows underground (carrots, potatoes, onions, radishes, etc.) and any crops where the edible portion comes in direct contact with the soil (lettuce, strawberries, melons, etc.).

For reference, the language in Section 702.3 (Discharge) was used within this proposal as it sufficiently encompasses these applications. Resulting from these updates, which now do not explicitly prohibit subsurface irrigation for treated gray water but rather provide restrictions, the last sentence of Section 901.2 is being deleted to prevent conflicts and avoid confusion.

Additionally, the provisions of Section 702.0 (Gray Water Systems) do not apply to onsite gray water treatment systems; rather, they pertain specifically to gray water diverted from a sewer or private sewage disposal system and discharged to a subsurface or subsoil irrigation system.

> ***[2023 WEStand]***
> ***702.3 Discharge.*** *Gray water diverted away from a sewer or private sewage disposal system of single family and multifamily dwellings, shall discharge to a subsurface irrigation or subsoil irrigation system, or to a mulch basin, or disposal field. Gray water shall not be used to irrigate root crops or food crops intended for human consumption that come in contact with soil.*

Committee Action:
Reject

Committee Statement:
The language addressing the allowable uses of treated water for irrigation of plants is unclear and may lead to misinterpretation. Specifically, the phrase “the irrigation of plants not including crops intended for human consumption that have come in contact with soil” requires rewording to better convey the intended restriction. Additionally, definitions for “treated blackwater,” “treated gray water,” and “treated stormwater” are needed to support and clarify the application of these provisions.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
083	2023 WE-Stand	801.2, 901.2, 1001.2

Submitter Name:	Organization Name:	Organization Representation:
Markus Lenger	WEStand Log Reduction Targets Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

801.0 General.

801.2 Allowable Use of Treated Blackwater. Where approved ~~or required~~ by the Authority Having Jurisdiction, treated blackwater shall be permitted to be used in lieu of potable water for uses such as, but not limited~~,~~ to, water closets, urinals, clothes washers, ~~ornamental plant~~ irrigation, and dust suppression.
Exception: Treated blackwater shall not be used to irrigate plants intended for human consumption where the edible portion comes in direct contact with the soil or irrigation water.

901.0 General.

901.2 Allowable Use of Treated Gray Water. Where approved ~~or required~~ by the Authority Having Jurisdiction, treated gray water shall be permitted to be used in lieu of potable water for uses such as, but not limited to, cooling towers, water closets, urinals, clothes washers, and surface irrigation. Potable water shall be supplied to personal hygiene devices (bidet and bidet seats). Gray water systems used for subsoil irrigation shall comply with Section 702.0.
Exception: Treated gray water shall not be used to irrigate plants intended for human consumption where the edible portion comes in direct contact with the soil or irrigation water.

1001.0 General.

1001.2 Allowable Use of Treated Stormwater. Where approved ~~or required~~ by the Authority Having Jurisdiction, treated stormwater shall be permitted to be used in lieu of potable water for uses such as, but not limited to, water closets, urinals, clothes washers, ~~ornamental plant~~ irrigation, and dust suppression.
Exception: Treated stormwater shall not be used to irrigate plants intended for human consumption where the edible portion comes in direct contact with the soil or irrigation water.

Substantiation:
The revisions clarify that only treated blackwater, treated gray water, and treated stormwater are suitable for the nonpotable uses specified. In alignment with the notes provided for the log reduction target tables within each chapter, exceptions are being added to clarify that treated water cannot be used for irrigating plants intended for human consumption where the edible portion is in contact with soil or irrigation water. Since Section 801.2, Section 901.2, and Section 1001.2 all specify allowable uses of treated water and table notes are considered informative, these exceptions are beneficial and necessary for enforcement and clarity.

For consistency, the corresponding table notes are being updated to match this verbiage via separate public comments to **Item #087 and Item #088**. As mentioned in the substantiations for those public comments:

> *During the proposal stage, the committee noted that the phrase "not including crops intended for human consumption that have come in contact with soil" created potential unintended restrictions on allowable uses of treated water for irrigation.*

Upon further review, the WEStand Log Reduction Targets Task Group determined that nearly all edible plants grown in soil technically meet that condition, and the originally proposed wording did not distinguish between crops where the edible portion is actually exposed to treated water and crops where only the roots contact the soil, even though these scenarios present very different microbial exposure pathways.

In response, the task group revised the language to specify that only the edible portion of the plant must not come into direct contact with soil or irrigation water. This aligns with the Quantitative Microbial Risk Assessment (QMRA): Application for Water Safety Management, which differentiates between contact crops (where the edible portion is exposed) and non-contact crops (where edible portions remain protected and do not present the same exposure risk). The updated language prevents unnecessary limitations on safe irrigation practices while maintaining the intended health-protective boundary for onsite treated water uses.

Furthermore, the revisions maintain the existing requirements for personal hygiene devices in gray water systems and retain the reference to Section 702.0 for subsoil irrigation.

Committee Action:
Accept As Amended by the TC

Proposed Text (Modified by TC) :

801.0 General.

801.2 Allowable Use of Treated Blackwater. Where approved by the Authority Having Jurisdiction, treated blackwater shall be permitted to be used in lieu of potable water for uses such as, but not limited to, water closets, urinals, clothes washers, irrigation, and dust suppression. Potable water shall be supplied to personal hygiene devices (bidet and bidet seats).
Exception: Treated blackwater shall not be used to irrigate plants intended for human consumption where the edible portion comes in direct contact with the soil or irrigation water.

901.0 General.

901.2 Allowable Use of Treated Gray Water. Where approved by the Authority Having Jurisdiction, treated gray water shall be permitted to be used in lieu of potable water for uses such as, but not limited to, cooling towers, water closets, urinals, clothes washers, and surface irrigation. Potable water shall be supplied to personal hygiene devices (bidet and bidet seats). Gray water systems used for subsoil irrigation shall comply with Section 702.0.
Exception: Treated gray water shall not be used to irrigate plants intended for human consumption where the edible portion comes in direct contact with the soil or irrigation water.

1001.0 General.

1001.2 Allowable Use of Treated Stormwater. Where approved by the Authority Having Jurisdiction, treated stormwater shall be permitted to be used in lieu of potable water for uses such as, but not limited to, water closets, urinals, clothes washers, irrigation, and dust suppression. Potable water shall be supplied to personal hygiene devices (bidet and bidet seats).
Exception: Treated stormwater shall not be used to irrigate plants intended for human consumption where the edible portion comes in direct contact with the soil or irrigation water.

Committee Statement:
Public Comment #2 was heard prior to Public Comment #1. The committee agrees with the proposed changes in both comments; therefore, Public Comment #1 is being amended to incorporate the accepted changes from Public Comment #2.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
083	2023 WE-Stand	801.2, 1001.2, 1201.2

Submitter Name:	Organization Name:	Organization Representation:
Kyle Thompson	Plumbing Manufacturers International	PMI

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to replace the code change proposal by this public comment.

801.0 General.

801.2 Allowable Use of Blackwater. Where approved or required by the Authority Having Jurisdiction, blackwater shall be permitted to be used in lieu of potable water for uses such as, but not limited, to water closets, urinals, clothes washers, ornamental plant irrigation, and dust suppression. Potable water shall be supplied to personal hygiene devices (bidet and bidet seats).

1001.0 General.

1001.2 Allowable Use of Stormwater. Where approved or required by the Authority Having Jurisdiction, stormwater shall be permitted to be used in lieu of potable water for uses such as, but not limited to, water closets, urinals, clothes washers, ornamental plant irrigation, and dust suppression. Potable water shall be supplied to personal hygiene devices (bidet and bidet seats).

1201.0 General.

1201.2 Allowable Use of Reclaimed (Recycled) Water. Where approved or required by the Authority Having Jurisdiction, reclaimed (recycled) water shall be permitted to be used in lieu of potable water for uses such as water closets, urinals, trap primers for floor drains and floor sinks, aboveground and subsurface irrigation, industrial or commercial cooling, or air conditioning. Potable water shall be supplied to personal hygiene devices (bidet and bidet seats).

(shown for information purposes only)

901.2 Allowable Use of Gray Water. Where approved or required by the Authority Having Jurisdiction, treated gray water shall be permitted to be used in lieu of potable water for uses such as, but not limited to, cooling towers, water closets, urinals, clothes washers, and surface irrigation. Potable water shall be supplied to personal hygiene devices (bidet and bidet seats). Gray water systems used for subsoil irrigation shall comply with Section 702.0.

Substantiation:
Bidets and bidet seats are *personal hygiene devices* that intentionally deliver water to wash the human body, with direct exposure to sensitive skin and mucous membranes. Even when blackwater, stormwater, or reclaimed (recycled) water is treated to a level suitable for nonpotable end uses (e.g., toilet and urinal flushing), these sources may still present elevated health risks if used for personal washing because treatment performance, distribution integrity, and residual disinfection can vary, and nonpotable systems are not managed to potable standards. Public health guidance for nonpotable reuse consistently emphasizes limiting human contact because recycled water can contain pathogens and must be used in ways that minimize exposure.

This proposal also aligns with the long-standing plumbing code principle that fixtures providing water for drinking or bathing (i.e., direct human contact uses) require potable water. A bidet/bidet seat functions as a "bathing/personal washing" fixture at the point of use; therefore, supplying potable water is the appropriate minimum public health protection—particularly for vulnerable populations (e.g., immunocompromised users, persons with skin lacerations/wounds, post-surgical users, and elderly users) who may be more susceptible to infection.

Adding the sentence to Sections 801.2 (blackwater), 1001.2 (stormwater), and 1201.2 (reclaimed water) also improves clarity and enforceability as adoption of onsite and district-scale nonpotable systems expands. In practice, bidet seats are commonly installed on water closets—exactly where nonpotable flushing is most likely to be used. Without explicit code direction, a bidet seat could be inadvertently supplied by a nonpotable line intended for a water closet. The proposed text closes that gap and mirrors the existing, established policy already in Section 901.2 (gray water), improving internal consistency across WEStand's alternative water chapters.

Finally, nonpotable reuse programs routinely describe recycled water as not appropriate for bathing/showering or other personal washing uses, reinforcing that these supplies are intended for controlled-exposure applications (e.g., flushing, irrigation, dust suppression), not direct-contact hygiene.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 3

Item #:	Code Number:	Sections(s):
083	2023 WE-Stand	1101.1.1, 1102.1

Submitter Name:	Organization Name:	Organization Representation:
Shuo-Jan Teng	CA Department of Water Resources	Self

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

1101.0 General.

~~1101.1.1~~1101.2 **Allowable Use of Harvested Rainwater.** ~~Where approved or required by the Authority Having Jurisdiction, rainwater used in lieu of potable water shall be in accordance with the provisions of this chapter.~~Where approved by the Authority Having Jurisdiction, harvested rainwater shall be permitted to be used in lieu of potable water for uses such as, but not limited to, water closets, urinals, trap primers for floor drains and floor sinks, irrigation, car washing, ornamental water features, cooling tower makeup, and private fire protection systems.

1102.0 Nonpotable Rainwater Catchment Systems.
~~**1102.1 General.** The provisions of this section shall apply to the installation, construction, alteration, and repair of rainwater catchments systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, irrigation, industrial processes, water features, cooling tower makeup and other uses approved by the Authority Having Jurisdiction.~~

(renumber remaining sections)

Substantiation:
The original language separated approval requirements and allowable uses across different sections. The updated version removes this duplication and clearly presents the list of permitted applications. All applications covered by Chapter 11 were reviewed and included, ensuring that no previously permitted uses were omitted or changed in substance. This format is also consistent with Section 801.2, Section 901.2, and Section 1001.2.

[2023 WEStand]

801.2 Allowable Use of Blackwater. *Where approved or required by the Authority Having Jurisdiction, blackwater shall be permitted to be used in lieu of potable water for uses such as, but not limited, to water closets, urinals, clothes washers, ornamental plant irrigation, and dust suppression.*

901.2 Allowable Use of Gray Water. *Where approved or required by the Authority Having Jurisdiction, treated gray water shall be permitted to be used in lieu of potable water for uses such as, but not limited to, cooling towers, water closets, urinals, clothes washers, and surface irrigation. Potable water shall be supplied to personal hygiene devices (bidet and bidet seats). Gray water systems used for subsoil irrigation shall comply with Section 702.0.*

1001.2 Allowable Use of Stormwater. *Where approved or required by the Authority Having Jurisdiction, stormwater shall be permitted to be used in lieu of potable water for uses such as, but not limited to, water closets, urinals, clothes washers, ornamental plant irrigation, and dust suppression.*

Committee Action:
Accept As Amended by the TC

Proposed Text (Modified by TC) :

1101.0 General.

1101.2 Allowable Use of Harvested Rainwater. Where approved by the Authority Having Jurisdiction, harvested rainwater shall be permitted to be used in lieu of potable water for uses such as, but not limited to, water closets, urinals, clothes washers, trap primers for floor drains and floor sinks, irrigation, car washing, ornamental water features, cooling tower makeup, and private fire protection systems. Potable water shall be supplied to personal hygiene devices (bidet and bidet seats).

Committee Statement:
For uniform application of potable water requirements for personal hygiene devices, Section 1101.2 is being amended to include the statement: "Potable water shall be supplied to personal hygiene devices (bidets and bidet seats)." Additionally, “clothes washers” are being added to the list of allowable uses for harvested rainwater to be consistent with Section 801.2, Section 901.2, and Section 1001.2.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
084

Code Number:
2023 WE-Stand

Section Number:
801.4, 802.2, 901.4, 902.2, 1001.4, 1002.2

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

801.0 General.

~~802.2~~**801.3 Permit.** It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any ~~blackwater~~onsite sewage treatment system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.
801.4 Qualifications. Onsite sewage treatment systems complying with this chapter shall be designed by a registered design professional.

901.0 General.

~~902.2~~**901.3 Permit.** It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any onsite gray water treatment system within a building or on a premises without first obtaining a permit to do such work from the Authority Having Jurisdiction.
901.4 Qualifications. Onsite gray water treatment systems complying with this chapter shall be designed by a registered design professional.

1001.0 General.

~~1002.2~~**1001.3 Permit.** It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any stormwater treatment system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.
1001.4 Qualifications. Onsite stormwater treatment systems complying with this chapter shall be designed by a registered design professional.

SUBSTANTIATION:
Onsite sewage, gray water, and stormwater treatment systems must be designed by a registered design professional to protect public health and ensure effective pathogen removal. Improperly designed systems pose a risk of incomplete treatment and may lead to contamination of water sources.

These systems handle pathogens, nutrients, suspended solids, and chemical contaminants, all of which must be assessed and accounted for during the design process. Overall, proper engineering design prevents groundwater contamination and nutrient pollution, improves system reliability, and ensures compliance with regulatory codes and standards.

Committee Action:
Accept As Amended by the TC

Proposed Text :

801.0 General.

801.3 Permit. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any onsite ~~sewage~~blackwater treatment system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.
801.4 Qualifications. Onsite ~~sewage~~blackwater treatment systems complying with this chapter shall be designed by a registered design professional.

901.0 General.

901.3 Permit. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any onsite gray water treatment system within a building or on a premises without first obtaining a permit to do such work from the Authority Having Jurisdiction.
901.4 Qualifications. Onsite gray water treatment systems complying with this chapter shall be designed by a registered design professional.

1001.0 General.

1001.3 Permit. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any stormwater treatment system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.
1001.4 Qualifications. Onsite stormwater treatment systems complying with this chapter shall be designed by a registered design professional.

Committee Statement:
In alignment with the actions taken on Item #003, Item #084 is being amended to retain the reference to "blackwater," as the committee does not agree that "blackwater" and "sewage" are interchangeable terms within the context of the WEStand.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	1	0	4

EXPLANATION OF NEGATIVE:
LANDO: We need to remove the term "blackwater." Let's find a way to do this. I am open to suggestions.

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
084

Code Number:
2023 WE-Stand

Sections(s):
801.3.1, 801.3.2, 1001.3.1, 1001.3.2

Submitter Name:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

801.0 General.

801.3 Permit. (remaining text unchanged)
801.3.1 Plumbing Plan Submission. No permit for any onsite blackwater treatment system shall be issued until complete plumbing plans, with appropriate data satisfactory to the Authority Having Jurisdiction, have been submitted and approved.
801.3.2 System Changes. No changes or connections shall be made to either the onsite blackwater treatment system or the potable water system without approval by the Authority Having Jurisdiction.

1001.0 General.

1001.3 Permit. (remaining text unchanged)
1001.3.1 Plumbing Plan Submission. No permit for any onsite stormwater treatment system shall be issued until complete plumbing plans, with appropriate data satisfactory to the Authority Having Jurisdiction, have been submitted and approved.
1001.3.2 System Changes. No changes or connections shall be made to either the onsite stormwater treatment system or the potable water system without approval by the Authority Having Jurisdiction.

Substantiation:
The added provisions make Chapter 8 (Onsite Blackwater Treatment Systems) and Chapter 10 (Onsite Stormwater Treatment Systems) consistent with the permitting requirements already established in Chapter 9 (Onsite Gray Water Treatment Systems).

> ***[2025 WEStand ROP]***
> ***901.3 Permit.*** *[…]*
> ***901.3.1 Plumbing Plan Submission.*** *No permit for any onsite gray water treatment system shall be issued until complete plumbing plans, with appropriate data satisfactory to the Authority Having Jurisdiction, have been submitted and approved.*
> ***901.3.2 System Changes.*** *No changes or connections shall be made to either the onsite gray water treatment system or the potable water system without approval by the Authority Having Jurisdiction.*

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
084	2023 WE-Stand	601.5, 1101.2, 1101.4, A 101.3

Submitter Name:	Organization Name:	Organization Representation:
Jazmin Curiel	Self	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

601.0 General.

601.5 Qualifications. Composting toilet and urine diversion systems, requiring a permit in accordance with Section 601.2 and complying with this chapter, shall be designed by a ~~person registered or licensed to perform plumbing design work or who demonstrates competency to design composting toilet and urine diversion systems~~registered design professional, licensed plumbing contractor, or person deemed competent by the Authority Having Jurisdiction to perform such work.

1101.0 General.

~~**1101.2 System Design.** Rainwater catchment systems shall be designed in accordance with this chapter by a licensed plumbing contractor, registered design professional, or a person who demonstrates competency to design rainwater catchment systems as required by the Authority Having Jurisdiction. Components, piping, and fittings used in any rainwater catchment systems shall be listed.~~
~~Exceptions:~~
~~(1) Rainwater catchment systems used for irrigation with a maximum storage capacity of 5000 gallons (18 927 L) where the tank is supported directly upon grade and the ratio of height to width (or diameter) does not exceed 2 to 1.~~

~~(2) Rainwater catchment systems for single family dwellings where all outlets, piping, and system components are located on the exterior of the building.~~

1101.4 Qualifications. Nonpotable rainwater catchment systems, requiring a permit in accordance with Section 1101.3 and complying with this chapter, shall be designed by a registered design professional, licensed plumbing contractor, or person deemed competent by the Authority Having Jurisdiction to perform such work.

(renumber remaining sections)

A 101.0 General.

A 101.3 Qualifications. Potable rainwater catchment systems complying with this appendix shall be designed by a registered design professional or person deemed competent by the Authority Having Jurisdiction to perform ~~potable rainwater catchment system design~~such work.

(shown for information purposes only)

601.2 Permits. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any composting toilet or urine diversion system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.
Exception: A permit shall not be required for urine diversion systems that meet the following criteria:
(1) Volume does not exceed 16 ounces (470 mL) per day;
(2) Originates from a private residence;
(3) Is used by the occupants of that residence for gardening, composting, or landscaping at the residence;
(4) Does not discharge to surface waters of the state, a municipal separate storm sewer system, an industrial stormwater system or a stormwater management structure;
(5) Provides groundwater and wellhead protection as regulated by the Authority Having Jurisdiction;
(6) Is not subject to flooding or high-water table conditions; and
(7) Application, reuse, and disposal of collected urine are in accordance with Section 611.0.

1101.3 Permit. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any rainwater catchment system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.
Exceptions:
(1) A permit is not required for exterior rainwater catchment systems used for outdoor drip and subsurface irrigation with a maximum storage capacity of 5000 gallons (18 927 L) where the tank is supported directly upon grade and the ratio of height to width (or diameter) does not exceed 2 to 1 and it does not require electrical power or a make-up water supply connection.
(2) A plumbing permit is not required for rainwater catchment systems for single family dwellings where all outlets, piping, and system components are located on the exterior of the building. This does not exempt the need for permits if required for electrical connections, tank supports, or enclosures

Substantiation:
These updates explicitly tie qualification requirements only to permitted work, remove duplicative verbiage regarding exemptions, and reference established credential categories that are enforceable by the AHJ. Section 601.5 and Section 1101.4 are being revised to reference existing permitting exemptions. This cross-reference negates the need to repeat the exemptions within the qualification provisions in Section 1101.4.

Updated Section 601.5 includes “registered design professional” and "licensed plumbing contractor" instead of “a person registered or licensed to perform plumbing design work.” Not only are these terms already defined in law and regulation, but plumbing contractors are often the ones designing and installing these systems. Different jurisdictions license and register different categories of professionals, so the current text could reasonably be interpreted to include or exclude any number of credential holders.

Committee Action:
Reject

Committee Statement:
The proposed requirements lack specific criteria or qualifications that can be verified. Additionally, the phrase “person deemed competent by the Authority Having Jurisdiction” is subjective and may lead to inconsistent enforcement.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
085

Code Number:
2023 WE-Stand

Section Number:
802.1 – 802.1.2, 902.1 – 902.1.2, 1002.1 – 1002.1.2, Table 1401.1

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

802.0 System Design.
802.1 Requirements. Onsite blackwater treatment systems shall ~~meet the design, construction, and performance requirements of~~comply with Section 802.1.1 or Section 802.1.2.
802.1.1 Listed ~~Blackwater Treatment~~ Systems. Onsite ~~blackwater~~sewage treatment systems shall ~~be listed to~~comply with NSF/ANSI 350, or other equivalent approved standards, and shall be installed ~~according to~~in accordance with the manufacturer's installation instructions, and commissioned in accordance with Section 803.0.
802.1.2 ~~Alternative Design~~Engineered Systems. ~~Where approved by the Authority Having Jurisdiction,~~Engineered onsite ~~blackwater~~sewage treatment systems ~~for residential and commercial applications shall comply with the provisions of~~shall be in accordance with Section 802.2 through Section 805.0.

902.0 System Design.
902.1 Requirements. Onsite gray water treatment systems shall ~~be designed in accordance with this chapter by a registered design professional. Systems shall meet the design, construction, and performance requirements of~~comply with Section 902.1.1 or Section 902.1.2.
902.1.1 Listed ~~Devices and Equipment~~Systems. ~~Devices or equipment used to treat onsite treated gray water in order to maintain the minimum water quality requirements determined by the Authority Having Jurisdiction shall be listed and labeled (third-party certified) by a listing agency (accredited conformity assessment body) or approved for the intended application. Devices or equipment used to treat onsite treated gray water for use in water closet and urinal flushing, surface irrigation and similar applications shall comply with IAPMO IGC 324, NSF/ANSI 350, or as approved by the Authority Having Jurisdiction.~~Onsite gray water treatment systems shall comply with IAPMO/ANSI Z1324, NSF/ANSI 350, or other equivalent approved standards, and shall be installed in accordance with the manufacturer's installation instructions, and commissioned in accordance with Section 903.0.
902.1.2 ~~Alternative Design~~Engineered Systems. ~~Where approved by the Authority Having Jurisdiction,~~Engineered onsite gray water treatment systems ~~for residential and commercial applications shall comply with the provisions of~~shall be in accordance with Section 902.2 through Section 905.0.

1002.0 System Design.
1002.1 Requirements. Onsite stormwater treatment systems shall ~~meet the design, construction, and performance requirements of~~comply with Section 1002.1.1 or Section 1002.1.2.
1002.1.1 Listed ~~Stormwater Treatment~~ Systems. Onsite stormwater treatment systems shall ~~be listed to~~comply with ARCSA/ASPE 78, or other equivalent approved standards, and shall be installed ~~according to~~in accordance with the manufacturer's installation instructions, and commissioned in accordance with Section 1003.0.
1002.1.2 ~~Alternative Design~~Engineered Systems. ~~Where approved by the Authority Having Jurisdiction,~~Engineered onsite stormwater treatment systems ~~for residential and commercial applications shall comply with the provisions of~~shall be in accordance with Section 1002.2 through Section 1005.0.

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
IAPMO/ANSI ~~IGC 324~~Z1324-~~2019~~2022*	Alternate Water Source Systems for Multi-Family, Residential, and Commercial Use	701.7, 704.8, Table 802.9(2), 902.1.1, Table 902.9(2), Table 1002.9(2), 1103.5

(portions of table not shown remain unchanged)

Note: IAPMO/ANSI Z1324 and NSF/ANSI 350 meet the requirements for mandatory referenced standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
The intent of these sections is to specify requirements for listed versus engineered systems, which are regulated differently in the WEStand.

Listed systems must installed according to the terms of their listing and the manufacturer's instructions. Engineered systems are subject to the design and installation requirements outlined in this chapter. In contrast, alternative designs deviate from this standard and must be supported by sufficient technical data demonstrating that the proposed alternative design meets the intent and performance objectives of the WEStand.

For reference, alternative designs are regulated by Section 301.3 (Alternate Materials, Designs, and Methods of Construction Equivalency) and Section 301.4 (Alternative Engineered Design), and the use of term "engineered design" in this proposal is consistent with the plumbing code.

The requirements for listed systems have been updated to include the phrase "or other equivalent approved standards" to prevent the inadvertent exclusion of appropriate and applicable listings. Additionally, Section 902.1.1 is being revised to remove provisions which are sufficiently addressed in Chapter 3 (General Regulations). Specifically, Section 301.2 (Minimum Standards) already requires that all devices are to be listed and labeled. Therefore, such provisions do not need to be repeated in Section 902.1.1.

> ***[2023 WEStand]***
> ***301.2 Minimum Standards.*** *Pipe, pipe fittings, traps, fixtures, material, and devices shall be listed (third-party certified) by a listing agency (accredited conformity assessment body) as complying with the approved applicable recognized standards referenced in this standard, and shall be free from defects. Unless otherwise provided for in this standard, materials, fixtures, or devices used or entering into the construction of plumbing systems, or parts thereof, shall be submitted to the Authority Having Jurisdiction for approval prior to being installed.*
>
> ***301.3 Alternate Materials, Designs, and Methods of Construction Equivalency.*** *Nothing in this standard is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this standard. Technical documentation shall be submitted to the Authority Having Jurisdiction to demonstrate equivalency. The Authority Having Jurisdiction shall have the authority to approve or disapprove the system, method, or device for the intended purpose.*

However, the exercise of this discretionary approval by the Authority Having Jurisdiction shall have no effect beyond the jurisdictional boundaries of said Authority Having Jurisdiction. Any alternate material or method of construction so approved shall not be considered as in accordance with the requirements, intent or both of this standard for any purpose other than that granted by the Authority Having Jurisdiction when the submitted data does not prove equivalency.

301.4 Alternative Engineered Design. *An alternative engineered design shall comply with the intent of the provisions of this standard and shall provide an equivalent level of quality, strength, effectiveness, fire resistance, durability, and safety. Material, equipment, or components shall be designed and installed in accordance with the manufacturer's installation instructions.*
301.4.1 Permit Application. *The registered design professional shall indicate on the design documents that the system, or parts thereof, is an alternative engineered design so that it is noted on the construction permit application. The permit and permanent permit records shall indicate that an alternative engineered design was part of the approved installation.*
301.4.2 Technical Data. *The registered design professional shall submit sufficient technical data to substantiate the proposed alternative engineered design and to prove that the performance meets the intent of this standard.*
301.4.3 Design Documents. *The registered design professional shall provide two complete sets of signed and sealed design documents for the alternative engineered design for submittal to the Authority Having Jurisdiction. The design documents shall include floor plans of the work. Where appropriate, the design documents shall indicate location, sizing, and loading of appurtenances, equipment, appliances, and devices.*
301.4.4 Design Approval. *An approval of an alternative engineered design shall be at the discretion of the Authority Having Jurisdiction. The exercise of this discretionary approval by the Authority Having Jurisdiction shall have no effect beyond the jurisdictional boundaries of said Authority Having Jurisdiction. An alternative engineered design so approved shall not be considered as in accordance with the requirements, intent, or both of this standard for a purpose other than that granted by the Authority Having Jurisdiction.*
301.4.5 Design Review. *The Authority Having Jurisdiction shall have the authority to require testing of the alternative engineered design in accordance with Section 301.4, including the authority to require an independent review of the design documents by a registered design professional selected by the Authority Having Jurisdiction and at the expense of the applicant.*
301.4.6 Inspection and Testing. *The alternative engineered design shall be tested and inspected in accordance with the submitted testing and inspection plan and the requirements of this standard.*

Committee Action:
Accept As Amended by the TC

Proposed Text :

802.0 System Design.
802.1 Requirements. Onsite blackwater treatment systems shall comply with Section 802.1.1 or Section 802.1.2.

802.1.1 Listed Systems. Onsite ~~sewage~~blackwater treatment systems shall comply with NSF/ANSI 350, ~~or other equivalent approved standards, and~~ shall be installed in accordance with the manufacturer's installation instructions, and shall be commissioned in accordance with Section 803.0.
802.1.2 Engineered Systems. Engineered onsite ~~sewage~~blackwater treatment systems shall be in accordance with Section 802.2 through Section 805.0.

902.0 System Design.
902.1 Requirements. Onsite gray water treatment systems shall comply with Section 902.1.1 or Section 902.1.2.

902.1.1 Listed Systems. Onsite gray water treatment systems shall comply with IAPMO/ANSI Z1324~~,~~ or NSF/ANSI 350, ~~or other equivalent approved standards, and~~ shall be installed in accordance with the manufacturer's installation instructions, and shall be commissioned in accordance with Section 903.0.
902.1.2 Engineered Systems. Engineered onsite gray water treatment systems shall be in accordance with Section 902.2 through Section 905.0.

1002.0 System Design.
1002.1 Requirements. Onsite stormwater treatment systems shall comply with Section 1002.1.1 or Section 1002.1.2.
1002.1.1 Listed Systems. Onsite stormwater treatment systems shall comply with ARCSA/ASPE 78, ~~or other equivalent approved standards, and~~ shall be installed in accordance with the manufacturer's installation instructions, and shall be commissioned in accordance with Section 1003.0.
1002.1.2 Engineered Systems. Engineered onsite stormwater treatment systems shall be in accordance with Section 1002.2 through Section 1005.0.

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
IAPMO/ANSI Z1324-2022*	Alternate Water Source Systems for Multi-Family, Residential, and Commercial Use	701.7, 704.8, Table 802.9(2), 902.1.1, Table 902.9(2), Table 1002.9(2), 1103.5

(portions of table not shown remain unchanged)

Committee Statement:
In alignment with the actions taken on Item #003, Item #085 is being amended to retain the reference to "blackwater," as the committee does not agree that "blackwater" and "sewage" are interchangeable terms within the context of the WEStand. Furthermore, the phrase "or other equivalent approved standards" is being removed to prevent confusion, as alternative engineered designs are already addressed under Section 301.4, which requires approval by the Authority Having Jurisdiction.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
18	8	0	3

EXPLANATION OF NEGATIVE:
BRABAND: Onsite sewage systems should comply with NSF 245. Other graywater and nonpotable systems should comply with NSF 350.

HARLAN: I agree with Ed Osann's comments.

KEHOE: I agree with Ed Osann's comments.

KENDZEL: I agree with Ed Osann's comments. The UPC uses the term "alternative engineered design;" so at a minimum, we should use the same terminology as the UPC. Unfortunately, the term is not defined in the UPC. In addition. the entire section needs work. As written, it implies that engineered system components do not need to be listed or comply with any standards. It is understood that what I refer to as "custom built" systems for a site specific application, which is what I believe is the intent of engineered systems in this section, are difficult, if not impossible, to list. However, components of the systems should be held to some type of product standard covering material safety and structural integrity and where appropriate, performance.

KOELLER: I agree with Ed Osann's comments.

OSANN: This proposal changes the nomenclature for “alternate design systems” in three different chapters, substituting the term "engineered systems" in its place. However, no definition is provided for "engineered systems," and it is important to note that systems listed to a product standard have undoubtedly been engineered in their development and production.

Listed systems and alternative design systems are subject to different requirements, so maintaining a clear distinction between the two is essential. A more intuitive term, such as "unlisted system" or "site-built system" could be used.

At a minimum, if the term "engineered system" is going to be used, it must be accompanied by a definition. The proposal would still be useful without revising the term "alternative design system," which has been in the WEStand since the 2020 edition.

PREMER: I am in agreement with Ed Osann.

SOVOCOOL: I concur with Ed Osann's perspective. The basic idea is sound, but some language corrections are needed.

EXPLANATION OF AFFIRMATIVE:
KLEIN: I support the proposed revision; however, it needs further work, along the lines of what Ed Osann and Kent Sovocool have shared, to ensure the language is clear.

VOTES NOT RETURNED:
Crawford, Granger, A. Smith

Comment 1

Item #:	**Code Number:**	**Sections(s):**
085	2023 WE-Stand	802.1, 802.1.2, 802.1.3, 902.1, 902.1.2, 902.1.3, 1002.1, 1002.1.2, 1002.1.3

Submitter Name:	**Organization Name:**	**Organization Representation:**
Markus Lenger	WEStand Log Reduction Targets Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

802.0 System Design.
802.1 Requirements. Onsite blackwater treatment systems shall comply with Section 802.1.1, ~~or~~ Section 802.1.2, or Section 802.1.3.

802.1.2 ~~Engineered~~Unlisted Systems. ~~Engineered~~Unlisted onsite blackwater treatment systems shall ~~be in accordance~~comply with Section 803.0 through Section 807.0.
802.1.3 Alternative Engineered Designs. Alternative engineered designs for onsite blackwater treatment systems shall comply with Section 301.4 through Section 301.4.6.

902.0 System Design.
902.1 Requirements. Onsite gray water treatment systems shall comply with Section 902.1.1, ~~or~~ Section 902.1.2, or Section 902.1.3.

902.1.2 ~~Engineered~~Unlisted Systems. ~~Engineered~~Unlisted onsite gray water treatment systems shall ~~be in accordance~~comply with Section 903.0 through Section 907.0.
902.1.3 Alternative Engineered Designs. Alternative engineered designs for onsite blackwater treatment systems shall comply with Section 301.4 through Section 301.4.6.

1002.0 System Design.
1002.1 Requirements. Onsite stormwater treatment systems shall comply with Section 1002.1.1, ~~or~~ Section 1002.1.2, or Section 1002.1.3.

1002.1.2 ~~Engineered~~Unlisted Systems. ~~Engineered~~Unlisted onsite stormwater treatment systems shall ~~be in accordance~~comply with Section 1003.0 through Section 1007.0.
1002.1.3 Alternative Engineered Designs. Alternative engineered designs for onsite blackwater treatment systems shall comply with Section 301.4 through Section 301.4.6.

(shown for information purposes only)

802.1.1 Listed Systems. Onsite blackwater treatment systems shall be comply with NSF/ANSI 350, shall be installed in accordance with the manufacturer's installation instructions, and shall be commissioned in accordance with Section 805.0.

902.1.1 Listed Systems. Onsite gray water treatment systems shall comply with IAPMO/ANSI Z1324 or NSF/ANSI 350, shall be installed in accordance with the manufacturer’s installation instructions, and shall be commissioned in accordance with Section 905.0.

1002.1.1 Listed Systems. Onsite stormwater treatment systems shall comply with ARCSA/ASPE 78, shall be installed in accordance with the manufacturer's installation instructions, and shall be commissioned in accordance with Section 1005.0.

301.4 Alternative Engineered Design. An alternative engineered design shall comply with the intent of the provisions of this standard and shall provide an equivalent level of quality, strength, effectiveness, fire resistance, durability, and safety. Material, equipment, or components shall be designed and installed in accordance with the manufacturer's installation instructions.
301.4.1 Permit Application. The registered design professional shall indicate on the design documents that the system, or parts thereof, is an alternative engineered design so that it is noted on the construction permit application. The permit and permanent permit records shall indicate that an alternative engineered design was part of the approved installation.
301.4.2 Technical Data. The registered design professional shall submit sufficient technical data to substantiate the proposed alternative engineered design and to prove that the performance meets the intent of this standard.
301.4.3 Design Documents. The registered design professional shall provide two complete sets of signed and sealed design documents for the alternative engineered design for submittal to the Authority Having Jurisdiction. The design documents shall include floor plans of the work. Where appropriate, the design documents shall indicate location, sizing, and loading of appurtenances, equipment, appliances, and devices.
301.4.4 Design Approval. An approval of an alternative engineered design shall be at the discretion of the Authority Having Jurisdiction. The exercise of this discretionary approval by the Authority Having Jurisdiction shall have no effect beyond the jurisdictional boundaries of said Authority Having Jurisdiction. An alternative engineered design so approved shall not be considered as in accordance with the requirements, intent, or both of this standard for a purpose other than that granted by the Authority Having Jurisdiction.
301.4.5 Design Review. The Authority Having Jurisdiction shall have the authority to require testing of the alternative engineered design in accordance with Section 301.4, including the authority to require an independent review of the design documents by a registered design professional selected by the Authority Having Jurisdiction and at the expense of the applicant.
301.4.6 Inspection and Testing. The alternative engineered design shall be tested and inspected in accordance with the submitted testing and inspection plan and the requirements of this standard.

Substantiation:
The term "unlisted systems" is more appropriate than "engineered systems" because it distinguishes between the listing status of the entire system and the listing requirements for components. Under Section 301.2 (Minimum Standards), all components, materials, and devices used in a system must be listed, but the system as a whole is not required to be listed.

> ***[2023 WEStand]***
> ***301.2 Minimum Standards.*** *Pipe, pipe fittings, traps, fixtures, material, and devices shall be listed (third-party certified) by a listing agency (accredited conformity assessment body) as complying with the approved applicable recognized standards referenced in this standard, and shall be free from defects. Unless otherwise provided for in this standard, materials, fixtures, or devices used or entering into the construction of plumbing systems, or parts thereof, shall be submitted to the Authority Having Jurisdiction for approval prior to being installed.*

This distinction is important because the original term "engineered systems" implied that these systems were fundamentally different in their component requirements or that they were exempt from listing rules, which is not the case. "Unlisted systems" accurately describes a system that uses listed components but does not have a third-party listing for the system as a complete unit.

Furthermore, creating a separate subsection for alternative engineered designs clarifies that these systems follow a distinct administrative pathway with specific requirements for technical documentation, design review, and Authority Having Jurisdiction approval, whereas unlisted systems only need to comply with the engineering provisions in their respective chapters.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:	Code Number:	Section Number:
086	2023 WE-Stand	802.3, 902.3, 1002.3

SUBMITTER:	Organization Name:	Organization Representation:
Markus Lenger	WEStand Log Reduction Targets Task Group, Chair	

RECOMMENDATION:
Delete text without substitution

Proposed Text :

802.0 System Design.

~~**802.3 Component Identification.** System components shall be properly identified as to the manufacturer.~~

(renumber remaining sections)

902.0 System Design.

~~**902.3 Component Identification.** System components shall be properly identified as to the manufacturer.~~

(renumber remaining sections)

1002.0 System Design.

~~**1002.3 Component Identification.** System components shall be properly identified as to the manufacturer.~~

(renumber remaining sections)

SUBSTANTIATION:
The above sections are being removed as listing requirements are already addressed in Section 301.2 (Minimum Standards). Additionally, the above sections unnecessarily specify that the manufacturer must be identified on the system components. Listings are unique to a product and are specific to a model or series that has been tested and certified. The certification body ensures compliance, regardless of who manufactures it.

> ***[2023 WEStand]***
> ***214.0 - L -***
> ***Listed (Third-Party Certified).*** *Listed (Third-Party Certified). Equipment or materials included in a list published by a listing agency (accredited conformity assessment body) that maintains periodic inspection on current production of listed equipment or materials and whose listing states either that the equipment or material complies with approved standards or has been tested and found suitable for use in a specified manner.*
>
> ***301.2 Minimum Standards.*** *Pipe, pipe fittings, traps, fixtures, material, and devices shall be listed (third-party certified) by a listing agency (accredited conformity assessment body) as complying with the approved applicable recognized standards referenced in this standard, and shall be free from defects. Unless otherwise provided for in this standard, materials, fixtures, or devices used or entering into the construction of plumbing systems, or parts thereof, shall be submitted to the Authority Having Jurisdiction for approval prior to being installed.*

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
086	2023 WE-Stand	701.4, 1101.4, A 101.5 – A 101.5.2

Submitter Name:	Organization Name:	Organization Representation:
Shuo-Jan Teng	CA Department of Water Resources	Self

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

701.0 General.

~~**701.4 Component Identification.** System components shall be properly identified as to the manufacturer.~~

(renumber remaining sections)

1101.0 General.

~~**1101.4 Component Identification.** System components shall be properly identified as to the manufacturer.~~

(renumber remaining sections)

A 101.0 General.

~~**A 101.5 Product and Material Approval.** System components and materials shall be labeled in accordance with Section A 101.5.1 and Section A 101.5.2.~~
~~**A 101.5.1 Component Identification.** System components shall be properly identified as to the manufacturer.~~

~~**A 101.5.2 Plumbing Materials and Systems.** Pipe, pipe fittings, traps, fixtures, material, and devices used in a potable rainwater system shall be listed or labeled (third-party certified) by a listing agency (accredited conformity assessment body) and shall comply with the approved applicable recognized standards referenced in this standard and the plumbing code, and shall be free from defects. Unless otherwise provided for in this standard, all materials, fixtures, or devices used or entering into the construction of plumbing systems, or parts thereof, shall be submitted to the Authority Having Jurisdiction for approval.~~

Substantiation:
Deletion of these sections is consistent with the intent of the original proposal as it removes similar sections for the same reason: listing and minimum standards requirements are already comprehensively addressed in Section 301.2 (Minimum Standards).

> ***[2023 WEStand]***
> ***214.0 - L -***
> ***Listed (Third-Party Certified).*** *Equipment or materials included in a list published by a listing agency (accredited conformity assessment body) that maintains periodic inspection on current production of listed equipment or materials and whose listing states either that the equipment or material complies with approved standards or has been tested and found suitable for use in a specified manner.*
>
> ***301.2 Minimum Standards.*** *Pipe, pipe fittings, traps, fixtures, material, and devices shall be listed (third-party certified) by a listing agency (accredited conformity assessment body) as complying with the approved applicable recognized standards referenced in this standard, and shall be free from defects. Unless otherwise provided for in this standard, materials, fixtures, or devices used or entering into the construction of plumbing systems, or parts thereof, shall be submitted to the Authority Having Jurisdiction for approval prior to being installed.*

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
087

Code Number:
2023 WE-Stand

Section Number:
802.5 - 802.8, 803.0, 902.5 - 902.8, 903.0, 1002.5 - 1002.8, 1003.0, Table 802.5, Table 902.5, Table 1002.5

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

803.0 Design Requirements.
~~802.5~~803.1 **Log Reduction Targets.** ~~Blackwater~~Onsite sewage treatment systems shall be designed to ~~meet~~achieve the log reduction targets (LRT) ~~as set forth~~ in accordance with Table ~~802.5~~803.1. ~~To meet the log reduction targets in Table 802.5, treatment processes used in blackwater systems shall comply with Section 802.7 for validation or be operated according to conditions approved by the Authority Having Jurisdiction.~~The LRT of the treatment processes used in onsite sewage treatment systems shall be validated in accordance with Section 803.3.

TABLE ~~802.5~~803.1

LOG REDUCTION TARGETS FOR ~~10^{-4} INFECTIONS PER PERSON PER YEAR BENCHMARKS FOR BLACKWATER~~ONSITE SEWAGE TREATMENT SYSTEMS

WATER USE SCENARIO	ENTERIC VIRUSES	PARASITIC PROTOZOA	ENTERIC BACTERIA
~~Ornamental p~~Plant irrigation*/dust suppression	~~8.0~~8.5	~~7.0~~6.5	~~6.0~~5.5
Indoor Use	~~8.5~~10	~~7.0~~6.5	~~6.0~~5.5

* ~~Non food~~Not including crops intended for human consumption that have come in contact with soil.

~~802.6~~803.2 **Effluent Water Quality Parameters.** (remaining text unchanged)
~~802.7~~803.3 **Validation.** Where required by the Authority Having Jurisdiction, treatment processes shall be tested to verify the pathogen reduction performance. The treatment processes shall be validated through third-party component validation or field verification using the challenge testing. The results of the third-party component validation and/or challenge testing shall be summarized in a validation report prepared by a registered design professional. The validation report shall document the treatment technology's log reduction performance, including information on the operating conditions and surrogate parameters.
~~802.8~~803.4 **Health and Safety.** (remaining text unchanged)

903.0 Design Requirements.
~~902.5~~903.1 **Log Reduction Targets.** Onsite ~~G~~gray water treatment systems shall be designed to ~~meet~~achieve the log reduction targets (LRT) ~~as set forth~~ in accordance with Table ~~902.5~~903.1. ~~To meet the log reduction in Table 902.5, treatment processes used in gray water systems shall comply with Section 902.7 for validation or be operated according to conditions approved by the Authority Having Jurisdiction.~~The LRT of the treatment processes used in onsite gray water treatment systems shall be validated in accordance with Section 903.3.

TABLE ~~902.5~~903.1

LOG REDUCTION TARGETS FOR ~~10^{-4} INFECTIONS PER PERSON PER YEAR BENCHMARKS FOR~~ONSITE GRAY WATER TREATMENT SYSTEMS

WATER USE SCENARIO	ENTERIC VIRUSES	PARASITIC PROTOZOA	ENTERIC BACTERIA
SINGLE-FAMILY DWELLINGS			
Plant irrigation*/dust suppression	5.0	N/A	N/A
Indoor use	5.0	N/A	N/A
MULTI-FAMILY DWELLINGS AND COMMERCIAL BUILDINGS			
~~Outdoor Use~~Plant irrigation*/dust suppression	~~5.5~~6.5	~~4.5~~4.0	~~3.5~~3.0
Indoor Use	~~6.0~~7.5	~~4.5~~4.0	3.5

* Not including crops intended for human consumption that have come in contact with soil.

~~902.6~~903.2 **Effluent Water Quality Parameters.** (remaining text unchanged)
~~902.7~~903.3 **Validation.** Where required by the Authority Having Jurisdiction, treatment processes shall be tested to verify the pathogen reduction performance. The treatment processes shall be validated through third-party component validation or field verification using challenge testing. The results of the third-party component validation and/or challenge testing shall be summarized in a validation report prepared by a registered design professional. The validation report shall document the treatment technology's log reduction performance, including information on the operating conditions and surrogate parameters.
~~902.8~~903.4 **Health and Safety.** (remaining text unchanged)

1003.0 Design Requirements.
~~1002.5~~1003.1 **Log Reduction Targets.** Onsite ~~S~~stormwater treatment systems shall be designed to ~~meet~~achieve the log reduction targets (LRT) ~~as set forth~~ in accordance with Table ~~1002.5~~1003.1. ~~To meet the log reduction in Table 1002.5, treatment processes used in stormwater systems shall comply with Section 1002.7 for validation or be operated according to conditions approved by the Authority Having Jurisdiction.~~The LRT of the treatment processes used in onsite stormwater treatment systems shall be validated in accordance with Section 1003.3.

TABLE ~~1002.5~~1003.1

LOG REDUCTION TARGETS FOR ~~10^{-4} INFECTIONS PER PERSON PER YEAR BENCHMARKS FOR~~ ONSITE STORMWATER TREATMENT SYSTEMS

WATER USE SCENARIO	ENTERIC VIRUSES	PARASITIC PROTOZOA	ENTERIC BACTERIA
~~Stormwater greater than 0.1% fecal contamination contribution[2]~~			
~~Ornamental plant irrigation[1]/dust suppression~~	~~5.0~~	~~4.5~~	~~4.0~~
~~Indoor Use~~	~~5.5~~	~~5.5~~	~~5.0~~
~~Stormwater with less than or equal to 0.1% fecal contamination contribution[2]~~			
~~Ornamental p~~Plant irrigation~~[1]*~~/dust suppression	~~3.0~~7.5	~~2.5~~5.0	~~2.0~~4.5
Indoor Use	~~3.5~~8.0	~~3.5~~6.0	~~3.0~~5.5

~~Notes:~~

~~[1] Non food~~

~~[2] Stormwater can contain some quantity of fecal contamination. The extent of fecal contamination present will depend on site-specific conditions. The appropriate LRT to apply for a stormwater treatment system depend on the site-specific extent of likely contamination of stormwater with fecal contamination.~~

* Not including crops intended for human consumption that have come in contact with soil.

~~1002.6~~1003.2 **Effluent Water Quality Parameters.** (remaining text unchanged)

~~1002.7~~1003.3 **Validation.** Where required by the Authority Having Jurisdiction, treatment processes shall be tested to verify the pathogen reduction performance. The treatment processes shall be validated through third-party component validation or field verification using challenge testing. The results of the third-party component validation and/or challenge testing shall be summarized in a validation report prepared by a registered design professional. The validation report shall document the treatment technology's log reduction performance, including information on the operating conditions and surrogate parameters.

~~1002.8~~1003.4 **Health and Safety.** (remaining text unchanged)

SUBSTANTIATION:

The above provisions are being relocated under new header sections titled “Design Requirements” because they include performance criteria that the system must be designed to achieve. The provisions for LRT are then being revised to remove unnecessary verbiage and improve enforceability. The updates to the LRT tables, including the water use scenarios and notes, are consistent with the latest published data.

The updated LRT values correspond to the 10^{-6} Disability-Adjusted Life Years (DALY) per person per year (ppy) instead of the 10^{-4} infection risk per person per year (ppy). The DALY values provide a more comprehensive risk assessment since they consider the probability of infections and the consequences of diseases (e.g., severity, duration, mortality). The highest LRT_{DALY} values were selected for each classification of pathogens (viruses, protozoa, and bacteria).

In alignment with both the latest published data and the other proposal submitted on behalf of the Task Group addressing the use of treated water from onsite systems for irrigation, the notes to the LRT tables are also being updated. As mentioned within the substantiation for that proposal, provisions currently permit the use of treated water for ornamental plant irrigation.

However, this needs to be expanded to include non-edible plants and fruit trees (if applied to the soil and not the fruit directly). This excludes application to edible plants where the part consumed grows underground (carrots, potatoes, onions, radishes, etc.) and any crops where the edible portion comes in direct contact with the soil (lettuce, strawberries, melons, etc.).

[Supporting documentation is provided in KAVI for TC review]

Committee Action:

Accept As Amended by the TC

Proposed Text :

803.0 Design Requirements.

803.1 Log Reduction Targets. Onsite ~~sewage~~blackwater treatment systems shall be designed to achieve the log reduction targets (LRT) in accordance with Table 803.1. The LRT of the treatment processes used in onsite ~~sewage~~blackwater treatment systems shall be validated in accordance with Section 803.3.

TABLE 803.1
LOG REDUCTION TARGETS FOR ONSITE ~~SEWAGE~~BLACKWATER TREATMENT SYSTEMS

WATER USE SCENARIO	ENTERIC VIRUSES	PARASITIC PROTOZOA	ENTERIC BACTERIA
Plant irrigation*/dust suppression	8.5	6.5	5.5
Indoor Use	10	6.5	5.5

* Not including crops intended for human consumption ~~that have come in contact with soil~~.

803.2 Effluent Water Quality Parameters. (remaining text unchanged)
803.3 Validation. Where required by the Authority Having Jurisdiction, treatment processes shall be tested to verify the pathogen reduction performance. The treatment processes shall be validated through third-party component validation or field verification using the challenge testing. The results of the third-party component validation and/or challenge testing shall be summarized in a validation report prepared by a registered design professional. The validation report shall document the treatment technology's log reduction performance, including information on the operating conditions and surrogate parameters.
803.4 Health and Safety. (remaining text unchanged)

903.0 Design Requirements.
903.1 Log Reduction Targets. Onsite gray water treatment systems shall be designed to achieve the log reduction targets (LRT) in accordance with Table 903.1. The LRT of the treatment processes used in onsite gray water treatment systems shall be validated in accordance with Section 903.3.

TABLE 903.1
LOG REDUCTION TARGETS FOR ONSITE GRAY WATER TREATMENT SYSTEMS

WATER USE SCENARIO	ENTERIC VIRUSES	PARASITIC PROTOZOA	ENTERIC BACTERIA
SINGLE-FAMILY DWELLINGS			
Plant irrigation*/dust suppression	5.0	N/A	N/A
Indoor use	5.0	N/A	N/A
MULTI-FAMILY DWELLINGS AND COMMERCIAL BUILDINGS			
Plant irrigation*/dust suppression	6.5	4.0	3.0
Indoor Use	7.5	4.0	3.5

* Not including crops intended for human consumption ~~that have come in contact with soil~~.

903.2 Effluent Water Quality Parameters. (remaining text unchanged)
903.3 Validation. Where required by the Authority Having Jurisdiction, treatment processes shall be tested to verify the pathogen reduction performance. The treatment processes shall be validated through third-party component validation or field verification using challenge testing. The results of the third-party component validation and/or challenge testing shall be summarized in a validation report prepared by a registered design professional. The validation report shall document the treatment technology's log reduction performance, including information on the operating conditions and surrogate parameters.
903.4 Health and Safety. (remaining text unchanged)

1003.0 Design Requirements.
1003.1 Log Reduction Targets. Onsite stormwater treatment systems shall be designed to achieve the log reduction targets (LRT) in accordance with Table 1003.1. The LRT of the treatment processes used in onsite stormwater treatment systems shall be validated in accordance with Section 1003.3.

TABLE 1003.1
LOG REDUCTION TARGETS FOR ONSITE STORMWATER TREATMENT SYSTEMS

WATER USE SCENARIO	ENTERIC VIRUSES	PARASITIC PROTOZOA	ENTERIC BACTERIA
Plant irrigation*/dust suppression	7.5	5.0	4.5
Indoor Use	8.0	6.0	5.5

* Not including crops intended for human consumption ~~that have come in contact with soil~~.

1003.2 Effluent Water Quality Parameters. (remaining text unchanged)
1003.3 Validation. Where required by the Authority Having Jurisdiction, treatment processes shall be tested to verify the pathogen reduction performance. The treatment processes shall be validated through third-party component validation or field verification using challenge testing. The results of the third-party component validation and/or challenge testing shall be summarized in a validation report prepared by a registered design professional. The validation report shall document the treatment technology's log reduction performance, including information on the operating conditions and surrogate parameters.
1003.4 Health and Safety. (remaining text unchanged)

Committee Statement:
In alignment with the actions taken on Item #003, Item #085 is being amended to retain the reference to "blackwater," as the committee does not agree that "blackwater" and "sewage" are interchangeable terms within the context of the WEStand. Furthermore, the notes to Table 803.1, Table 903.1, and Table 1003.1 are being revised to remove the phrase "that have come in contact with soil," as the intended restrictions on allowable uses of treated water for irrigation are unclear and require additional review.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
087	2023 WE-Stand	Table 803.1, Table 903.1, Table 1003.1

Submitter Name:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

TABLE 803.1
LOG REDUCTION TARGETS FOR ONSITE BLACKWATER TREATMENT SYSTEMS

WATER USE SCENARIO	ENTERIC VIRUSES	PARASITIC PROTOZOA	ENTERIC BACTERIA
Plant irrigation* and dust suppression	8.5	6.5	5.5
Indoor Use	10	6.5	5.5

* Not including ~~crops~~the irrigation of plants intended for human consumption where the edible portion comes in direct contact with the soil or irrigation water.

TABLE 903.1
LOG REDUCTION TARGETS FOR ONSITE GRAY WATER TREATMENT SYSTEMS

WATER USE SCENARIO	ENTERIC VIRUSES	PARASITIC PROTOZOA	ENTERIC BACTERIA
SINGLE-FAMILY DWELLINGS			
Plant irrigation* and dust suppression	5.0	N/A	N/A
Indoor use	5.0	N/A	N/A
MULTI-FAMILY DWELLINGS AND COMMERCIAL BUILDINGS			
Plant irrigation* and dust suppression	6.5	4.0	3.0
Indoor Use	7.5	4.0	3.5

* Not including ~~crops~~the irrigation of plants intended for human consumption where the edible portion comes in direct contact with the soil or irrigation water.

TABLE 1003.1
LOG REDUCTION TARGETS FOR ONSITE STORMWATER TREATMENT SYSTEMS

WATER USE SCENARIO	ENTERIC VIRUSES	PARASITIC PROTOZOA	ENTERIC BACTERIA
Plant irrigation* and dust suppression	7.5	5.0	4.5
Indoor Use	8.0	6.0	5.5

* Not including ~~crops~~the irrigation of plants intended for human consumption where the edible portion comes in direct contact with the soil or irrigation water.

Substantiation:
During the proposal stage, the committee noted that the phrase "not including crops intended for human consumption that have come in contact with soil" created potential unintended restrictions on allowable uses of treated water for irrigation.

Upon further review, the WEStand Log Reduction Targets Task Group determined that nearly all edible plants grown in soil technically meet that condition, and the originally proposed wording did not distinguish between crops where the edible portion is actually exposed to treated water and crops where only the roots contact the soil, even though these scenarios present very different microbial exposure pathways.

In response, the task group revised the language to specify that only the edible portion of the plant must not come into direct contact with soil or irrigation water. This aligns with the Quantitative Microbial Risk Assessment (QMRA): Application for Water Safety Management, which differentiates between contact crops (where the edible portion is exposed) and non-contact crops (where edible portions remain protected and do not present the same exposure risk). The updated language prevents unnecessary limitations on safe irrigation practices while maintaining the intended health-protective boundary for onsite treated water uses.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
087	2023 WE-Stand	803.2, 903.2, 903.4, 1003.2

Submitter Name:	Organization Name:	Organization Representation:
Markus Lenger	WEStand Log Reduction Targets Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

803.0 Design Requirements.

803.2 Effluent Water Quality Parameters. Onsite ~~B~~blackwater treatment systems shall be designed to meet the effluent water quality parameters for water closet and urinal fixture use listed in Table 803.2.

903.0 Design Requirements.

903.2 Effluent Water Quality Parameters. Onsite ~~G~~gray water treatment systems shall be designed to meet the effluent water quality parameters for water closet and urinal fixture use listed in Table 903.2.

903.4 Health and Safety. Treated ~~G~~gray water shall not create a nuisance or odor, nor threaten human health, or damage the quality of surface water or groundwater.

1003.0 Design Requirements.

1003.2 Effluent Water Quality Parameters. Onsite ~~S~~stormwater treatment systems shall be designed to meet the effluent water quality parameters for water closet and urinal fixture use listed in Table 1003.2.

Substantiation:
The minor updates provide consistent terminology when referencing these systems and clarify where specific provisions apply to “treated” wastewater.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
088

Code Number:
2023 WE-Stand

Section Number:
802.9, 803.5.1, 803.5.2, 902.9, 903.5.1, 903.5.2, 1002.9, 1003.5.1, 1003.5.2, Table 802.9(1), Table 802.9(2), Table 902.9(1), Table 902.9(2), Table 1002.9(1), Table 1002.9(2), Table 1401.1

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

~~802.9~~**803.5 Monitoring** ~~Requirements~~. Monitoring of ~~blackwater~~onsite sewage treatment systems shall be based on the risk level in accordance with Table ~~802.9~~803.5(1). ~~The parameters listed in Table 802.9(2) shall be monitored by sensors placed in the effluent of the system and connected to a smart controller. The smart controller shall activate an alarm when the parameters in Table 802.9(2) are outside the specifications and shall shut the system down when the alarm is not acknowledged after a period of 8 hours has elapsed. For Category 2, quarterly grab samples shall be taken out of the effluent and analyzed by an accredited lab. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.~~

803.5.1 Risk Level 1. For risk level 1, quarterly grab samples of the system's effluent shall be collected and analyzed by an accredited lab for the parameters listed in Table 803.5(2).

803.5.2 Risk Level 2. For risk level 2, sensors connected to a smart controller shall continuously monitor the system's effluent for the parameters listed in Table 803.5(2). Upon detection of parameters outside of specified limits, the smart controller shall activate an alarm and shall automatically shut down the system where the alarm is not manually reset after a period of 8 hours. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.

TABLE ~~802.9~~803.5(1)
RISK LEVELS

RISK LEVEL	TREATED WATER USAGE~~*~~[1]
1	~~Ornamental p~~Plant irrigation[2] and dust suppression
2	Water closets, urinals, clothes washers

~~*~~[1] See Section 801.2 for other uses approved by the Authority Having Jurisdiction.

[2] Not including crops intended for human consumption that have come in contact with soil.

TABLE ~~802.9~~803.5(2)
MONITORING PARAMETERS

~~CATEGORY~~ RISK LEVEL	PARAMETERS TO BE MONITORED	VALIDATION PROCEDURE
1	Turbidity ORP UV intensity (if used)	~~IAPMO IGC 324~~IAPMO/ANSI Z1324 - Sensor validation procedure using 5.4.1.1 (a), (b), (c), and (d), as applicable
2	Turbidity ORP UV intensity (if used) pH Quarterly lab Sample for Total Coliform	

~~902.9~~**903.5 Monitoring** ~~**Requirements**~~. Monitoring of onsite gray water treatment systems shall be based on the risk level in accordance with Table ~~902.9~~903.5(1). ~~The parameters listed in Table 902.9(2) shall be monitored by sensors placed in the effluent of the system and connected to a smart controller. The smart controller shall activate an alarm when the parameters in Table 902.9(2) are outside the specifications and shall shut the system down when the alarm is not acknowledged after a period of 8 hours has elapsed. For Category 2, quarterly grab samples shall be taken out of the effluent and analyzed by an accredited lab. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.~~

903.5.1 Risk Level 1. For risk level 1, quarterly grab samples of the system's effluent shall be collected and analyzed by an accredited lab for the parameters listed in Table 903.5(2).

903.5.2 Risk Level 2. For risk level 2, sensors connected to a smart controller shall continuously monitor the system's effluent for the parameters listed in Table 903.5(2). Upon detection of parameters outside of specified limits, the smart controller shall activate an alarm and shall automatically shut down the system where the alarm is not manually reset after a period of 8 hours. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.

TABLE ~~902.9~~903.5(1)
RISK LEVELS

RISK LEVEL	TREATED WATER USAGE~~*~~[1]
1	~~Surface~~Plant ~~i~~irrigation[2] and dust suppression
2	Water closets, urinals, clothes washers

~~*~~[1] See Section 901.2 for other uses approved by the Authority Having Jurisdiction.

[2] Not including crops intended for human consumption that have come in contact with soil.

TABLE ~~902.9~~903.5(2)
MONITORING PARAMETERS

~~CATEGORY~~ RISK LEVEL	PARAMETERS TO BE MONITORED	VALIDATION PROCEDURE
1	Turbidity ORP UV intensity (if used)	~~IAPMO IGC 324~~IAPMO/ANSI Z1324 - Sensor validation procedure using 5.4.1.1 (a), (b), (c), and (d)~~.~~, as applicable
2	Turbidity ORP UV intensity (if used) pH Quarterly lab Sample for Total Coliform	

~~1002.9~~**1003.5 Monitoring~~ Requirements~~.** Monitoring of onsite stormwater treatment systems shall be based on the risk level in accordance with Table ~~1002.9~~1003.5(1). ~~The parameters listed in Table 1002.9(2) shall be monitored by sensors placed in the effluent of the system and connected to a smart controller. The smart controller shall activate an alarm when the parameters in Table 1002.9(2) are outside the specifications and shall shut the system down when the alarm is not acknowledged after a period of 8 hours has elapsed. For Category 2, quarterly grab samples shall be taken out of the effluent and analyzed by an accredited lab. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.~~

1003.5.1 Risk Level 1. For risk level 1, quarterly grab samples of the system's effluent shall be collected and analyzed by an accredited lab for the parameters listed in Table 1003.5(2).

1003.5.2 Risk Level 2. For risk level 2, sensors connected to a smart controller shall continuously monitor the system's effluent for the parameters listed in Table 1003.5(2). Upon detection of parameters outside of specified limits, the smart controller shall activate an alarm and shall automatically shut down the system where the alarm is not manually reset after a period of 8 hours. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.

TABLE ~~1002.9~~1003.5(1)
RISK LEVELS

RISK LEVEL	TREATED WATER USAGE~~*~~[1]
1	~~Ornamental p~~Plant irrigation[2] and dust suppression
2	Water closets, urinals, clothes washers

~~*~~[1] See Section 1001.2 for other uses approved by the Authority Having Jurisdiction.

[2] Not including crops intended for human consumption that have come in contact with soil.

TABLE ~~1002.9~~1003.5(2)
MONITORING PARAMETERS

~~CATEGORY~~ RISK LEVEL	PARAMETERS TO BE MONITORED	VALIDATION PROCEDURE
1	Turbidity ORP UV intensity (if used)	~~IAPMO IGC 324~~IAPMO/ANSI Z1324 - Sensor validation procedure using 5.4.1.1 (a), (b), (c), and (d)~~.~~, as applicable
2	Turbidity ORP UV intensity (if used) pH Quarterly lab Sample for Total Coliform	

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
IAPMO/ANSI ~~IGC 324~~Z1324-~~2019~~2022*	Alternate Water Source Systems for Multi-Family, Residential, and Commercial Use	701.7, 704.8, Table 802.9(2), 902.1.1, Table 902.9(2), Table 1002.9(2), 1103.5

(portions of table not shown remain unchanged)

Note: IAPMO/ANSI Z1324 meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
The monitoring requirements incorrectly mandate quarterly samples for risk level 2 instead of risk level 1. For water uses assigned to risk level 2, the effluent parameters need to be continuously monitored since these uses still present potential health and system performance risks. Therefore, the proposed updates specify quarterly samples for risk level 1 and continuous monitoring for risk level 2.

Additionally, the current language fluctuates between reference to the terms “risk level” and “category.” For consistency, reference to “risk level” is being proposed throughout. This proposal also updates the industry standard referenced for validation procedures. IAPMO IGC 324 has been superseded by IAPMO/ANSI Z1324. The identified sections pertaining to sensor validation remain the same.

Updates were then made for alignment with the other proposals submitted on behalf of the Task Group addressing the use of treated water from onsite systems for irrigation.

Committee Action:
Accept As Amended by the TC

Proposed Text :

803.5 Monitoring. Monitoring of onsite ~~sewage~~blackwater treatment systems shall be based on the risk level in accordance with Table 803.5(1).

803.5.1 Risk Level 1. For risk level 1, quarterly grab samples of the system's effluent shall be collected and analyzed by an accredited lab for the parameters listed in Table 803.5(2).

803.5.2 Risk Level 2. For risk level 2, sensors connected to a smart controller shall continuously monitor the system's effluent for the parameters listed in Table 803.5(2). Upon detection of parameters outside of specified limits, the smart controller shall activate an alarm and shall automatically shut down the system where the alarm is not manually reset after a period of 8 hours. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.

TABLE 803.5(1)
RISK LEVELS

RISK LEVEL	TREATED WATER USAGE[1]
1	Plant irrigation[2] and dust suppression
2	Water closets, urinals, clothes washers

[1] See Section 801.2 for other uses approved by the Authority Having Jurisdiction.

[2] Not including crops intended for human consumption~~ that have come in contact with soil~~.

TABLE 803.5(2)
MONITORING PARAMETERS

RISK LEVEL	PARAMETERS TO BE MONITORED	VALIDATION PROCEDURE
1	Turbidity ORP UV intensity (if used)	IAPMO/ANSI Z1324 - Sensor validation procedure using 5.4.1.1 (a), (b), (c), and (d), as applicable
2	Turbidity ORP UV intensity (if used) pH Quarterly lab Sample for Total Coliform	

903.5 Monitoring. Monitoring of onsite gray water treatment systems shall be based on the risk level in accordance with Table 903.5(1).

903.5.1 Risk Level 1. For risk level 1, quarterly grab samples of the system's effluent shall be collected and analyzed by an accredited lab for the parameters listed in Table 903.5(2).

903.5.2 Risk Level 2. For risk level 2, sensors connected to a smart controller shall continuously monitor the system's effluent for the parameters listed in Table 903.5(2). Upon detection of parameters outside of specified limits, the smart controller shall activate an alarm and shall automatically shut down the system where the alarm is not manually reset after a period of 8 hours. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.

TABLE 903.5(1)
RISK LEVELS

RISK LEVEL	TREATED WATER USAGE[1]
1	Plant irrigation[2] and dust suppression
2	Water closets, urinals, clothes washers

[1] See Section 901.2 for other uses approved by the Authority Having Jurisdiction.

[2] Not including crops intended for human consumption ~~that have come in contact with soil~~.

TABLE 903.5(2)
MONITORING PARAMETERS

RISK LEVEL	PARAMETERS TO BE MONITORED	VALIDATION PROCEDURE
1	Turbidity ORP UV intensity (if used)	IAPMO/ANSI Z1324 - Sensor validation procedure using 5.4.1.1 (a), (b), (c), and (d), as applicable
2	Turbidity ORP UV intensity (if used) pH Quarterly lab Sample for Total Coliform	

1003.5 Monitoring. Monitoring of onsite stormwater treatment systems shall be based on the risk level in accordance with Table 1003.5(1).

1003.5.1 Risk Level 1. For risk level 1, quarterly grab samples of the system's effluent shall be collected and analyzed by an accredited lab for the parameters listed in Table 1003.5(2).

1003.5.2 Risk Level 2. For risk level 2, sensors connected to a smart controller shall continuously monitor the system's effluent for the parameters listed in Table 1003.5(2). Upon detection of parameters outside of specified limits, the smart controller shall activate an alarm and shall automatically shut down the system where the alarm is not manually reset after a period of 8 hours. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.

TABLE 1003.5(1)
RISK LEVELS

RISK LEVEL	TREATED WATER USAGE[1]
1	Plant irrigation[2] and dust suppression
2	Water closets, urinals, clothes washers

[1] See Section 1001.2 for other uses approved by the Authority Having Jurisdiction.

[2] Not including crops intended for human consumption ~~that have come in contact with soil~~.

TABLE 1003.5(2)
MONITORING PARAMETERS

RISK LEVEL	PARAMETERS TO BE MONITORED	VALIDATION PROCEDURE
1	Turbidity ORP UV intensity (if used)	IAPMO/ANSI Z1324 - Sensor validation procedure using 5.4.1.1 (a), (b), (c), and (d), as applicable
2	Turbidity ORP UV intensity (if used) pH Quarterly lab Sample for Total Coliform	

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
IAPMO/ANSI Z1324-2022*	Alternate Water Source Systems for Multi-Family, Residential, and Commercial Use	701.7, 704.8, Table 802.9(2), 902.1.1, Table 902.9(2), Table 1002.9(2), 1103.5

(portions of table not shown remain unchanged)

Committee Statement:
In alignment with the actions taken on Item #003, Item #085 is being amended to retain the reference to "blackwater," as the committee does not agree that "blackwater" and "sewage" are interchangeable terms within the context of the WEStand. Furthermore, the notes to Table 803.5(1), Table 903.5(1), and Table 1003.5(1) are being revised to remove the phrase "that have come in contact with soil," as the intended restrictions on allowable uses of treated water for irrigation are unclear and require additional review.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
088

Code Number:
2023 WE-Stand

Sections(s):
Table 803.5(1), Table 903.5(1), Table 1003.5(1)

Submitter Name:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

TABLE 803.5(1)
RISK LEVELS

RISK LEVEL	TREATED WATER USAGE[1]
1	Plant irrigation[2] and dust suppression
2	Water closets, urinals, clothes washers

Notes:

[1] See Section 801.2 for other uses approved by the Authority Having Jurisdiction.

[2] Not including ~~crops~~the irrigation of plants intended for human consumption where the edible portion comes in direct contact with the soil or irrigation water.

TABLE 903.5(1)
RISK LEVELS

RISK LEVEL	TREATED WATER USAGE[1]
1	Plant irrigation[2] and dust suppression
2	Water closets, urinals, clothes washers

Notes:

[1] See Section 901.2 for other uses approved by the Authority Having Jurisdiction.

[2] Not including ~~crops~~the irrigation of plants intended for human consumption where the edible portion comes in direct contact with the soil or irrigation water.

TABLE 1003.5(1)
RISK LEVELS

RISK LEVEL	TREATED WATER USAGE[1]
1	Plant irrigation[2] and dust suppression
2	Water closets, urinals, clothes washers

Notes:

[1] See Section 1001.2 for other uses approved by the Authority Having Jurisdiction.

[2] Not including ~~crops~~the irrigation of plants intended for human consumption where the edible portion comes in direct contact with the soil or irrigation water.

Substantiation:
During the proposal stage, the committee noted that the phrase "not including crops intended for human consumption that have come in contact with soil" created potential unintended restrictions on allowable uses of treated water for irrigation.

Upon further review, the WEStand Log Reduction Targets Task Group determined that nearly all edible plants grown in soil technically meet that condition, and the originally proposed wording did not distinguish between crops where the edible portion is actually exposed to treated water and crops where only the roots contact the soil, even though these scenarios present very different microbial exposure pathways.

In response, the task group revised the language to specify that only the edible portion of the plant must not come into direct contact with soil or irrigation water. This aligns with the Quantitative Microbial Risk Assessment (QMRA): Application for Water Safety Management, which differentiates between contact crops (where the edible portion is exposed) and non-contact crops (where edible portions remain protected and do not present the same exposure risk). The updated language prevents unnecessary limitations on safe irrigation practices while maintaining the intended health-protective boundary for onsite treated water uses.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
19	5	0	5

EXPLANATION OF NEGATIVE:
CRAWFORD: I agree with Taylor Nokhoudian's comments.

HARLAN: I agree with Taylor Nokhoudian's comments.

KEHOE: I agree with Taylor Nokhoudian's comments.

NOKHOUDIAN: There were technical and structural issues introduced during the ROP revision process, and internal consistency is needed within the standard. The ROP updates introduce inconsistencies between the provisional text and the associated tables, particularly with respect to monitoring methods and parameters. As written, the revisions allow certain reuse applications to rely on periodic grab sampling while simultaneously listing parameters that are inherently operational and intended for real-time observation. This creates ambiguity regarding whether the standard is requiring process monitoring, compliance verification, or both, and how those requirements are to be practically implemented.

Updated language is needed to apply uniform monitoring parameters without regard to use case or monitoring method, resulting in requirements that are not technically meaningful when applied outside a continuous monitoring context. This misalignment reduces clarity for designers, installers, and authorities having jurisdiction, and increases the likelihood of inconsistent interpretation and enforcement.

OSANN: I agree with Taylor Nokhoudian's comments.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
088	2023 WE-Stand	803.5.1, 803.5.2, 903.5.1, 903.5.2, 1003.5.1, 1003.5.2

Submitter Name:	Organization Name:	Organization Representation:
Markus Lenger	WEStand Log Reduction Targets Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal <u>as modified</u> by this public comment.

803.0 Design Requirements.

803.5 Monitoring. (remaining text unchanged)
803.5.1 Risk Level 1. For risk level 1, quarterly grab samples of the onsite blackwater treatment system's effluent shall be collected and analyzed by an accredited lab for the parameters listed in Table 803.5(2).
803.5.2 Risk Level 2. For risk level 2, sensors connected to a smart controller shall continuously monitor the onsite blackwater treatment system's effluent for the parameters listed in Table 803.5(2). Upon detection of parameters outside of specified limits, the smart controller shall activate an alarm and shall automatically shut down the onsite blackwater treatment system where the alarm is not manually reset after a period of 8 hours. The sensors' accuracy and response shall be validated upon commissioning of the onsite blackwater treatment system by an independent third party.

903.0 Design Requirements.

903.5 Monitoring. (remaining text unchanged)
903.5.1 Risk Level 1. For risk level 1, quarterly grab samples of the onsite gray water treatment system's effluent shall be collected and analyzed by an accredited lab for the parameters listed in Table 903.5(2).
903.5.2 Risk Level 2. For risk level 2, sensors connected to a smart controller shall continuously monitor the onsite gray water treatment system's effluent for the parameters listed in Table 903.5(2). Upon detection of parameters outside of specified limits, the smart controller shall activate an alarm and shall automatically shut down the onsite gray water treatment system where the alarm is not manually reset after a period of 8 hours. The sensors' accuracy and response shall be validated upon commissioning of the onsite gray water treatment system by an independent third party.

1003.0 Design Requirements.

1003.5 Monitoring. (remaining text unchanged)
1003.5.1 Risk Level 1. For risk level 1, quarterly grab samples of the onsite stormwater treatment system's effluent shall be collected and analyzed by an accredited lab for the parameters listed in Table 1003.5(2).
1003.5.2 Risk Level 2. For risk level 2, sensors connected to a smart controller shall continuously monitor the onsite stormwater treatment system's effluent for the parameters listed in Table 1003.5(2). Upon detection of parameters outside of specified limits, the smart controller shall activate an alarm and shall automatically shut down the onsite stormwater treatment system where the alarm is not manually reset after a period of 8 hours. The sensors' accuracy and response shall be validated upon commissioning of the onsite stormwater treatment system by an independent third party.

Substantiation:
The revisions clarify that the monitoring requirements apply specifically to onsite blackwater, gray water, and stormwater treatment systems. This improves consistency and removes ambiguity about which system the sampling, monitoring, and shutdown provisions apply to.

Committee Action:
Reject

Committee Statement:
Since these provisions are located within chapters that already apply specifically to each type of onsite treatment system, the proposed revisions are unnecessary and repetitive. The changes do not improve clarity or enforceability and introduce redundant language without providing additional value.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
19	5	0	5

EXPLANATION OF NEGATIVE:
CRAWFORD: I agree with Taylor Nokhoudian's comments.

HARLAN: I agree with Taylor Nokhoudian's comments.

KEHOE: I agree with Taylor Nokhoudian's comments.

NOKHOUDIAN: There were technical and structural issues introduced during the ROP revision process, and internal consistency is needed within the standard. The ROP updates introduce inconsistencies between the provisional text and the associated tables, particularly with respect to monitoring methods and parameters. As written, the revisions allow certain reuse applications to rely on periodic grab sampling while simultaneously listing parameters that are inherently operational and intended for real-time observation. This creates ambiguity regarding whether the standard is requiring process monitoring, compliance verification, or both, and how those requirements are to be practically implemented.

Updated language is needed to apply uniform monitoring parameters without regard to use case or monitoring method, resulting in requirements that are not technically meaningful when applied outside a continuous monitoring context. This misalignment reduces clarity for designers, installers, and authorities having jurisdiction, and increases the likelihood of inconsistent interpretation and enforcement.

OSANN: I agree with Taylor Nokhoudian's comments.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
088.01

Code Number:
2023 WE-Stand

Section Number:
803.5 - 803.5.2, 903.5 - 903.5.2, 1003.5 - 1003.5.2

SUBMITTER:
WEStand Technical Committee Comment

Organization Name:

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

Request to accept the code change proposal **as modified** by this public comment.

803.0 Design Requirements.

803.5 Monitoring. Monitoring of onsite blackwater treatment systems shall be based on the risk level in accordance with Table 803.5(1). The parameters listed in Table 803.5(2) shall be continuously monitored by sensors placed in the effluent of the system or at other locations within the treatment train where such placement provides equivalent or more representative measurement of treatment performance. Sensors shall be connected to a smart controller. The smart controller shall activate an alarm when the parameters in Table 803.5(2) are outside the specifications and shall shut the system down when the alarm is not acknowledged after a period of 8 hours has elapsed. In addition to continuous monitoring, Category 2 systems shall have quarterly grab samples taken out of the effluent and analyzed by an accredited lab. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.
~~**803.5.1 Risk Level 1.** For risk level 1, quarterly grab samples of the system's effluent shall be collected and analyzed by an accredited lab for the parameters listed in Table 803.5(2).~~
~~**803.5.2 Risk Level 2.** For risk level 2, sensors connected to a smart controller shall continuously monitor the system's effluent for the parameters listed in Table 803.5(2). Upon detection of parameters outside of specified limits, the smart controller shall activate an alarm and shall automatically shut down the system where the alarm is not manually reset after a period of 8 hours. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.~~

903.0 Design Requirements.

903.5 Monitoring. Monitoring of onsite gray water treatment systems shall be based on the risk level in accordance with Table 903.5(1). The parameters listed in Table 903.5(2) shall be continuously monitored by sensors placed in the effluent of the system or at other locations within the treatment train where such placement provides equivalent or more representative measurement of treatment performance. Sensors shall be connected to a smart controller. The smart controller shall activate an alarm when the parameters in Table 903.5(2) are outside the specifications and shall shut the system down when the alarm is not acknowledged after a period of 8 hours has elapsed. In addition to continuous monitoring, Category 2 systems shall have quarterly grab samples taken out of the effluent and analyzed by an accredited lab. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.
~~**903.5.1 Risk Level 1.** For risk level 1, quarterly grab samples of the system's effluent shall be collected and analyzed by an accredited lab for the parameters listed in Table 903.5(2).~~
~~**903.5.2 Risk Level 2.** For risk level 2, sensors connected to a smart controller shall continuously monitor the system's effluent for the parameters listed in Table 903.5(2). Upon detection of parameters outside of specified~~

~~limits, the smart controller shall activate an alarm and shall automatically shut down the system where the alarm is not manually reset after a period of 8 hours. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.~~

1003.0 Design Requirements.

1003.5 Monitoring. Monitoring of onsite stormwater treatment systems shall be based on the risk level in accordance with Table 1003.5(1). The parameters listed in Table 1003.5(2) shall be continuously monitored by sensors placed in the effluent of the system or at other locations within the treatment train where such placement provides equivalent or more representative measurement of treatment performance. Sensors shall be connected to a smart controller. The smart controller shall activate an alarm when the parameters in Table 1003.5(2) are outside the specifications and shall shut the system down when the alarm is not acknowledged after a period of 8 hours has elapsed. In addition to continuous monitoring, Category 2 systems shall have quarterly grab samples taken out of the effluent and analyzed by an accredited lab. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.
~~**1003.5.1 Risk Level 1.** For risk level 1, quarterly grab samples of the system's effluent shall be collected and analyzed by an accredited lab for the parameters listed in Table 1003.5(2).~~
~~**1003.5.2 Risk Level 2.** For risk level 2, sensors connected to a smart controller shall continuously monitor the system's effluent for the parameters listed in Table 1003.5(2). Upon detection of parameters outside of specified limits, the smart controller shall activate an alarm and shall automatically shut down the system where the alarm is not manually reset after a period of 8 hours. The sensors' accuracy and response shall be validated upon commissioning of the system by an independent third party.~~

(shown for information purposes only)

TABLE 803.5(1)
RISK LEVELS

RISK LEVEL	TREATED WATER USAGE[1]
1	Plant irrigation[2] and dust suppression
2	Water closets, urinals, clothes washers

Notes:

[1] See Section 801.2 for other uses approved by the Authority Having Jurisdiction.

[2] Not including crops intended for human consumption.

TABLE 803.5(2)
MONITORING PARAMETERS

RISK LEVEL	PARAMETERS TO BE MONITORED	VALIDATION PROCEDURE
1	Turbidity ORP UV intensity (if used)	IAPMO/ANSI Z1324 - Sensor validation procedure using 5.4.1.1 (a), (b), (c), and (d), as applicable
2	Turbidity ORP UV intensity (if used) pH Quarterly lab sample for Total Coliform	

TABLE 903.5(1)
RISK LEVELS

RISK LEVEL	TREATED WATER USAGE[1]
1	Plant irrigation[2] and dust suppression
2	Water closets, urinals, clothes washers

Notes:

[1] See Section 901.2 for other uses approved by the Authority Having Jurisdiction.

[2] Not including crops intended for human consumption.

TABLE 903.5(2)
MONITORING PARAMETERS

RISK LEVEL	PARAMETERS TO BE MONITORED	VALIDATION PROCEDURE
1	Turbidity ORP UV intensity (if used)	IAPMO/ANSI Z1324 - Sensor validation procedure using 5.4.1.1 (a), (b), (c), and (d), as applicable
2	Turbidity ORP UV intensity (if used) pH Quarterly lab sample for Total Coliform	

TABLE 1003.5(1)
RISK LEVELS

RISK LEVEL	TREATED WATER USAGE[1]
1	Plant irrigation[2] and dust suppression
2	Water closets, urinals, clothes washers

Notes:

[1] See Section 1001.2 for other uses approved by the Authority Having Jurisdiction.

[2] Not including crops intended for human consumption.

TABLE 1003.5(2)
MONITORING PARAMETERS

RISK LEVEL	PARAMETERS TO BE MONITORED	VALIDATION PROCEDURE
1	Turbidity ORP UV intensity (if used)	IAPMO/ANSI Z1324 - Sensor validation procedure using 5.4.1.1 (a), (b), (c), and (d), as applicable
2	Turbidity ORP UV intensity (if used) pH Quarterly lab sample for Total Coliform	

SUBSTANTIATION:
Reinstating continuous monitoring requirements for both Risk Level Categories 1 and 2 is necessary to maintain a consistent and technically sound approach to verifying treatment performance. The proposed revisions largely restore the 2023 WEStand monitoring framework, which established continuous monitoring as the primary method of process control for all risk categories, with periodic grab sampling used only as a supplemental verification measure for Category 2 systems.

However, the proposed text is not a direct reversion. The modifications reflected in the submitted language clarify how and where monitoring is to occur by explicitly requiring sensors to be located in the effluent or at representative points in the treatment train, requiring integration with a smart controller, and defining system responses such as alarm activation and automatic shutdown if alarm conditions are not addressed. These additions strengthen the original 2023 provisions by improving enforceability and ensuring that continuous monitoring functions as an active control mechanism rather than a passive data collection requirement.

The ROP revisions introduce ambiguity by suggesting that periodic grab sampling may be used in place of continuous monitoring while still referencing parameters that are inherently intended for real-time measurement. This creates a disconnect between the monitoring requirements and the parameter tables and reduces the effectiveness of the standard by allowing gaps in performance oversight. The proposed revisions resolve this issue by clearly reaffirming continuous monitoring as a requirement for both risk categories and by aligning the monitoring approach with the listed parameters and their intended use. In doing so, the revisions both restore the intent of the 2023 WEStand provisions and improve upon them by providing clearer direction on system configuration, monitoring implementation, and operational response, resulting in more consistent application and a higher level of protection for public health.

Committee Action:
Reject

Committee Statement:
The committee has previously considered monitoring requirements for onsite treatment systems and does not support requiring continuous monitoring for both Risk Level 1 and Risk Level 2 systems, as a uniform approach is not appropriate across differing risk tiers. The proposed changes introduce additional prescriptive requirements that increase complexity without providing a clear improvement in system performance.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
16	8	0	5

EXPLANATION OF NEGATIVE:
CRAWFORD: I agree with Taylor Nokhoudian's comments.

HARLAN: I agree with the other comments.

KEHOE: I agree with the other comments.

NOKHOUDIAN: This updated language applies uniform monitoring parameters without regard to use case or monitoring method, resulting in requirements that are not technically meaningful when applied outside a continuous monitoring context. This misalignment reduces clarity for designers, installers, and authorities having jurisdiction, and increases the likelihood of inconsistent interpretation and enforcement.

RIBBS: I agree with Taylor Nokhoudian's (San Francisco Public Utilities Commission) comments.

B. SMITH: I agree with Taylor Nokhoudian's comments.

TSENG: I agree with Taylor Nokhoudian's comments.

WHITE: I agree with the comments by Taylor Nokhoudian.

EXPLANATION OF AFFIRMATIVE:
NICKELSON: I agree with the comments made by the negative voters that there are some issues with this language. However, I am voting affirmative because, as I read the attachment, the action from the committee was to reject.

THOMPSON: I agree with David Nickelson's assessment. The committee action was to reject this proposal. An affirmative vote here supports that decision.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
089

Code Number:
2023 WE-Stand

Section Number:
802.4, 802.10 – 802.10.6, 804.1, 902.4, 902.10 – 902.10.3, 902.10.5 – 902.10.7, 904.1, 1002.4, 1002.10 – 1002.10.6, 1004.1

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

~~802.10~~**804.0 System Requirements.** ~~The design and installation of onsite blackwater treatment systems shall meet the requirements of Section 802.10.1 through Section 802.10.6.~~
804.1 General. Onsite sewage treatment systems shall be installed in accordance with Section 804.2 through Section 804.8.
~~802.4~~**804.2 Material Compatibility.** ~~Blackwater~~Onsite sewage treatment systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system.
~~802.10.1~~**804.3 Connections to Potable or Reclaimed (Recycled) Water Systems.** (remaining text unchanged)
~~802.10.2~~**804.4 Bypass Connection.** (remaining text unchanged)
~~802.10.3~~**804.5 Overflow Connection.** (remaining text unchanged)
~~802.10.4~~**804.6 Fail-safe Mechanisms.** (remaining text unchanged)
~~802.10.5~~**804.7 Flow Meter Totalizer.** (remaining text unchanged)
~~802.10.6~~**804.8 Cross-Connection Inspection and Testing.** (remaining text unchanged)

~~902.10~~**904.0 System Requirements.** ~~The design and installation of onsite gray water treatment systems shall meet the requirements of Section 902.10.1 through Section 902.10.8.~~
904.1 General. Onsite gray water treatment systems shall be installed in accordance with Section 904.2 through Section 904.8.
~~902.4~~**904.2 Material Compatibility.** Onsite ~~G~~gray water treatment systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system.
~~902.10.1~~**904.3 Connections to Potable or Reclaimed (Recycled) Water Systems.** (remaining text unchanged)
~~902.10.2~~**904.4 Bypass Connection.** (remaining text unchanged)
~~902.10.3~~**904.5 Overflow Connection.** (remaining text unchanged)
~~902.10.5~~**904.6 Fail-safe Mechanisms.** (remaining text unchanged)
~~902.10.6~~**904.7 Flow Meter Totalizer.** (remaining text unchanged)
~~902.10.7~~**904.8 Cross-connection Inspection and Testing.** (remaining text unchanged)

~~1002.10~~**1004.0 System Requirements.** ~~The design and installation of onsite stormwater treatment systems shall meet the requirements of Section 1002.10.1 through Section 1002.10.6.~~
1004.1 General. Onsite stormwater treatment systems shall be installed in accordance with Section 1004.2 through Section 1004.8.
~~1002.4~~**1004.2 Material Compatibility.** Onsite ~~S~~stormwater treatment systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system.

~~1002.10.1~~**1004.3 Connections to Potable or Reclaimed (Recycled) Water Systems.** (remaining text unchanged)
~~1002.10.2~~**1004.4 Bypass Connection.** (remaining text unchanged)
~~1002.10.3~~**1004.5 Overflow Connection.** (remaining text unchanged)
~~1002.10.4~~**1004.6 Fail-safe Mechanisms.** (remaining text unchanged)
~~1002.10.5~~**1004.7 Flow Meter Totalizer.** (remaining text unchanged)
~~1002.10.6~~**1004.8 Cross-connection Inspection and Testing.** (remaining text unchanged)

SUBSTANTIATION:
Similar to the other proposal submitted on behalf of the Task Group which relocates all design requirements, these proposed updates relocate all system requirements.

Committee Action:
Accept As Amended by the TC

Proposed Text :

804.0 System Requirements.
804.1 General. Onsite ~~sewage~~blackwater treatment systems shall be installed in accordance with Section 804.2 through Section 804.8.
804.2 Material Compatibility. Onsite ~~sewage~~blackwater treatment systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system.
804.3 Connections to Potable or Reclaimed (Recycled) Water Systems. (remaining text unchanged)
804.4 Bypass Connection. (remaining text unchanged)
804.5 Overflow Connection. (remaining text unchanged)
804.6 Fail-safe Mechanisms. (remaining text unchanged)
804.7 Flow Meter Totalizer. (remaining text unchanged)
804.8 Cross-Connection Inspection and Testing. (remaining text unchanged)

904.0 System Requirements.
904.1 General. Onsite gray water treatment systems shall be installed in accordance with Section 904.2 through Section 904.8.
904.2 Material Compatibility. Onsite gray water treatment systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system.
904.3 Connections to Potable or Reclaimed (Recycled) Water Systems. (remaining text unchanged)
904.4 Bypass Connection. (remaining text unchanged)
904.5 Overflow Connection. (remaining text unchanged)
904.6 Fail-safe Mechanisms. (remaining text unchanged)
904.7 Flow Meter Totalizer. (remaining text unchanged)
904.8 Cross-connection Inspection and Testing. (remaining text unchanged)

1004.0 System Requirements.
1004.1 General. Onsite stormwater treatment systems shall be installed in accordance with Section 1004.2 through Section 1004.8.
1004.2 Material Compatibility. Onsite stormwater treatment systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system.
1004.3 Connections to Potable or Reclaimed (Recycled) Water Systems. (remaining text unchanged)
1004.4 Bypass Connection. (remaining text unchanged)

1004.5 Overflow Connection. (remaining text unchanged)
1004.6 Fail-safe Mechanisms. (remaining text unchanged)
1004.7 Flow Meter Totalizer. (remaining text unchanged)
1004.8 Cross-connection Inspection and Testing. (remaining text unchanged)

Committee Statement:
In alignment with the actions taken on Item #003, Item #089 is being amended to retain the reference to "blackwater," as the committee does not agree that "blackwater" and "sewage" are interchangeable terms within the context of the WEStand.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
089	2023 WE-Stand	Chapter 8, Chapter 9, Chapter 10

Submitter Name:	Organization Name:	Organization Representation:
Markus Lenger	WEStand Log Reduction Targets Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

804.0 System Requirements.

804.3 Connections to Potable or Reclaimed (Recycled) Water Systems. Onsite ~~B~~blackwater treatment systems shall have no direct connection to any potable water supply or reclaimed (recycled) water source system. Potable water or reclaimed (recycled) water shall be permitted to be used as makeup water for an onsite blackwater treatment system ~~provided the potable or reclaimed (recycled) water supply connection is protected by an airgap~~where backflow protection is provided in accordance with the plumbing code.
804.4 Bypass Connection. A bypass shall be provided for the input connection to the onsite blackwater treatment system. The bypass shall be a diverter valve normally open to the onsite blackwater treatment system. The normally closed port of the diverter valve shall be connected directly to the plumbing drainage system according to the plumbing code.

804.6 Fail-safe Mechanisms. Onsite ~~B~~blackwater treatment systems shall be equipped with an automatic shutdown of the treatment process when a malfunction occurs.
804.7 Flow Meter Totalizer. Buildings with onsite blackwater treatment systems shall include a flow meter totalizer on the treated blackwater distribution system and a flow meter totalizer on the potable make-up water connection to the onsite blackwater treatment system.
804.8 Cross-Connection Inspection and Testing. A cross-connection test is required in accordance with Section 701.11.2. Before the building is occupied or the onsite blackwater treatment system is activated, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

805.0 Commissioning.

805.2 Requirements. Commissioning for onsite blackwater treatment systems shall be included in the design and construction processes of the project. Commissioning shall be performed by a person who demonstrates competency in commissioning onsite blackwater treatment systems as required by the Authority Having Jurisdiction.
805.3 Plan. The construction documents shall include the commissioning plan for the onsite blackwater treatment system. The commissioning plan shall be approved by the Authority Having Jurisdiction prior to commissioning the onsite blackwater treatment system. The commissioning plan shall include the following:
(1) – (8) (remaining text unchanged)
805.4 Performance Testing. Performance tests shall verify that the installation and operation of the equipment of the onsite blackwater treatment system is in accordance with the approved plans and specifications. The performance test report shall include the equipment tested, the testing methods utilized, and proof of proper calibration of the equipment.

807.0 Inspection.
807.1 General. Field inspections shall take place during and after construction while the contractor is onsite to verify that the onsite blackwater treatment system components have been properly supplied and installed according to the plans and specifications used for installation. Record drawings shall be maintained with changes to the approved plans by the contractor and available for periodic inspection as needed.

904.0 System Requirements.

904.3 Connections to Potable or Reclaimed (Recycled) Water Systems. Onsite ~~G~~gray water treatment systems shall have no direct connection to any potable water supply or reclaimed (recycled) water source system. Potable water or reclaimed (recycled) water shall be permitted to be used as makeup water for an onsite gray water treatment system ~~provided the potable or reclaimed (recycled) water supply connection is protected by an airgap~~where backflow protection is provided in accordance with the plumbing code.
904.4 Bypass Connection. A bypass shall be provided for the input connection to the onsite gray water treatment system. The bypass shall be a diverter valve normally open to the onsite gray water treatment system. The normally closed port of the diverter valve shall be connected directly to the storm drainage system or combined sewer system according to the plumbing code.

904.6 Fail-safe Mechanisms. Onsite ~~G~~gray water treatment systems must be equipped with features that result in a controlled and non-hazardous automatic shutdown of the treatment process in the event of a malfunction.
904.7 Flow Meter Totalizer. Buildings with onsite gray water treatment systems shall include a flow meter totalizer on the treated gray water distribution system and a flow meter totalizer on the potable make-up water pipeline to the onsite gray water treatment system.

904.8 Cross-connection Inspection and Testing. A cross-connection test is required in accordance with Section 701.11.2. Before the building is occupied or the onsite gray water treatment system is activated, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

905.0 Commissioning.

905.2 Requirements. Commissioning for onsite gray water treatment systems shall be included in the design and construction processes of the project. Commissioning shall be performed by a person who demonstrates competency in commissioning onsite gray water treatment systems as required by the Authority Having Jurisdiction.
905.3 Plan. The construction documents shall include the commissioning plan for the onsite gray water treatment system. The commissioning plan shall be approved by the Authority Having Jurisdiction prior to commissioning the onsite gray water treatment system. The commissioning plan shall include the following:
(1) – (8) (remaining text unchanged)
905.4 Performance Testing. Performance tests shall verify that the installation and operation of the equipment of the onsite gray water treatment system is in accordance with the approved plans and specifications. The performance test report shall include the equipment tested, the testing methods utilized, and proof of proper calibration of the equipment.

907.0 Inspection.
907.1 General. Field inspections shall take place during and after construction while the contractor is on site to verify that the onsite gray water treatment system components have been properly supplied and installed according to the plans and specifications used for installation. Record drawings shall be maintained with changes to the approved plans by the contractor and available for periodic inspection as needed.

1004.0 System Requirements.

1004.3 Connections to Potable or Reclaimed (Recycled) Water Systems. Onsite ~~S~~stormwater treatment systems shall have no direct connection to any potable water supply or reclaimed (recycled) water source system. Potable water or reclaimed (recycled) water shall be permitted to be used as makeup water for an onsite stormwater treatment system ~~provided the potable or reclaimed (recycled) water supply connection is protected by an airgap~~where backflow protection is provided in accordance with the plumbing code.
1004.4 Bypass Connection. A bypass shall be provided for the input connection to the onsite stormwater treatment system. The bypass shall be a diverter valve normally open to the onsite stormwater treatment system. The normally closed port of the diverter valve shall be connected directly to the storm drainage system or combined sewer system according to the plumbing code.

1004.6 Fail-safe Mechanisms. Onsite ~~S~~stormwater treatment systems must be equipped with features that result in a controlled and non-hazardous automatic shutdown of the treatment process in the event of a malfunction.
1004.7 Flow Meter Totalizer. Buildings with onsite stormwater treatment systems shall include a flow meter totalizer on the treated stormwater distribution system and a flow meter totalizer on the potable make-up water pipeline to the onsite stormwater treatment system.
1004.8 Cross-connection Inspection and Testing. A cross-connection test is required in accordance with Section 701.11.2. Before the building is occupied or the onsite stormwater treatment system is activated, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

1005.0 Commissioning.

1005.2 Requirements. Commissioning for onsite stormwater treatment systems shall be included in the design and construction processes of the project. Commissioning shall be performed by a person who demonstrates competency in commissioning onsite stormwater treatment systems as required by the Authority Having Jurisdiction.
1005.3 Plan. The construction documents shall include the commissioning plan for the onsite stormwater treatment system. The commissioning plan shall be approved by the Authority Having Jurisdiction prior to commissioning the onsite stormwater treatment system. The commissioning plan shall include the following:
(1) – (8) (remaining text unchanged)
1005.4 Performance Testing. Performance tests shall verify that the installation and operation of the equipment of the onsite stormwater treatment system is in accordance with the approved plans and specifications. The performance test report shall include the equipment tested, the testing methods utilized, and proof of proper calibration of the equipment.

1007.0 Inspection.
1007.1 General. Field inspections shall take place during and after construction while the contractor is on site to verify that the onsite stormwater treatment system components have been properly supplied and installed according to the plans and specifications used for installation. Record drawings shall be maintained with changes to the approved plans by the contractor and available for periodic inspection as needed.

Substantiation:
The potable or reclaimed makeup-water provisions for backflow protection are being updated to reference the plumbing code which specifies where an air gap is mandatory and where other listed backflow prevention devices are acceptable, based on the degree of hazard, pressure conditions, and system configuration. This reference avoids potential conflicting or duplicative language and allows the Authority Having Jurisdiction to apply the correct backflow protection method that the plumbing code already mandates.

The remaining revisions improve clarity and consistency by explicitly applying the system-requirements, commissioning, and inspection provisions to onsite blackwater, gray water, and stormwater treatment systems.

Committee Action:
Accept As Amended by the TC

Proposed Text (Modified by TC) :

804.0 System Requirements.

804.3 Connections to Potable or Reclaimed (Recycled) Water Systems. ~~Onsite b~~Blackwater treatment systems shall have no direct connection to any potable water supply or reclaimed (recycled) water source system. Potable water or reclaimed (recycled) water shall be permitted to be used as makeup water for a~~n onsite~~ blackwater treatment system where backflow protection is provided in accordance with the plumbing code.
804.4 Bypass Connection. A bypass shall be provided for the input connection to the ~~onsite~~ blackwater treatment system. The bypass shall be a diverter valve normally open to the ~~onsite~~ blackwater treatment system. The normally closed port of the diverter valve shall be connected directly to the plumbing drainage system according to the plumbing code.

804.6 Fail-safe Mechanisms. ~~Onsite b~~Blackwater treatment systems shall be equipped with an automatic shutdown of the treatment process when a malfunction occurs.
804.7 Flow Meter Totalizer. Buildings with ~~onsite~~ blackwater treatment systems shall include a flow meter totalizer on the treated blackwater distribution system and a flow meter totalizer on the potable make-up water connection to the ~~onsite~~ blackwater treatment system.
804.8 Cross-Connection Inspection and Testing. A cross-connection test is required in accordance with Section 701.11.2. Before the building is occupied or the ~~onsite~~ blackwater treatment system is activated, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

805.0 Commissioning.

805.2 Requirements. Commissioning for ~~onsite~~ blackwater treatment systems shall be included in the design and construction processes of the project. Commissioning shall be performed by a person who demonstrates competency in commissioning ~~onsite~~ blackwater treatment systems as required by the Authority Having Jurisdiction.
805.3 Plan. The construction documents shall include the commissioning plan for the ~~onsite~~ blackwater treatment system. The commissioning plan shall be approved by the Authority Having Jurisdiction prior to commissioning the ~~onsite~~ blackwater treatment system. The commissioning plan shall include the following:
(1) – (8) (remaining text unchanged)
805.4 Performance Testing. Performance tests shall verify that the installation and operation of the equipment of the ~~onsite~~ blackwater treatment system is in accordance with the approved plans and specifications. The performance test report shall include the equipment tested, the testing methods utilized, and proof of proper calibration of the equipment.

807.0 Inspection.
807.1 General. Field inspections shall take place during and after construction while the contractor is onsite to verify that the ~~onsite~~ blackwater treatment system components have been properly supplied and installed according to the plans and specifications used for installation. Record drawings shall be maintained with changes to the approved plans by the contractor and available for periodic inspection as needed.

904.0 System Requirements.

904.3 Connections to Potable or Reclaimed (Recycled) Water Systems. ~~Onsite g~~Gray water treatment systems shall have no direct connection to any potable water supply or reclaimed (recycled) water source system. Potable water or reclaimed (recycled) water shall be permitted to be used as makeup water for a~~n onsite~~ gray water treatment system where backflow protection is provided in accordance with the plumbing code.
904.4 Bypass Connection. A bypass shall be provided for the input connection to the ~~onsite~~ gray water treatment system. The bypass shall be a diverter valve normally open to the ~~onsite~~ gray water treatment system. The normally closed port of the diverter valve shall be connected directly to the storm drainage system or combined sewer system according to the plumbing code.

904.6 Fail-safe Mechanisms. ~~Onsite g~~Gray water treatment systems must be equipped with features that result in a controlled and non-hazardous automatic shutdown of the treatment process in the event of a malfunction.
904.7 Flow Meter Totalizer. Buildings with ~~onsite~~ gray water treatment systems shall include a flow meter totalizer on the treated gray water distribution system and a flow meter totalizer on the potable make-up water pipeline to the ~~onsite~~ gray water treatment system.

904.8 Cross-connection Inspection and Testing. A cross-connection test is required in accordance with Section 701.11.2. Before the building is occupied or the ~~onsite~~ gray water treatment system is activated, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

905.0 Commissioning.

905.2 Requirements. Commissioning for ~~onsite~~ gray water treatment systems shall be included in the design and construction processes of the project. Commissioning shall be performed by a person who demonstrates competency in commissioning ~~onsite~~ gray water treatment systems as required by the Authority Having Jurisdiction.
905.3 Plan. The construction documents shall include the commissioning plan for the ~~onsite~~ gray water treatment system. The commissioning plan shall be approved by the Authority Having Jurisdiction prior to commissioning the ~~onsite~~ gray water treatment system. The commissioning plan shall include the following:
(1) – (8) (remaining text unchanged)
905.4 Performance Testing. Performance tests shall verify that the installation and operation of the equipment of the ~~onsite~~ gray water treatment system is in accordance with the approved plans and specifications. The performance test report shall include the equipment tested, the testing methods utilized, and proof of proper calibration of the equipment.

907.0 Inspection.
907.1 General. Field inspections shall take place during and after construction while the contractor is on site to verify that the ~~onsite~~ gray water treatment system components have been properly supplied and installed according to the plans and specifications used for installation. Record drawings shall be maintained with changes to the approved plans by the contractor and available for periodic inspection as needed.

1004.0 System Requirements.

1004.3 Connections to Potable or Reclaimed (Recycled) Water Systems. ~~Onsite s~~Stormwater treatment systems shall have no direct connection to any potable water supply or reclaimed (recycled) water source system. Potable water or reclaimed (recycled) water shall be permitted to be used as makeup water for a~~n onsite~~ stormwater treatment system where backflow protection is provided in accordance with the plumbing code.
1004.4 Bypass Connection. A bypass shall be provided for the input connection to the ~~onsite~~ stormwater treatment system. The bypass shall be a diverter valve normally open to the ~~onsite~~ stormwater treatment system. The normally closed port of the diverter valve shall be connected directly to the storm drainage system or combined sewer system according to the plumbing code.

1004.6 Fail-safe Mechanisms. ~~Onsite s~~Stormwater treatment systems must be equipped with features that result in a controlled and non-hazardous automatic shutdown of the treatment process in the event of a malfunction.
1004.7 Flow Meter Totalizer. Buildings with ~~onsite~~ stormwater treatment systems shall include a flow meter totalizer on the treated stormwater distribution system and a flow meter totalizer on the potable make-up water pipeline to the ~~onsite~~ stormwater treatment system.
1004.8 Cross-connection Inspection and Testing. A cross-connection test is required in accordance with Section 701.11.2. Before the building is occupied or the ~~onsite~~ stormwater treatment system is activated, the installer shall perform the initial cross-connection test in the presence of the Authority Having Jurisdiction. The test shall be ruled successful by the Authority Having Jurisdiction before final approval is granted.

1005.0 Commissioning.

1005.2 Requirements. Commissioning for ~~onsite~~ stormwater treatment systems shall be included in the design and construction processes of the project. Commissioning shall be performed by a person who demonstrates competency in commissioning ~~onsite~~ stormwater treatment systems as required by the Authority Having Jurisdiction.
1005.3 Plan. The construction documents shall include the commissioning plan for the ~~onsite~~ stormwater treatment system. The commissioning plan shall be approved by the Authority Having Jurisdiction prior to commissioning the ~~onsite~~ stormwater treatment system. The commissioning plan shall include the following:
(1) – (8) (remaining text unchanged)
1005.4 Performance Testing. Performance tests shall verify that the installation and operation of the equipment of the ~~onsite~~ stormwater treatment system is in accordance with the approved plans and specifications. The performance test report shall include the equipment tested, the testing methods utilized, and proof of proper calibration of the equipment.

1007.0 Inspection.
1007.1 General. Field inspections shall take place during and after construction while the contractor is on site to verify that the ~~onsite~~ stormwater treatment system components have been properly supplied and installed according to the plans and specifications used for installation. Record drawings shall be maintained with changes to the approved plans by the contractor and available for periodic inspection as needed.

Committee Statement:
Since these sections are located within chapters that apply specifically to onsite treatment systems, the added references to “onsite” are unnecessary and repetitive.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
090

Code Number:
2023 WE-Stand

Section Number:
902.10.4

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

302.0 Installation.

~~902.10.4~~**302.2 Near Underground Potable Water Pipe.** Onsite treated ~~gray~~nonpotable water pipes run or laid in the same trench as potable water pipes shall have 12 inches (305 mm) minimum vertical and horizontal separation when both pipe materials are approved for use within a building. Where piping materials do not meet this requirement the minimum separation shall be increased to 60 inches (1524 mm). The potable water piping shall be installed at an elevation above the onsite treated ~~gray~~nonpotable water piping.

(renumber remaining sections)

SUBSTANTIATION:
The installation requirements in Section 902.10.4 (Near Underground Potable Water Pipe) are appropriate for all onsite treated nonpotable water piping. Therefore, the language has been revised to expand the provision's applicability, and it is being relocated to Chapter 3 (General Regulations), which applies to all systems in WEStand.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
090

Code Number:
2023 WE-Stand

Sections(s):
302.2, 1101.9, 1202.9

Submitter Name:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

302.0 Installation.

302.2 Near Underground Potable Water Pipe. ~~Onsite treated nonpotable water pipes run or laid in the same trench as potable water pipes shall have 12 inches (305 mm) minimum vertical and horizontal separation when both pipe materials are approved for use within a building. Where piping materials do not meet this requirement the minimum separation shall be increased to 60 inches (1524 mm). The potable water piping shall be installed at an elevation above the onsite treated nonpotable water piping.~~ Onsite treated nonpotable water pipes of materials that are not approved for use within a building shall not be run or laid in the same trench as potable water pipes unless the following requirements are met:
(1) The bottom of the potable water pipe shall not be less than 12 inches (305 mm) above the top of the onsite treated nonpotable water pipe.
(2) The potable water pipe shall be placed on a solid shelf excavated at one side of the common trench with a clear horizontal distance of not less than 12 inches (305 mm) from the onsite treated nonpotable water pipe.
(3) Potable water pipes crossing onsite treated nonpotable water pipe constructed of materials that are not approved for use within a building shall be laid not less than 12 inches (305 mm) above the onsite treated nonpotable water pipe.
For the purpose of this section, "within a building" shall mean within the fixed limits of the building foundation.

1101.0 General.

~~**1101.9 Separation Requirements.** All underground rainwater catchment service piping shall be separated from the building sewer in accordance with the plumbing code. Treated nonpotable water pipes run or laid in the same trench as potable water pipes shall have a 12 inch (305 mm) minimum vertical and horizontal separation when both pipe materials are approved for use within a building. Where horizontal piping materials do not meet this requirement the minimum separation shall be increased to 60 inches (1524 mm). The potable water piping shall be installed at an elevation above the treated nonpotable water piping.~~

(renumber remaining sections)

1202.0 System Requirements.

~~**1202.9 Same Trench as Potable Water Pipes.** Reclaimed (recycled) water pipes run or laid in the same trench as potable water pipes shall have 12 inches (305 mm) minimum vertical and horizontal separation when both pipe materials are approved for use within a building. When piping materials do not meet this requirement the minimum horizontal separation shall be increased to 60 inches (1524 mm). The potable water piping shall be installed at an elevation above the reclaimed (recycled) water piping. Reclaimed (recycled) water pipes laid in the same trench or crossing building sewer or drainage piping shall be installed in accordance with the plumbing code for potable water piping.~~

(renumber remaining sections)

Substantiation:
The revised trench-separation provisions in Section 302.2 (Near Underground Potable Water Pipe) replace the previous mixed separation criteria with language that directly parallels how the plumbing code regulates the separation of potable water piping from nonpotable piping constructed of materials not approved for installation within a building.

> ***[2025 UPC ROC Preprint]***
> ***609.0 Installation, Testing, Unions, and Location.***
> ***609.2 Trenches.*** *Water pipes shall not be run or laid in the same trench as building sewer or drainage piping constructed of clay or materials that are not approved for use within a building unless both of the following conditions are met:*
> *(1) The bottom of the water pipe shall be not less than 12 inches (305 mm) above the top of the sewer or drain line.*
> *(2) The water pipe shall be placed on a solid shelf excavated at one side of the common trench with a clear horizontal distance of not less than 12 inches (305 mm) from the sewer or drain line.*
> *Water pipes crossing sewer or drainage piping constructed of clay or materials that are not approved for use within a building shall be laid not less than 12 inches (305 mm) above the sewer or drainpipe.*
>
> ***720.0 Sewer and Water Pipes.***
> ***720.1 General.*** *Building sewers or drainage piping of clay or materials that are not approved for use within a building shall not be run or laid in the same trench as the water pipes unless the following requirements are met:*
> *(1) The bottom of the water pipe, at points, shall be not less than 12 inches (305 mm) above the top of the sewer or drain line.*
> *(2) The water pipe shall be placed on a solid shelf excavated at one side of the common trench with a clear horizontal distance of not less than 12 inches (305 mm) from the sewer or drain line.*
> *(3) Water pipes crossing sewer or drainage piping constructed of clay or materials that are not approved for use within a building shall be laid not less than 12 inches (305 mm) above the sewer or drainpipe.*
> *For the purpose of this section, "within a building" shall mean within the fixed limits of the building foundation.*

Since Chapter 3 (General Regulations) applies to all systems covered by the standard, Section 1101.9 (Separation Requirements) and Section 1202.9 (Same Trench as Potable Water Pipes) are being deleted to avoid conflicts or duplicative requirements.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Item #:
091

Code Number:
2023 WE-Stand

Section Number:
902.10.8

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

302.0 Installation.

~~902.10.8~~302.3 **Water Pressure.** Onsite treated non-potable water systems supplying water to water closets, urinals, and trap primers shall be capable of delivering ~~not less than 15 pounds-force per square inch (psi) (103 kPa)~~a residual pressure ~~at the highest and most remote outlet served~~in accordance with the plumbing code. ~~Where the water pressure in the onsite treated non-potable water supply system within the building exceeds 80 psi (552 kPa), a pressure reducing valve reducing the pressure to 80 psi (552 kPa) or less to water outlets in the building shall be installed.~~

(renumber remaining sections)

SUBSTANTIATION:
The requirements in Section 902.10.8 (Water Pressure) are appropriate for all onsite treated nonpotable water systems. Additionally, specific requirements for residual pressure are more suitably found within the plumbing code. Therefore, the section is being relocated to Chapter 3 (General Regulations) which applies to all systems in WEStand, and reference to the plumbing code is being added.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
091

Code Number:
2023 WE-Stand

Sections(s):
1103.7, 1202.2, A 103.8

Submitter Name:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

1103.0 Design and Installation.

1103.7 Pumps. Pumps serving rainwater catchment systems shall be listed. Pumps supplying water to water closets, urinals, and trap primers shall be capable of delivering ~~not less than 15 pounds-force per square inch (psi) (100 kPa)~~a residual pressure ~~at the highest and most remote outlet served~~in accordance with the plumbing code. ~~Where the water pressure in the rainwater supply system within the building exceeds 80 psi (552 kPa), a pressure reducing valve reducing the pressure to 80 psi (552 kPa) or less to all water outlets in the building shall be installed in accordance with the plumbing code.~~

1202.0 System Requirements.

1202.2 Water Pressure. Reclaimed (recycled) water systems supplying water to water closets, urinals, and trap primers shall be capable of delivering ~~not less than 15 pounds-force per square inch (psi) (100 kPa)~~a residual pressure ~~at the highest and most remote outlet served~~in accordance with the plumbing code. ~~Where the water pressure in the reclaimed water supply system within the building exceeds 80 psi (552 kPa), a pressure reducing valve reducing the pressure to 80 psi (552 kPa) or less to water outlets in the building shall be installed.~~

A 103.0 System Requirements.

A 103.8 Pumps. Pumps serving rainwater catchment systems shall be listed for potable water use. Pumps supplying water to water closets, urinals, and trap primers shall be capable of delivering ~~not less than the minimum~~a residual pressure ~~required by the highest and most remote outlet served~~in accordance with the plumbing code. ~~Where the water pressure in the rainwater supply system within the building exceeds 80 psi (552 kPa), a pressure reducing valve reducing the pressure to 80 psi (552 kPa) or less to water outlets in the building shall be installed in accordance with the plumbing code.~~

Substantiation:
As approved during the proposal stage, Section 302.3 (Water Pressure) now references the plumbing code for specific requirements for residual pressure delivered to fixtures. For consistency, other instances throughout the standard are also being updated.

> ***[2025 WEStand ROP]***
> ***302.3 Water Pressure.*** *Onsite treated nonpotable water systems supplying water to water closets, urinals, and trap primers shall be capable of delivering a residual pressure in accordance with the plumbing code.*

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
092

Code Number:
2023 WE-Stand

Section Number:
1101.7, 1103.5, Table 1103.5, Table 1401.1

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

1101.0 General.

~~**1101.7 Minimum Water Quality Requirements.** The minimum water quality for rainwater catchment systems shall meet the applicable water quality requirements for the intended application as determined by the Authority Having Jurisdiction. Water quality for nonpotable rainwater catchment systems shall comply with Section 1103.5.~~
~~**Exceptions:**~~
~~(1) Water treatment is not required for rainwater catchment systems used for aboveground irrigation with a maximum storage capacity of 360 gallons (1363 L).~~
~~(2) Water treatment is not required for rainwater catchment systems used for nonspray irrigation.~~

(renumber remaining sections)

1103.0 Design and Installation.

1103.5 Minimum Water Quality. The minimum water quality for harvested rainwater shall meet the applicable water quality requirements for the intended applications as determined by the Authority Having Jurisdiction. In the absence of water quality requirements determined by the Authority Having Jurisdiction, the minimum treatment and water quality shall be in accordance with Table 1103.5, ARCSA/ASPE/ANSI 63, IAPMO/ANSI ~~IGC 324~~Z1324, or NSF/ANSI 350.
Exception: ~~No treatment is required for rainwater used for subsurface or nonsprinkled surface irrigation where the maximum storage volume is less than 360 gallons (1363 L).~~Where treatment is provided in accordance with Table 1103.5 and the harvested rainwater is used for one or more of the following applications:
(1) Car washing.
(2) Subsurface and drip irrigation.
(3) Spray irrigation where the maximum storage volume of harvested rainwater is less than 360 gallons (1363 L).

TABLE 1103.5
MINIMUM WATER QUALITY AND TREATMENT

APPLICATION	MINIMUM TREATMENT	MINIMUM WATER QUALITY
Car washing	Debris excluder or other approved means in compliance with Section 1103.11, and 100 Micron (100 µm) in compliance with Section 1103.12 for drip irrigation.	N/A

Subsurface and drip irrigation	Debris excluder or other approved means in compliance with Section 1103.11, and 100 Micron (100 µm) in compliance with Section 1103.12 for drip irrigation.	N/A
Spray irrigation where the maximum storage volume is less than 360 gallons (1363 L)	Debris excluder or other approved means in compliance with Section 1103.11, and Disinfection in accordance with Section 1103.9.	N/A
Spray irrigation where the maximum storage volume is equal to or greater than 360 gallons (1363 L)	Debris excluder or other approved means in compliance with Section 1103.11.	Escherichia coli: < 100 CFU/100 mL, and Turbidity: < 10 NTU
Urinal and water closet flushing, clothes washing, and trap priming	Debris excluder or other approved means in compliance with Section 1103.11, and 100 Micron (100 µm) in compliance with Section 1103.12.	Escherichia coli: < 100 CFU/100 mL, and Turbidity: < 10 NTU
Ornamental fountains and other water features	Debris excluder or other approved means in compliance with Section 1103.11.	Escherichia coli: < 100 CFU/100 mL, and Turbidity: < 10 NTU
Cooling tower make up water	Debris excluder or other approved means in compliance with Section 1103.11, and 100 Micron (100 µm) in compliance with Section 1103.12.	Escherichia coli: < 100 CFU/100 mL, and Turbidity: < 10 NTU

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
IAPMO/ANSI ~~IGC 324~~Z1324-~~2019~~2022*	Alternate Water Source Systems for Multi-Family, Residential, and Commercial Use	701.7, 704.8, Table 802.9(2), 902.1.1, Table 902.9(2), Table 1002.9(2), 1103.5

(portions of table not shown remain unchanged)

Note: ARCSA/ASPE/ANSI 63 and IAPMO/ANSI Z1324 meet the requirements for mandatory referenced standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
Section 1101.7 (Minimum Water Quality Requirements) and Section 1103.5 (Minimum Water Quality) contain overlapping and conflicting requirements. Section 1101.7 incorrectly refers to minimum water quality of the rainwater catchment system instead of “harvested rainwater,” and reference is made to Section 1103.5 for nonpotable rainwater catchment systems when the entire chapter is only applicable to nonpotable systems.

The exceptions also conflict with those provided in Section 1103.5, and reference is made to “treatment” which is not addressed within the section.

In Section 1103.5, the exception states that “treatment” isn’t required for the listed applications. According to Table 1103.5, the exception should be for minimum water quality requirements since these applications still require treatment (filtration). Based on this, the exception has been revised to correlate with Table 1103.5 which doesn’t require minimum water quality when complying with the prescribed method of minimum treatment.

Lastly, reference to ARCSA/ASPE/ANSI 63 is being proposed, and IAPMO IGC 324 is being updated to IAPMO/ANSI Z1324.

> ARCSA/ASPE/ANSI 63 (Rainwater Catchment Systems) specifies treatment, filtration, and water quality to ensure water meets the intended use requirements.
>
> IAPMO IGC 324 has been superseded by IAPMO/ANSI Z1324.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
092	2023 WE-Stand	1103.5, 1103.11, 1103.12, Table 1103.5

Submitter Name:	Organization Name:	Organization Representation:
Markus Lenger	WEStand Log Reduction Targets Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal <u>as modified</u> by this public comment.

1103.0 Design and Installation.

1103.5 Minimum Water Quality. The minimum water quality for harvested rainwater shall meet the applicable water quality requirements for the intended applications as determined by the Authority Having Jurisdiction. In the absence of water quality requirements determined by the Authority Having Jurisdiction, the minimum ~~treatment and~~ water quality for harvested rainwater shall be in accordance with Table 1103.5, ARCSA/ASPE/ANSI 63, IAPMO/ANSI Z1324, or NSF/ANSI 350.

~~**Exception:** Where treatment is provided in accordance with Table 1103.5 and the harvested rainwater is used for one or more of the following applications:~~

~~(1) Car washing.~~

~~(2) Subsurface and drip irrigation.~~

~~(3) Spray irrigation where the maximum storage volume of harvested rainwater is less than 360 gallons (1363 L).~~

~~TABLE 1103.5~~

~~MINIMUM WATER QUALITY AND TREATMENT~~

~~APPLICATION~~	~~MINIMUM TREATMENT~~	~~MINIMUM WATER QUALITY~~
~~Car washing~~	~~Debris excluder or other approved means in compliance with Section 1103.11, and 100 microns in compliance with Section 1103.12 for drip irrigation.~~	~~N/A~~
~~Subsurface and drip irrigation~~	~~Debris excluder or other approved means in compliance with Section 1103.11, and 100 microns in compliance with Section 1103.12 for drip irrigation.~~	~~N/A~~
~~Spray irrigation where the maximum storage volume is less than 360 gallons~~	~~Debris excluder or other approved means in compliance with Section 1103.11, and Disinfection in accordance with Section 1103.9.~~	~~N/A~~
~~Spray irrigation where the maximum storage volume is equal to or greater than 360 gallons~~	~~Debris excluder or other approved means in compliance with Section 1103.11.~~	~~Escherichia coli: < 100 CFU/100 mL, and Turbidity: < 10 NTU~~
~~Urinal and water closet flushing, clothes washing, and trap priming~~	~~Debris excluder or other approved means in compliance with Section 1103.11, and 100 microns in compliance with Section 1103.12.~~	~~Escherichia coli: < 100 CFU/100 mL, and Turbidity: < 10 NTU~~
~~Ornamental fountains and other water features~~	~~Debris excluder or other approved means in compliance with Section 1103.11.~~	~~Escherichia coli: < 100 CFU/100 mL, and Turbidity: < 10 NTU~~
~~Cooling tower make up water~~	~~Debris excluder or other approved means in compliance with Section 1103.11, and 100 microns in compliance with Section 1103.12.~~	~~Escherichia coli: < 100 CFU/100 mL, and Turbidity: < 10 NTU~~

~~For SI units: 1 gallon = 3.785 L~~

TABLE 1103.5
MINIMUM WATER QUALITY FOR NONPOTABLE RAINWATER CATCHMENT SYSTEMS

WATER USE SCENARIO	MINIMUM WATER QUALITY
Vehicle washing	N/A
Subsurface and drip irrigation	
Spray irrigation (maximum storage volume < 360 gallons)	
Spray irrigation (maximum storage volume ≥ 360 gallons)	Escherichia coli: < 100 CFU/100 mL Turbidity: < 10 NTU
Ornamental fountains and other water features	
Water closets, urinals, clothes washers, and trap primers	
Fire suppression sprinklers	
Cooling towers	

For SI units: 1 gallon = 3.785 L

~~1103.11~~**1103.6 Debris Removal.** The rainwater catchment conveyance system shall be equipped with a debris excluder or other approved means to prevent ~~the accumulation of~~ leaves, needles, other debris, and sediment from entering the rainwater storage tank. ~~Devices or methods used to remove debris or sediment~~Such devices shall be accessible for maintenance and inspection and shall be sized and installed in accordance with manufacturer's installation instructions.
~~1103.12~~**1103.7** ~~**Required Filters**~~**Filtration.** A filter permitting the passage of particulates no larger than 100 microns (100 µm) shall be provided for rainwater supplied to ~~water closets, urinals, trap primers, and drip irrigation system~~applications covered by this chapter.

(renumber remaining sections)

Substantiation:

The existing exceptions in Section 1103.5 (Minimum Water Quality) are being removed since they reference applications that have no corresponding water-quality parameters.

Table 1103.5 is being revised as follows:

- Similar to the onsite treatment system chapters, the "Water Use Scenario" format is being used.
- Treatment methods are being removed. Only water quality parameters are being listed. All water use scenarios require 100-micron filtration, debris removal is already addressed elsewhere in the chapter, and disinfection is only required when minimum water quality is not achieved.
- Fire suppression sprinklers have been added to reflect their inclusion in Section 1104.0.
- The specified parameters for Escherichia coli and turbidity are being applied to spray irrigation (maximum storage volume ≥ 360 gallons). Previously, this was incorrectly applied to spray irrigation (maximum storage volume < 360 gallons), which may have been an oversight when originally inserted into the standard.

Section 1103.6 (Debris Removal): The updated debris-removal language clarifies that debris excluders and similar devices must prevent solids such as leaves, needles, and sediment from entering the rainwater storage tank and must be accessible for inspection and maintenance, which is essential for maintaining long-term system performance and preventing clogging of downstream filters and pumps.

Section 1103.7 (Filtration): Expanding the filtration requirement to apply to all applications covered by the chapter reinforces that 100-micron filtration is already a baseline treatment requirement for all nonpotable rainwater uses in the existing standard, rather than only for specific end uses like water closets, urinals, or drip irrigation. Previously, this conflicted with Section 1103.5 and Table 1103.5 which specified 100-micron filtration for each water use scenario.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
093

Code Number:
2023 WE-Stand

Section Number:
1103.9 – 1103.9.2

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

1103.0 Design and Installation.

1103.9 Water Quality Devices and Equipment. Devices and equipment used to treat harvested rainwater ~~to maintain the minimum water quality requirements determined by the Authority Having Jurisdiction shall be listed or labeled (third party certified) by a listing agency (accredited conformity assessment body) and approved for the intended application~~shall be listed for such use and installed in accordance with the manufacturer's installation instructions.Filtration and disinfection systems shall be located downstream of the rainwater storage tank.
1103.9.1 Ozone Systems. Where installed, ozone systems shall comply with AWWA F120. Ozone systems shall be equipped with an airflow switch monitored by a controller as well as an oxidation reduction potential (ORP) sensor.
1103.9.2 UV Disinfection Systems. Where installed, ultraviolet microbiological treatment systems shall be in accordance with NSF/ANSI 55. A minimum of 2 inline filters, one 5 micron (5 µm) filter followed by one 0.5-1 micron (0.5-1µm) filter, shall be installed prior to the UV disinfection system.

Note: AWWA F120 and NSF/ANSI 55 meet the requirements for mandatory referenced standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
This proposal updates the requirements for water treatment devices and equipment as follows:

Section 1103.9 (Water Quality Devices and Equipment): The language is being updated to clarify that harvested rainwater is being treated. General listing requirements are then being removed as they are already addressed in Section 301.2 (Minimum Standards). See below:

> ***[2023 WEStand]***
> ***301.2 Minimum Standards.*** *Pipe, pipe fittings, traps, fixtures, material, and devices shall be listed (third-party certified) by a listing agency (accredited conformity assessment body) as complying with the approved applicable recognized standards referenced in this standard, and shall be free from defects. Unless otherwise provided for in this standard, materials, fixtures, or devices used or entering into the construction of plumbing systems, or parts thereof, shall be submitted to the Authority Having Jurisdiction for approval prior to being installed.*

Section 1103.9.1 (Ozone Systems): New requirements for ozone systems are being added. These systems must be listed to AWWA F120 (Ozone Systems for Water) which provides a minimum set of requirements for ozone systems for the treatment of potable water, wastewater, reclaimed water, and storm water. Additionally, ozone systems must be equipped with an airflow switch to ensure ozone is flowing properly and an ORP sensor to indicate the effectiveness of the treatment.

Section 1103.9.2 UV Disinfection Systems: New requirements for UV disinfection systems are being added. These systems must be listed to NSF/ANSI 55 (Ultraviolet Microbiological Water Treatment Systems) which defines performance and safety requirements for UV systems used to treat microbial contaminants. For reference, NSF 350 requires validation of UV system performance in accordance with NSF/ANSI 55. Filtration requirements are then included to ensure both large and fine particles are removed prior to treatment. This filtration is necessary since particles can block or absorb the UV rays, making the UV light less effective at disinfection.

Committee Action:
Reject

Committee Statement:
The proposed revisions to Section 1103.9 (Water Quality Devices and Equipment) introduce overly restrictive and impractical requirements. As written, the revisions would require devices and equipment to be specifically listed for the treatment of harvested rainwater. Additionally, the new subsections only address ozone and UV systems, which implies that treatment is limited to these methods.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
23	2	0	4

EXPLANATION OF NEGATIVE:
KOELLER: I agree with Ed Osann's comments.

OSANN: This proposal contains important updates that should be incorporated into the 2027 WEStand. I disagree with the assertion in the committee's reason statement that the language implies treatment is limited to the two enumerated methods. Neither method is required, and treatment itself is not mandated.

While I believe the proposal as submitted is acceptable, the sentence regarding the positioning of treatment systems downstream from a storage tank could be revised through a public comment to further clarify that treatment of harvested rainwater is not required in all cases.

EXPLANATION OF AFFIRMATIVE:
KEHOE: I agree with Ed Osann's comments.

KENDZEL: Although I agree with Ed Osann's comments, I believe the TC's rejection can be addressed through public comment. The committee's role is to avoid wordsmithing while providing the proponent with sufficient direction in the rationale for rejection so they can consider submitting a revised proposal.

KLEIN: I agree with Ed Osann's comments about how to improve the wording.

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	**Code Number:**	**Sections(s):**
093	2023 WE-Stand	1103.9 – 1103.9.3

Submitter Name:	**Organization Name:**	**Organization Representation:**
Markus Lenger	WEStand Log Reduction Targets Task Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to replace the code change proposal by this public comment.

1103.0 Design and Installation.

~~**1103.9 Water Quality Devices and Equipment.** Devices and equipment used to treat rainwater to maintain the minimum water quality requirements determined by the Authority Having Jurisdiction shall be listed or labeled (third-party certified) by a listing agency (accredited conformity assessment body) and approved for the intended application.~~

1103.9 Disinfection. Where disinfection of harvested rainwater is required to maintain minimum water quality in accordance with Section 1103.5, the method of disinfection shall comply with one or more of the following:
(1) Chlorination in accordance with Section 1103.9.1.
(2) Ozonation in accordance with Section 1103.9.2.
(3) Ultraviolet disinfection in accordance with Section 1103.9.3.
(4) Other methods of disinfection, where approved by the Authority Having Jurisdiction.
Disinfection devices and systems shall be installed in accordance with the manufacturer's installation instructions and shall be located downstream of the rainwater storage tank.

1103.9.1 Chlorination. Where chlorine is used for disinfection, the chlorine dosage shall be determined by the total chlorine level required for disinfection. Where dechlorination is required for the intended end use, a means of dechlorination shall be provided to meet the water quality parameters for free chlorine as approved by the Authority Having Jurisdiction. Chlorine disinfection systems shall be equipped with ORP sensors, or equivalent, to determine the concentration of free available chlorine.

1103.9.2 Ozone Systems. Where installed, ozone systems shall comply with AWWA F120. Ozone systems shall be equipped with an airflow switch monitored by a controller as well as an oxidation reduction potential (ORP) sensor.

1103.9.3 UV Disinfection Systems. Where installed, ultraviolet microbiological treatment systems shall be in accordance with NSF/ANSI 55. A minimum of 2 inline filters, one 5 micron (5 µm) filter followed by one 0.5-1 micron (0.5-1µm) filter, shall be installed prior to the UV disinfection system.

Note: AWWA F120 and NSF/ANSI 55 meet the requirements for mandatory referenced standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:

Section 1103.9 (Water Quality Devices and Equipment): The language is being removed as such provisions are already addressed in Section 301.2 (Minimum Standards). See below:

> ***[2023 WEStand]***
>
> ***301.2 Minimum Standards.*** *Pipe, pipe fittings, traps, fixtures, material, and devices shall be listed (third-party certified) by a listing agency (accredited conformity assessment body) as complying with the approved applicable recognized standards referenced in this standard, and shall be free from defects. Unless otherwise provided for in this standard, materials, fixtures, or devices used or entering into the construction of plumbing systems, or parts thereof, shall be submitted to the Authority Having Jurisdiction for approval prior to being installed.*

The proposed Section 1103.9 (Disinfection) better aligns with the provisions in Section 1103.5 by clearly linking disinfection methods to maintaining the specified minimum water quality and by requiring disinfection equipment to be installed downstream of the storage tank. New Section 1103.9.1 through Section 1103.9.3 then establish technology-specific criteria for chlorination, ozone, and UV systems.

Section 1103.9.1 (Chlorination): Chlorination requirements ensure that dosage is based on the total chlorine level needed to achieve disinfection, provide for dechlorination where required by the intended end use, and use ORP (or equivalent) sensors to verify free available chlorine.

Section 1103.9.2 (Ozone Systems): These systems must be listed to AWWA F120 (Ozone Systems for Water) which provides a minimum set of requirements for ozone systems for the treatment of potable water, wastewater, reclaimed water, and storm water. Additionally, ozone systems must be equipped with an airflow switch to ensure ozone is flowing properly and an ORP sensor to indicate the effectiveness of the treatment.

Section 1103.9.3 (UV Disinfection Systems): These systems must be listed to NSF/ANSI 55 (Ultraviolet Microbiological Water Treatment Systems) which defines performance and safety requirements for UV systems used to treat microbial contaminants. For reference, NSF 350 requires validation of UV system performance in accordance with NSF/ANSI 55. Filtration requirements are then included to ensure both large and fine particles are removed prior to treatment. This filtration is necessary since particles can block or absorb the UV rays, making the UV light less effective at disinfection.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
23	1	0	5

EXPLANATION OF NEGATIVE:
NICKELSON: This comment now has an inconsistency with Public Comment #2 of this same item. In Public Comment #2, the committee amended Section A 103.7.2 (Ozone Systems) to add the phrase "or equivalent device" when discussing ORP sensors. However, in Public Comment #1 the committee did not take the same action for Section 1103.9.2 (Ozone Systems). This could lead to confusion as to whether equivalent devices are permitted in ozone systems.

EXPLANATION OF AFFIRMATIVE:
HARLAN: I agree with David Nickelson that we need to avoid inconsistencies, but I still support the change.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:
093

Code Number:
2023 WE-Stand

Sections(s):
A 103.6 - A 103.6.3, A 103.7 - A 103.7.3

Submitter Name:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to replace the code change proposal by this public comment.

A 103.0 System Requirements.

~~**A 103.6 Water Quality Devices and Equipment.** Devices and equipment used to treat rainwater to maintain the minimum water quality requirements determined by the Authority Having Jurisdiction shall be listed or labeled (third-party certified) by a listing agency (accredited conformity assessment body) and approved for the intended application.~~

~~A 103.6.1~~A 103.6 **Filtration Devices.** Potable water filters shall comply with NSF/ANSI 53 and shall be installed in accordance with the manufacturer's installation instructions.

~~**A 103.6.2 Disinfection Devices.** Chlorination, ozonation, and ultraviolet disinfection, or other disinfection methods shall be approved by the Authority Having Jurisdiction, or the product shall be listed according to a microbiological reduction performance standard for drinking water used to treat harvested rainwater to meet the required water quality permitted. The disinfection devices and systems shall be installed in accordance with the manufacturer's installation instructions and the conditions of listing. Disinfection devices and systems shall be located downstream of the water storage tank.~~

~~**A 103.6.3 Filtration and Disinfection Systems.** Filtration and disinfection systems shall be located after the water storage tank. Where a chlorination system is installed, it shall be installed upstream of filtration systems. Where ultraviolet disinfection system is installed, a minimum of 2 inline filters, one 5 micron (5 µm) filter followed by one 0.5-1 micron (0.5-1µm) filter, shall be installed prior to the disinfection system.~~

A 103.7 Disinfection. Where disinfection of harvested rainwater is required to maintain minimum water quality in accordance with Section A 102.2, the method of disinfection shall comply with one or more of the following:
(1) Chlorination in accordance with Section A 103.7.1.

(2) Ozonation in accordance with Section A 103.7.2.
(3) Ultraviolet disinfection in accordance with Section A 103.7.3.
(4) Other methods of disinfection, where approved by the Authority Having Jurisdiction.
Disinfection devices and systems shall be installed in accordance with the manufacturer's installation instructions and shall be located downstream of the rainwater storage tank.

A 103.7.1 Chlorination. Where chlorine is used for disinfection, the chlorine dosage shall be determined by the total chlorine level required for disinfection, and a means of dechlorination shall be provided to meet the potable water quality parameters for free chlorine as approved by the Authority Having Jurisdiction. Plans and procedures for dechlorination shall be in accordance with AWWA C655. Chlorine disinfection systems shall be equipped with ORP sensors, or equivalent, to determine the concentration of free available chlorine.

A 103.7.2 Ozone Systems. Where installed, ozone systems shall comply with AWWA F120. Ozone systems shall be equipped with an airflow switch monitored by a controller as well as an oxidation reduction potential (ORP) sensor.

A 103.7.3 UV Disinfection Systems. Where installed, ultraviolet microbiological treatment systems shall be in accordance with NSF/ANSI 55, Class A systems. A minimum of 2 inline filters, one 5 micron (5 µm) filter followed by one 0.5-1 micron (0.5-1µm) filter, shall be installed prior to the UV disinfection system.

(shown for information purposes only)

A 102.2 Minimum Water Quality Requirements. The minimum water quality at the point of use (POU) of a potable rainwater catchment system shall comply with the water quality requirements determined by the Authority Having Jurisdiction for potable water or private wells. In the absence of water quality requirements determined by the Authority Having Jurisdiction, the minimum water quality at the point of use (POU) shall be in accordance with ARCSA/ASPE/ANSI 63 and Table A 102.2 for private potable water systems, or Section A 102.2.1 for potable water systems serving public use occupancies.

Note: AWWA F120, AWWA C655, and NSF/ANSI 55 meet the requirements for mandatory referenced standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:

Section A 103.6 (Water Quality Devices and Equipment): The language is being removed as such provisions are already addressed in Section 301.2 (Minimum Standards). See below:

> ***[2023 WEStand]***
>
> ***301.2 Minimum Standards.*** *Pipe, pipe fittings, traps, fixtures, material, and devices shall be listed (third-party certified) by a listing agency (accredited conformity assessment body) as complying with the approved applicable recognized standards referenced in this standard, and shall be free from defects. Unless otherwise provided for in this standard, materials, fixtures, or devices used or entering into the construction of plumbing systems, or parts thereof, shall be submitted to the Authority Having Jurisdiction for approval prior to being installed.*

Section A 103.6.2 (Disinfection Devices) & Section A 103.6.3 (Filtration and Disinfection Systems): These sections are being deleted since the proposed sections below sufficiently address these requirements.

Section A 103.7.1 (Chlorination): Chlorination requirements are updated to ensure that dosage is based on the total chlorine level required for disinfection and that dechlorination is provided when necessary to meet potable-water quality limits for free chlorine. Dechlorination procedures must comply with AWWA C655, which establishes

standardized methods for neutralizing chlorine residuals to protect downstream fixtures and prevent excessive free-chlorine levels in distributed water. This standard is widely used in potable-water operations and provides validated procedures to ensure safe and effective dechlorination. Chlorine disinfection systems must also include ORP sensors, or equivalent devices, to verify adequate free available chlorine during operation.

Section A 103.7.2 (Ozone Systems): Ozone systems must comply with AWWA F120, which sets performance, monitoring, and safety requirements for ozone systems used in potable water, wastewater, reclaimed water, and stormwater treatment. The requirements for airflow switches and ORP sensors help confirm ozone generation, delivery, and disinfection effectiveness.

Section A 103.7.3 (UV Disinfection Systems): UV systems must comply with NSF/ANSI 55, Class A, which is the highest level of UV system performance recognized in plumbing and water-treatment standards. Class A systems are specifically designed to achieve microbiological disinfection at a level suitable for treating water that may contain pathogenic organisms. This class requires UV systems to deliver a minimum UV dose capable of inactivating bacteria, viruses, and protozoa. The required pre-filtration (5 µm followed by 0.5–1 µm) ensures UV effectiveness by removing particles that would otherwise shield microorganisms and reduce disinfection performance.

Committee Action:
Accept As Amended by the TC

Proposed Text (Modified by TC) :

A 103.0 System Requirements.

A 103.6 Filtration Devices. Potable water filters shall comply with NSF/ANSI 53 and shall be installed in accordance with the manufacturer's installation instructions.

A 103.7 Disinfection. Where disinfection of harvested rainwater is required to maintain minimum water quality in accordance with Section A 102.2, the method of disinfection shall comply with one or more of the following:
(1) Chlorination in accordance with Section A 103.7.1.
(2) Ozonation in accordance with Section A 103.7.2.
(3) Ultraviolet disinfection in accordance with Section A 103.7.3.
(4) Other methods of disinfection, where approved by the Authority Having Jurisdiction.
Disinfection devices and systems shall be installed in accordance with the manufacturer's installation instructions and shall be located downstream of the rainwater storage tank.

A 103.7.1 Chlorination. Where chlorine is used for disinfection, the chlorine dosage shall be determined by the total chlorine level required for disinfection, and a means of dechlorination shall be provided to meet the potable water quality parameters for free chlorine as approved by the Authority Having Jurisdiction. Plans and procedures for dechlorination shall be in accordance with AWWA C655. Chlorine disinfection systems shall be equipped with ORP sensors, or equivalent, to determine the concentration of free available chlorine.

A 103.7.2 Ozone Systems. Where installed, ozone systems shall comply with AWWA F120. Ozone systems shall be equipped with an airflow switch monitored by a controller as well as an oxidation reduction potential (ORP) sensor, or equivalent device.

A 103.7.3 UV Disinfection Systems. Where installed, ultraviolet microbiological treatment systems shall be in accordance with NSF/ANSI 55, Class A systems. A minimum of 2 inline filters, one 5 micron (5 µm) filter followed by one 0.5-1 micron (0.5-1µm) filter, shall be installed prior to the UV disinfection system.

Committee Statement:
Section A 103.7.2 (Ozone System) is being amended to allow the use of an equivalent device in place of an oxidation reduction potential (ORP) sensor. This revision preserves the intent of monitoring system performance while providing flexibility in the type of instrumentation used.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
23	1	0	5

EXPLANATION OF NEGATIVE:
NICKELSON: This comment now has an inconsistency with Public Comment #2 of this same item. In Public Comment #2, the committee amended Section A 103.7.2 (Ozone Systems) to add the phrase "or equivalent device" when discussing ORP sensors. However, in Public Comment #1 the committee did not take the same action for Section 1103.9.2 (Ozone Systems). This could lead to confusion as to whether equivalent devices are permitted in ozone systems.

EXPLANATION OF AFFIRMATIVE:
HARLAN: I agree with David Nickelson that we need to avoid inconsistencies, but I still support the change.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
097

Code Number:
2023 WE-Stand

Section Number:
1204.0 - 1204.5, 1205.0 - 1205.6, Table 1205.2, 1206.0 - 1206.3.2, Table 1401.1

SUBMITTER:
Fred Betz

Organization Name:
NeuMod Labs

Organization Representation:

RECOMMENDATION:
Delete text without substitution

Proposed Text :

~~**1204.0 Service Hot Water – Other Than Low-Rise Residential Buildings.**~~
~~**1204.1 General.** The service hot water, other than single-family houses, multi-family structures of three stories or fewer above grade, and modular houses, shall comply with Section 1204.2 through Section 1207.0.~~
~~**1204.2 New Buildings.** Service water heating systems and equipment shall comply with Section 1204.5. [ASHRAE 90.1:7.1.2]~~
~~**1204.3 Additions to Existing Buildings.** Service water- heating systems and equipment shall comply with Section 1204.5.~~
~~**Exception:** When the service water-heating to an addition is provided by existing service water-heating systems and equipment, such systems and equipment shall not be required to comply with this standard. However, any new systems or equipment installed must comply with specific requirements applicable to those systems and equipment. [ASHRAE 90.1:7.1.3]~~
~~**1204.4 Alterations to Service Water-Heating Systems and Equipment.** Building service water heating equipment installed as a direct replacement for existing building service water heating equipment shall comply with the requirements of Section 1204.0 applicable to the equipment being replaced. New and replacement piping shall comply with Section 1205.0.~~
~~**Exception:** Compliance shall not be required where there is insufficient space or access to meet these requirements. [ASHRAE 90.1:7.1.4]~~
~~**1204.5 Requirements for Compliance Path(s).** Service water-heating systems and equipment shall comply with Section 1204.0, Section 1205.0, Section 1206.0, Section 1207.0 of this code, and Section 7.8 of ANSI/ASHRAE/IES 90.1. [ASHRAE 90.1:7.2.1]~~

~~**1205.0 Mandatory Provisions.**~~
~~**1205.1 Load Calculations.** Service water-heating system design loads for the purpose of sizing systems and equipment shall be determined in accordance with manufacturers' published sizing guidelines or generally accepted engineering standards and handbooks acceptable to the adopting authority (e.g., ASHRAE Handbook – HVAC Applications). [ASHRAE 90.1:7.4.1]~~
~~**1205.2 Equipment Efficiency.** Water-heating equipment, hot-water supply boilers used solely for heating potable water, pool heaters, and hot-water storage tanks shall meet the criteria listed in Table 1205.2. Where multiple criteria are listed, all criteria shall be met. Omission of minimum performance requirements for certain classes of equipment does not preclude use of such equipment where appropriate. Equipment not listed in Table 1205.2 has no minimum performance requirements.~~
~~**Exceptions:** Water heaters and hot-water supply boilers having more than 140 gallons (530 L) of storage capacity are not required to meet the standby loss (SL) requirements of Table 1205.2 when all of the following criteria are met:~~
~~(1) The tank surface is thermally insulated to R-12.5,~~

~~(2) A standing pilot light is not installed, and~~
~~(3) Gas- or oil-fired storage water heaters have a flue damper or fan-assisted combustion. [ASHRAE 90.1:7.4.2]~~

~~TABLE 1205.2~~
~~PERFORMANCE REQUIREMENTS FOR WATER-HEATING EQUIPMENT MINIMUM EFFICIENCY REQUIREMENTS~~
~~[ASHRAE 90.1: TABLE 7.4-1]~~

(delete table in its entirety)

~~**1205.3 Insulation.** Insulation of hot water and return piping shall meet the provisions in Section 1201.2.~~
~~**1205.4 Hot Water System Design.** Hot water system design shall comply with Section 1205.4.1 and Section 1205.4.2.~~
~~**1205.4.1 Recirculation Systems.** Recirculation systems shall meet the provisions in Section 1202.0.~~
~~**1205.4.2 Maximum Volume of Hot Water.** The maximum volume of water contained in hot water distribution lines between the water heater and the fixture stop or connection to showers, kitchen faucets, and lavatories shall be determined in accordance with Section 1203.8.~~
~~**1205.5 Service Water-Heating System Controls.** Temperature controls shall comply with Section 1205.5.1 and Section 1205.5.2.~~
~~**1205.5.1 Temperature Controls.** Temperature controls shall be provided that allow for storage temperature adjustment from 120°F (49°C) or lower to a maximum temperature compatible with the intended use.~~
~~**Exception:** When the manufacturers' installation instructions specify a higher minimum thermostat setting to minimize condensation and resulting corrosion. [ASHRAE 90.1:7.4.4.1]~~
~~**1205.5.2 Outlet Temperature Controls.** Temperature controlling means shall be provided to limit the maximum temperature of water delivered from lavatory faucets in public facility restrooms to 110°F (43°C). [ASHRAE 90.1:7.4.4.3]~~
~~**1205.6 Heat Traps.** Vertical pipe risers serving storage water heaters and storage tanks not having integral heat traps and serving a nonrecirculating system shall have heat traps on both the inlet and outlet piping as close as practical to the storage tank. A heat trap is a means to counteract the natural convection of heated water in a vertical pipe run. The means shall be either of the following:~~
~~(1) A device specifically designed for the purpose or an arrangement of tubing that forms a loop of 360 degrees (6.28 rad) or~~
~~(2) Piping that from the point of connection to the water heater (inlet or outlet) includes a length of piping directed downward before connection to the vertical piping of the supply water or hot water distribution system, as applicable. [ASHRAE 90.1:7.4.6]~~

~~**1206.0 Prescriptive Path.**~~
~~**1206.1 Space Heating and Service Water Heating.** The use of a gas fired or oil fired space heating boiler system otherwise complying with Section 1204.0 to provide the total space heating and service water heating for a building is allowed when one of the following conditions is met:~~
~~(1) The single space heating boiler, or the component of a modular or multiple boiler system that is heating the service water, has a standby loss in Btu/h (kW) not exceeding (13.3 × pmd + 400)/n, where (pmd) is the probable maximum demand in gallons per hour (gph) (L/h), determined in accordance with the procedures described in generally accepted engineering standards and handbooks, and (n) is the fraction of the year when the outdoor daily mean temperature is greater than 64.9°F (18.28°C).~~
~~The standby loss shall be determined for a test period of 24 hours duration while maintaining a boiler water temperature of at least 90°F (50°C) above ambient, with an ambient temperature between 60°F (16°C) and 90°F (32°C). For a boiler with a modulating burner, this test shall be conducted at the lowest input.~~

~~(2) It is demonstrated to the satisfaction of the Authority Having Jurisdiction that the use of a single heat source will consume less energy than separate units.~~
~~(3) The energy input of the combined boiler and water heater system is less than 150 000 Btu/h (44 kW). [ASHRAE 90.1:7.5.1]~~
~~**1206.2 Service Water Heating Equipment.** Service water heating equipment used to provide the additional function of space heating as part of a combination (integrated) system shall satisfy all stated requirements for the service water heating equipment. [ASHRAE 90.1:7.5.2]~~
~~**1206.3 Heat Recovery for Service Water Heating.** Heat recovery systems shall comply with Section 1206.3.1 and Section 1206.3.2.~~
~~**1206.3.1 Condenser.** Condenser heat recovery systems shall be installed for heating or preheating of service hot water provided all of the following are true:~~
~~(1) The facility operates 24 hours a day.~~
~~(2) The total installed heat rejection capacity of the water-cooled systems exceeds 6 000 000 Btu/h (1758 kW) of heat rejection.~~
~~(3) The design service water heating load exceeds 1 000 000 Btu/h (293 kW). [ASHRAE 90.1:6.5.6.2.1]~~
~~**1206.3.2 Capacity.** The required heat recovery system shall have the capacity to provide the lesser of the following:~~
~~(1) Sixty percent of the peak heat rejection load at design conditions, or~~
~~(2) Preheat of the peak service hot water draw to 85°F (29°C).~~
~~**Exceptions:**~~
~~(1) Facilities that employ condenser heat recovery for space heating with a heat recovery design exceeding 30 percent of the peak water-cooled condenser load at design conditions.~~
~~(2) Facilities that provide 60 percent of their service water heating from on-site renewable energy or site recovered energy or from other sources. [ASHRAE 90.1:6.5.6.2.2]~~

(renumber remaining sections)

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
~~10 CFR 430~~	~~Energy Conservation Program for Consumer Products~~	~~Table 1205.2~~
~~10 CFR 431.106~~	~~Uniform Test Method for the Measurement of Energy Efficiency of Commercial Water Heating Equipment~~	~~Table 1205.2~~

(portions of table not shown remain unchanged)

SUBSTANTIATION:
With respect to the established scope limitations of both ASHRAE 191P and WEStand, this code change proposal removes requirements pertaining to equipment performance and energy efficiency from WEStand Chapter 12 (Water Heating Design, Equipment, and Installation).

Committee Action:
Reject

Committee Statement:
Before removing these requirements, the committee requests that all affected sections be reviewed by a working group to determine their applicability to either plumbing or mechanical systems, with any resulting recommendations submitted as public comments for further consideration. Additionally, the substantiation is ambiguous and lacks technical justification to support the proposed changes.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
097	2023 WE-Stand	1303.0, 1303.1, 1303.4, 1304.0 – 1307.1, Table 1305.2, Table 1501.1

Submitter Name:	Organization Name:	Organization Representation:
Gary Klein	WEStand/ASHRAE 191P Working Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

1303.0 ~~Service Hot Water –~~ **Low-Rise Residential Buildings.**
1303.1 General. ~~The service~~Domestic water heating systems for single-family houses, multi-family structures of three stories or fewer above grade, and modular houses shall be in accordance with Section 1303.2 through Section 1303.8. ~~The service water heating system of all~~ Domestic water heating systems for other buildings shall be in accordance with Section 1304.0.

~~**1303.4 Central Water Heating Equipment.** Service water heating equipment (central systems) that does not fall under the requirements for residential type service water heating equipment addressed in Section 1303.0 shall meet the applicable requirements for service water heating equipment found in Section 1304.0.~~

(renumber remaining sections)

1304.0 ~~Service Hot Water –~~ **Other Than Low-Rise Residential Buildings.**

1304.1 General. ~~The service hot water,~~Domestic water heating systems for buildings other than single-family houses, multi-family structures of three stories or fewer above grade, and modular houses, shall comply with Section ~~1304.2 through Section 1307.0~~1301.0, Section 1302.0, and ANSI/ASHRAE/IES 90.1.

~~**1304.2 New Buildings.** Service water-heating systems and equipment shall comply with Section 1304.5. [ASHRAE 90.1:7.1.2]~~

~~**1304.3 Additions to Existing Buildings.** Service water- heating systems and equipment shall comply with Section 1304.5.~~

~~**Exception:** When the service water-heating to an addition is provided by existing service water-heating systems and equipment, such systems and equipment shall not be required to comply with this standard. However, any new systems or equipment installed must comply with specific requirements applicable to those systems and equipment. [ASHRAE 90.1:7.1.3]~~

~~**1304.4 Alterations to Service Water-Heating Systems and Equipment.** Building service water-heating equipment installed as a direct replacement for existing building service water-heating equipment shall comply with the requirements of Section 1304.0 applicable to the equipment being replaced. New and replacement piping shall comply with Section 1305.0.~~

~~**Exception:** Compliance shall not be required where there is insufficient space or access to meet these requirements. [ASHRAE 90.1:7.1.4]~~

~~**1304.5 Requirements for Compliance Path(s).** Service water-heating systems and equipment shall comply with Section 1304.0, Section 1305.0, Section 1306.0, Section 1307.0 of this code, and ANSI/ASHRAE/IES 90.1. [ASHRAE 90.1:7.2.1]~~

~~**1305.0 Mandatory Provisions.**~~

~~**1305.1 Load Calculations.** Service water-heating system design loads for the purpose of sizing systems and equipment shall be determined in accordance with manufacturers' published sizing guidelines or generally accepted engineering standards and handbooks acceptable to the adopting authority (e.g., ASHRAE Handbook – HVAC Applications). [ASHRAE 90.1:7.4.1]~~

~~**1305.2 Equipment Efficiency.** Water heating equipment, hot water supply boilers used solely for heating potable water, pool heaters, and hot-water storage tanks shall meet the criteria listed in Table 1305.2. Where multiple criteria are listed, all criteria shall be met. Omission of minimum performance requirements for certain classes of equipment does not preclude use of such equipment where appropriate. Equipment not listed in Table 1305.2 has no minimum performance requirements.~~

~~**Exceptions:** Water heaters and hot water supply boilers having more than 140 gallons (530 L) of storage capacity are not required to meet the standby loss (SL) requirements of Table 1305.2 when all of the following criteria are met:~~

~~(1) The tank surface is thermally insulated to R-12.5,~~

~~(2) A standing pilot light is not installed, and~~

~~(3) Gas- or oil-fired storage water heaters have a flue damper or fan-assisted combustion. [ASHRAE 90.1:7.4.2]~~

~~TABLE 1305.2~~

~~PERFORMANCE REQUIREMENTS FOR WATER-HEATING EQUIPMENT MINIMUM EFFICIENCY REQUIREMENTS~~

~~[ASHRAE 90.1: TABLE 7.4-1]~~

(delete table in its entirety)

~~**1305.3 Insulation.** Insulation of hot water and return piping shall meet the provisions in Section 1301.2.~~
~~**1305.4 Hot Water System Design.** Hot water system design shall comply with Section 1305.4.1 and Section 1305.4.2.~~
~~**1305.4.1 Recirculation Systems.** Recirculation systems shall meet the provisions in Section 1302.0.~~
~~**1305.4.2 Maximum Volume of Hot Water.** The maximum volume of water contained in hot water distribution lines between the water heater and the fixture stop or connection to showers, kitchen faucets, and lavatories shall be determined in accordance with Section 1303.8.~~
~~**1305.5 Service Water-Heating System Controls.** Temperature controls shall comply with Section 1305.5.1 and Section 1305.5.2.~~
~~**1305.5.1 Temperature Controls.** Temperature controls shall be provided that allow for storage temperature adjustment from 120°F (49°C) or lower to a maximum temperature compatible with the intended use.~~
~~**Exception:** When the manufacturers' installation instructions specify a higher minimum thermostat setting to minimize condensation and resulting corrosion. [ASHRAE 90.1:7.4.4.1]~~
~~**1305.5.2 Outlet Temperature Controls.** Temperature controlling means shall be provided to limit the maximum temperature of water delivered from lavatory faucets in public facility restrooms to 110°F (43.5°C). [ASHRAE 90.1:7.4.4.3]~~
~~**1305.6 Heat Traps.** Vertical pipe risers serving storage water heaters and storage tanks not having integral heat traps and serving a nonrecirculating system shall have heat traps on both the inlet and outlet piping as close as practical to the storage tank. A heat trap is a means to counteract the natural convection of heated water in a vertical pipe run. The means shall be either of the following:~~
~~(1) A device specifically designed for the purpose or an arrangement of tubing that forms a loop of 360 degrees (6.28 rad) or~~
~~(2) Piping that from the point of connection to the water heater (inlet or outlet) includes a length of piping directed downward before connection to the vertical piping of the supply water or hot-water distribution system, as applicable. [ASHRAE 90.1:7.4.6]~~

~~**1306.0 Prescriptive Path.**~~
~~**1306.1 Space Heating and Service Water-Heating.** The use of a gas fired or oil fired space heating boiler system otherwise complying with Section 1304.0 to provide the total space heating and service water heating for a building is allowed when one of the following conditions is met:~~
~~(1) The single space heating boiler, or the component of a modular or multiple boiler system that is heating the service water, has a standby loss in Btu/h (kW) not exceeding (13.3 × pmd + 400)/n, where (pmd) is the probable maximum demand in gallons per hour (gph) (L/h), determined in accordance with the procedures described in generally accepted engineering standards and handbooks, and (n) is the fraction of the year when the outdoor daily mean temperature is greater than 65°F (18.5°C).~~
~~The standby loss shall be determined for a test period of 24 hours duration while maintaining a boiler water temperature of at least 90°F (50°C) above ambient, with an ambient temperature between 60°F (15.5°C) and 90°F (32°C). For a boiler with a modulating burner, this test shall be conducted at the lowest input.~~
~~(2) It is demonstrated to the satisfaction of the Authority Having Jurisdiction that the use of a single heat source will consume less energy than separate units.~~
~~(3) The energy input of the combined boiler and water heater system is less than 150 000 Btu/h (44 kW). [ASHRAE 90.1:7.5.1]~~
~~**1306.2 Service Water-Heating Equipment.** Service water heating equipment used to provide the additional function of space heating as part of a combination (integrated) system shall satisfy all stated requirements for the service water heating equipment. [ASHRAE 90.1:7.5.2]~~
~~**1306.3 Heat Recovery for Service Water-Heating.** Heat recovery systems shall comply with Section 1306.3.1 and Section 1306.3.2.~~

~~**1306.3.1 Condenser.** Condenser heat recovery systems shall be installed for heating or preheating of service hot water provided all of the following are true:~~
~~(1) The facility operates 24 hours a day.~~
~~(2) The total installed heat rejection capacity of the water-cooled systems exceeds 6 000 000 Btu/h (1758 kW) of heat rejection.~~
~~(3) The design service water heating load exceeds 1 000 000 Btu/h (293 kW). [ASHRAE 90.1:6.5.6.2.1]~~
~~**1306.3.2 Capacity.** The required heat recovery system shall have the capacity to provide the lesser of the following:~~
~~(1) Sixty percent of the peak heat rejection load at design conditions, or~~
~~(2) Preheat of the peak service hot water draw to 85°F (29.5°C).~~
~~**Exceptions:**~~
~~(1) Facilities that employ condenser heat recovery for space heating with a heat recovery design exceeding 30 percent of the peak water-cooled condenser load at design conditions.~~
~~(2) Facilities that provide 60 percent of their service water heating from onsite renewable energy or site recovered energy or from other sources. [ASHRAE 90.1:6.5.6.2.2]~~

~~**1307.0 Submittals.**~~
~~**1307.1 General.** The Authority Having Jurisdiction shall require submittal of compliance documentation and supplemental information, in accordance with Section 105.0 of this standard and the applicable mechanical and building codes.~~

TABLE 1501.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
~~AHRI 1160-2022*~~	~~Performance Rating of Heat Pump Pool Heaters~~	~~Table 1305.2~~
~~ANSI/ASHRAE 146-2020*~~	~~Methods of Test for Rating Pool Heaters~~	~~Table 1305.2~~
~~10 CFR 430~~	~~Energy Conservation Program for Consumer Products~~	~~Table 1305.2~~
~~10 CFR 431.106~~	~~Uniform Test Method for the Measurement of Energy Efficiency of Commercial Water Heating Equipment~~	~~Table 1305.2~~
~~CSA/ANSI Z21.10.3-2019(R2024) /CSA 4.3-2019(R2024)*~~	~~Gas Fired Water Heaters, Volume III, Storage Water Heaters with Input Ratings Above 75,000 Btu per Hour, Circulating and Instantaneous~~	~~Table 1305.2~~

(portions of table not shown remain unchanged)

Substantiation:
In alignment with the scope limitations of WEStand, requirements in Chater 13 (Water Heating Design, Equipment, and Installation) addressing the design, performance, and operational characteristics of mechanical systems are being deleted. Water heating provisions are being retained for low-rise residential buildings where directly related to plumbing system design and water conservation, such as distribution system configurations that reduce the water wasted while waiting for hot water. The deleted sections prescribe performance and operational characteristics such as minimum equipment efficiency, temperature regulation requirements, and heater control strategies. All of these elements pertain to the mechanical functioning of the heating equipment.

Additionally, references to the term “service water heating” are being updated to “domestic water heating” to more appropriately describe the water delivered to fixtures for uses such as handwashing, bathing, cleaning, food preparation, etc. The term “service water heating” is more commonly used in mechanical or energy codes, which treat water heating as part of a building’s mechanical system.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
097	2023 WE-Stand	1302.6, 1302.7, 1303.0, 1303.3, 1303.5

Submitter Name:	Organization Name:	Organization Representation:
Gary Klein	WEStand/ASHRAE 191P Working Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

1302.0 Recirculation Systems.

1302.6 Air Elimination. Provisions shall be made for the elimination of air from the return system.
1302.7 Gravity or ~~Thermosyphon~~Thermosiphon Systems. Gravity or ~~thermosyphon~~thermosiphon systems ~~are prohibited~~shall not be permitted.

1303.0 ~~Service Hot Water —~~Low-Rise Residential Buildings.

1303.3 Recirculation Systems. Recirculation systems shall ~~meet the provisions in~~comply with Section 1302.0.

1303.5 Insulation. Insulation for hot water and return piping shall comply with ~~the provisions of~~ Section 1301.2.

Substantiation:
The proposed updates are needed to correct grammar and to provide consistent and enforceable requirements.

Committee Action:
Accept As Amended by the TC

Proposed Text (Modified by TC) :

1302.0 Recirculation Systems.

1302.6 Air Elimination. Provisions shall be made for the elimination of air from the return system.
1302.7 Gravity or ~~Thermosiphon~~Thermosyphon Systems. Gravity or ~~thermosiphon~~thermosyphon systems shall not be permitted.

1303.0 Low-Rise Residential Buildings.

1303.3 Recirculation Systems. Recirculation systems shall comply with Section 1302.0.

1303.5 Insulation. Insulation for hot water and return piping shall comply with Section 1301.2.

Committee Statement:
For correlation with the plumbing code, references to "thermosiphon" are being updated to "thermosyphon."

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 3

Item #:	Code Number:	Sections(s):
097	2023 WE-Stand	1303.0, 1303.6, 1308.1

Submitter Name:	Organization Name:	Organization Representation:
Gary Klein	WEStand/ASHRAE 191P Working Group (Chair)	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

1303.0 ~~Service Hot Water —~~ Low-Rise Residential Buildings.

~~**1303.6 Hard Water.** Where water has hardness equal to or exceeding 9 grains per gallon (gr/gal) (150 mg/L) measured as total calcium carbonate equivalents, the water supply line to water heating equipment in new one- and two-family dwellings shall be roughed-in to allow for the installation of water treatment equipment.~~

(renumber remaining sections)

1308.0 Hard Water.
1308.1 Softening and Treatment. ~~Where water has hardness equal to or exceeding 10 grains per gallon (gr/gal) (170 mg/L) measured as total calcium carbonate equivalents, the water supply line to water heating equipment and the circuit of boilers shall be softened or treated to prevent accumulation of lime scale and consequent reduction in energy efficiency.~~Where water hardness is less than 10 grains per gallon (gr/gal) (170 mg/L) measured as total calcium carbonate equivalents, the water supply line to domestic water heating equipment shall not be softened or treated.

Substantiation:
Section 1303.6 (Hard Water) and Section 1308.1 (Softening and Treatment) unnecessarily specify different limits for water hardness.

Section 1303.6: Applicable to water heating equipment in new one- and two- family dwellings and dictates when a rough-in for a water softener is required.

Section 1308.1: Dictates the condition for when softening is required to prevent scaling.

As written, neither of these requirements promote water efficiency and conservation. Water softeners use periodic regeneration cycles, which send water and brine to drain to recharge the resin bed. These cycles consume large amounts of water, sometimes tens of gallons per cycle. Therefore, a single requirement under Section 1308.1 is being proposed which prohibits softening where water hardness is already low.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 4

Item #:
097

Code Number:
2023 WE-Stand

Sections(s):
418.2, 418.4, 1302.1.2, 1302.3, 1305.1, 1305.5.1, 1305.5.2, 1306.3.2, Table 1305.2, Table 1501.1

Submitter Name:
Emily Toto

Organization Name:
ASHRAE

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

418.0 Swimming Pools, Spas, and Hot Tubs.

418.2 On and Off Switch. Pool~~, spa, and hot tub~~ heaters shall be equipped with a readily accessible on and off switch to allow shutting off the heater without adjusting the thermostat setting. Pool heaters fired by natural gas shall not have continuously burning pilot lights. [~~{~~ASHRAE 90.1:7.4.5.1~~}~~]

418.4 Time Switches. Time switches shall be installed on swimming pool~~, spa, and hot tub~~ heaters and pumps.
Exceptions:
(1) Where public health standards require 24-hour pump operation.
(2) Where pumps are required to operate solar and waste heat recovery pool heating systems. [~~{~~ASHRAE 90.1:7.4.5.3~~}~~]

1302.0 Recirculation Systems.
1302.1 Pump Operation. (remaining text unchanged)

1302.1.2 Circulating Pump Controls. When used to maintain storage tank water temperature, recirculating pumps shall be equipped with controls limiting operation to a period from the start of the heating cycle to a maximum of 5 minutes after the end of the heating cycle. [ASHRAE 90.1:~~7.4.4.4~~7.4.4.3]
1302.3 Temperature Maintenance Controls. Systems designed to maintain usage temperatures in hot-water pipes, such as recirculating hot-water systems or heat trace, shall be equipped with automatic time switches or other controls that can be set to switch off the usage temperature maintenance system during extended periods when hot water is not required. [ASHRAE 90.1:~~7.4.4.2~~7.4.4.1]

1305.0 Mandatory Provisions.
1305.1 Load Calculations. Service water-heating system design loads for the purpose of sizing systems and equipment shall be determined in accordance with the manufacturer's~~'~~ published sizing guidelines or generally accepted engineering standards and handbooks acceptable to the adopting authority (e.g., ASHRAE Handbook – HVAC Applications). [ASHRAE 90.1:7.4.1]

1305.5 Service Water-Heating System Controls. (remaining text unchanged)

~~**1305.5.1 Temperature Controls.** Temperature controls shall be provided that allow for storage temperature adjustment from 120°F (49°C) or lower to a maximum temperature compatible with the intended use.~~
~~**Exception:** When the manufacturers' installation instructions specify a higher minimum thermostat setting to minimize condensation and resulting corrosion. [ASHRAE 90.1:7.4.4.1]~~
~~1305.5.2~~**1305.5.1 Outlet Temperature Controls.** Temperature controlling means shall be provided to limit the maximum temperature of water delivered from lavatory faucets in public facility restrooms to ~~110~~120°F (~~43.5~~49°C). [ASHRAE 90.1:~~7.4.4.3~~7.4.4.2]

1306.0 Prescriptive Path.

1306.3 Heat Recovery for Service Water-Heating. (remaining text unchanged)

1306.3.2 Capacity. The required heat recovery system shall have the capacity to provide the lesser of the following:
(1) Sixty percent of the peak heat rejection load at design conditions, or
(2) Preheat of the peak service hot water draw to 85°F (29.5°C).
Exceptions:
(1) Facilities that employ condenser heat recovery for space heating with a heat recovery design exceeding 30 percent of the peak water-cooled condenser load at design conditions.
(2) Facilities that provide 60 percent of their annual service water-heating from on-site renewable energy or site-recovered energy or from other sources. {~~[~~ASHRAE 90.1:6.5.6.2.2~~]~~}

TABLE 1305.2
PERFORMANCE REQUIREMENTS FOR WATER-HEATING EQUIPMENT-MINIMUM EFFICIENCY REQUIREMENTS
[ASHRAE 90.1: TABLE 7.4-1]

EQUIPMENT TYPE	SIZE CATEGORY (INPUT)	SUBCATEGORY OR RATING CONDITION	PERFORMANCE REQUIRED[1]	PROCEDURE TEST[2,3]
Electric storage water heaters	>12 kW[5]	<4000 (Btu/h)/gal	$SL \leq 0.3 + 27/Vm$ %/h	10 CFR 431.106
Electric instantaneous water heaters	>58.6 kW[3]	≥4000 (Btu/h)/gal <10 gal	No requirement	~~—~~ 10 CFR 430 Appendix E
		≥4000 (Btu/h)/gal ≥10 gal	No requirement	~~—~~ 10 CFR 430 Appendix E
		<4000 (Btu/h)/gal >55 gal and ≤100 gal	See footnote 7	10 CFR 430 Appendix E
Oil instantaneous water heaters	≤210 000 Btu/h	≥4000 (Btu/h)/gal <2 gal	80% E_t $EF \geq 0.59 - 0.0005 \times V$	10 CFR 430 Appendix E ~~as it appeared as of 1/1/2014~~
Pool heaters, gas	All	—	82% E_t for commercial pool heaters~~7~~	10 CFR 430 Appendix P

Notes:

[1] (remaining text unchanged)

[2] ~~Section 13 of~~ ANSI/ASHRAE/IES 90.1 contains a complete specification, including the year version, of the referenced test procedure.

[3] Electric instantaneous water heaters with input ~~capacities~~capacity greater than ~~40 000~~41 000 Btu/h (~~11.7~~12 kW) and less than or equal to 200 000 Btu/h (58.6 kW) shall comply with the requirements for the greater than 200 000 Btu/h (58.6 kW) if the water heater meets one of the following conditions:
(a) - (c) (remaining text unchanged)

[4] Gas storage water heaters with input ~~capacities~~capacity greater than 75 000 Btu/h (22 kW) and less than or equal to 105 000 Btu/h (30.8 kW) shall comply with the requirements for the greater than 105 000 Btu/h (30.8 kW) if the water heater meets one of the following conditions:
(a) - (c) (remaining text unchanged)

[5] Oil storage water heaters with input ~~capacities~~capacity greater than 105 000 Btu/h (30.8 kW) and less than or equal to 140 000 Btu/h (41 kW) ~~must~~shall comply with the requirements for the greater than 140 000 Btu/h (41 kW) if the water heater meets one of the following conditions:
(a) - (c) (remaining text unchanged)

[6] Refer to ~~Section 7.5.3 of~~ ANSI/ASHRAE/IES 90.1 for additional requirements for gas storage and instantaneous water heaters and gas hot-water supply boilers.

[7] Water heaters or gas pool heaters in this category or subcategory are regulated as consumer products by the U.S. Department of Energy (U.S. DOE) as defined in 10 CFR 430. ~~See Informative Appendix F of ANSI/ASHRAE/IES 90.1 for the U.S. DOE efficiency requirements applicable to these water heaters and pool heaters.~~

(portions of table not shown remain unchanged)

TABLE 1501.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
ANSI/ASHRAE/IES 90.1-2022*	Energy Standard for Sites and Buildings Except Low-Rise Residential Buildings (with Addenda h and dn)	1304.5, Table 1305.2

(portions of table not shown remain unchanged)

Note: ANSI/ASHRAE/IES 90.1 meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:
In accordance with Section 16.0 of the IAPMO Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard (Extract Guidelines), the above sections are being revised to correlate with ASHRAE 90.1-2022 (latest version), including Addendum h and Addendum dn.

Read-only versions of ASHRAE standards may be accessed via the following link: Preview ASHRAE Standards & Guidelines

Committee Action:
Reject

Committee Statement:
Public Comment #4 is being rejected in favor of the action taken on Public Comment #1.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
098

Code Number:
2023 WE-Stand

Section Number:
1210.0, 1210.1

SUBMITTER:
Fred Betz

Organization Name:
NeuMod Labs

Organization Representation:

RECOMMENDATION:
Delete text without substitution

Proposed Text :

~~1210.0 Heat Recovery from Steam Boiler Blowdown.~~
~~1210.1 General. Where heat recovery can be used beneficially to heat boiler makeup water or for other purposes, boiler blowdown from steam boilers exceeding 15 psig (103 kPa) and 3 400 000 BTU/h (996.4 kW) shall be directed to a heat recovery system that reduces the temperature of the blowdown discharge to below 140°F (60°C) without using tempering water.~~

SUBSTANTIATION:
With respect to the established scope limitations of both ASHRAE 191P and WEStand, this code change proposal removes requirements pertaining to steam boiler heat recovery from WEStand Chapter 12 (Water Heating Design, Equipment, and Installation).

Committee Action:
Reject

Committee Statement:
Before removing these requirements, the committee requests that all affected sections be reviewed by a working group to determine their applicability to either plumbing or mechanical systems, with any resulting recommendations submitted as public comments for further consideration. Additionally, the substantiation is ambiguous and lacks technical justification to support the proposed changes.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
098

Code Number:
2023 WE-Stand

Sections(s):
1310.0, 1310.1

Submitter Name:
Gary Klein

Organization Name:
WEStand/ASHRAE 191P Working Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as submitted** by this public comment.

Substantiation:
In alignment with the scope limitations of WEStand, Section 1310.0 (Heat Recovery from Steam Boiler Blowdown) and Section 1310.1 (General) are being deleted. Steam boilers are mechanical equipment, and the heat recovery requirements in Section 1310.1 pertain to boiler operation, not plumbing systems.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

EXPLANATION OF AFFIRMATIVE:
OSANN: I am voting affirmative, while noting a concern regarding the removal of provisions from WEStand prior to the adoption of comparable language by ASHRAE. The status of ASHRAE 191-P remains uncertain, as it has not yet been approved despite extensive committee development over more than a decade.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
100

Code Number:
2023 WE-Stand

Section Number:
302.3, Chapter 13, Appendix H, Table 1401.1

SUBMITTER:
Jim Majerowicz

Organization Name:
Plumbers Local 130, UA

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

~~CHAPTER 13~~APPENDIX H
~~INSTALLER~~PROFESSIONAL QUALIFICATIONS

~~1301.0~~H 101.0 **General.**
~~1301.1~~H 101.1 **Scope.** The provisions of this chapter address minimum qualifications of installers of systems covered within the scope of this standard.

~~1302.0~~H 102.0 **Qualifications.**
~~1302.1~~H 102.1 **General.** Where permits are required, the Authority Having Jurisdiction shall have the authority to require contractors, installers, or service technicians to demonstrate competency. Where determined by the Authority Having Jurisdiction, the contractor, installer, or service technician shall be licensed to perform such work. Professional qualifications shall be required for an individual to demonstrate the required level of competency.
H 102.2 Inspectors and Plans Examiners. Professional qualification for plumbing inspectors and plumbing plans examiners shall be qualified in accordance with ASSE/IAPMO/ANSI Series 16000.
H 102.2.1 Qualification for Plumbing Inspectors. Professional qualification for plumbing inspectors shall be in accordance with ASSE/IAPMO/ANSI 16010.
H 102.2.2 Qualification for Plumbing Plan Examiners. Professional qualification for plumbing plans examiners shall be in accordance with ASSE/IAPMO/ANSI 16040.
H 102.3 Service Plumber Technicians. Professional qualification for plumbing service technicians shall be qualified to ASSE/IAPMO/ANSI Series 13000.
H 102.3.1 Qualification for Service Plumbers. Professional qualification for service plumbers shall be in accordance ASSE/IAPMO/ANSI 13010.
H 102.4 Cross-Connection Control. Professional qualification for cross-connection control professionals shall be in accordance with ASSE/IAPMO/ANSI Series 5000.
H 102.4.1 Qualification for Backflow Testers. Professional qualification for backflow assembly testers shall be in accordance with ASSE/IAPMO/ANSI 5110.
H 102.4.2 Qualification for Surveyors. Professional qualification for cross-connection assembly surveyors shall be qualified in accordance with ASSE/IAPMO/ANSI 5120.
H 102.4.3 Qualification for Repairers. Professional qualification for backflow prevention assembly repairers shall be in accordance with ASSE/IAPMO/ANSI 5130.
H 102.4.4 Qualification for Program Administrators. Professional qualification for backflow prevention administrator shall be in accordance with ASSE/IAPMO/ANSI 5150.

H 102.5 Water Management and Infection Control Risk Assessment for Building Systems. Professional qualification for construction and maintenance personnel and employers to identify and manage potentially hazardous exposure to bloodborne, waterborne and airborne pathogens. Also includes qualifications for members of a water safety team involved in the development of a risk assessment analysis, and water management and sampling plan, for protection from Legionella and other waterborne pathogens and persons who conduct a facility risk assessment and implement a water safety and management program to reduce the risk of infections due to Legionella. Qualifications are in accordance with ASSE/IAPMO/ANSI Series 12000.

H 102.5.1 Environment of Care, Infection Control and Construction Risk Assessment Professional Qualification Standard. Professional qualification for general knowledge of the environment of care, infection control and construction risk assessment procedures to protect facility operations, occupants, workers or any individual who has the potential for harm caused by construction activities shall be in accordance with ASSE/IAPMO/ANSI 12010.

H 102.5.2 Environment of Care, Infection Control and Construction Risk Assessment Professional Qualification Standard for Construction and Maintenance Employers. Professional qualification for general knowledge of the environment of care, infection control and construction risk assessment requirements and procedures to protect facility operations, occupants, workers, or any individual who has the potential for harm caused by construction activities shall be in accordance with ASSE/IAPMO/ANSI 12020. It also provides general knowledge of employer responsibilities to the worker and to the facility.

H 102.5.3 Water Quality Program Professional Qualifications Standard for Employers and Designated Representatives. Professional qualification for employers and designated representatives implementing water quality programs shall be in accordance with ASSE/IAPMO/ANSI 12060.

H 102.5.4 Qualification for Water Quality Program, Plumbers. Professional qualification for plumbers implementing a water quality program shall be in accordance with ASSE/IAPMO/ANSI 12061.

H 102.5.5 Qualification for Water Quality Program and Pipefitters. Professional qualification for pipefitters implementing a water quality program shall be in accordance with ASSE/IAPMO/ANSI 12062.

H 102.5.6 Legionella Water Safety and Management Specialists. Professional qualification for persons who conduct a facility risk assessment and implement a water safety and management program to reduce the risk of infections due to Legionella shall be in accordance with ASSE/IAPMO/ANSI 12080.

H 102.6 Rainwater Catchment System Personnel. Professional qualification for designers and installers of rainwater catchment systems, and inspectors of rainwater/stormwater catchment systems shall be in accordance with ASSE/ARCSA/IAPMO/ANSI Series 21000.

H 102.6.1 Qualification for Installers. Professional qualification for rainwater catchment systems installers shall be in accordance with ASSE/ARCSA/IAPMO/ANSI 21110.

H 102.6.2 Qualification for Designers. Professional qualification for rainwater catchment system designers shall be in accordance with ASSE/ARCSA/IAPMO/ANSI 21120.

H 102.6.3 Qualification for Inspectors. Professional qualification for rainwater and stormwater catchment systems inspectors shall be in accordance with ASSE/ARCSA/IAPMO/ANSI 21130.

(renumber remaining chapters)

302.0 Installation.

302.3 Qualifications. Where permits are required, the Authority Having Jurisdiction shall have the authority to require contractors, installers, or service technicians to demonstrate competency. Where determined by the Authority Having Jurisdiction, the contractor, installer or service technician shall be licensed to perform such work. (See Appendix H for recommended minimum qualifications for installers, inspectors, or employers for systems covered within the scope of this standard.)

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
ASSE/IAPMO/ANSI Series 5000-2022[e1]*	Cross-Connection Control Professional Qualifications Standard	H 102.4
ASSE/IAPMO/ANSI 5110-2022[e1]*	Backflow Prevention Assembly Testers	H 102.4.1
ASSE/IAPMO/ANSI 5120-2022[e1]*	Cross-Connection Control Surveyor/Specialist	H 102.4.2
ASSE/IAPMO/ANSI 5130-2022[e1]*	Backflow Prevention Assembly Repairers	H 102.4.3
ASSE/IAPMO/ANSI 5150-2022[e1]*	Backflow Prevention Program Administrators	H 102.4.4
ASSE/IAPMO/ANSI Series 12000-2024*	Professional Qualifications Standard for Water Management and Infection Control Risk Assessment for Building Systems	H 102.5
ASSE/IAPMO/ANSI 12010-2024*	Environment of Care, Infection Control and Construction Risk Assessment Professional Qualification Standard	H 102.5.1
ASSE/IAPMO/ANSI 12020-2024*	Environment of Care, Infection Control and Construction Risk Assessment Professional Qualification Standard for Construction and Maintenance Employers	H 102.5.2
ASSE/IAPMO/ANSI 12060-2024*	Water Quality Program Professional Qualifications Standard for Employers and Designated Representatives	H 102.5.3
ASSE/IAPMO/ANSI 12061-2024*	Water Quality Program Professional Qualifications Standard for Plumbers	H 102.5.4
ASSE/IAPMO/ANSI 12062-2024*	Water Quality Program Professional Qualifications Standard for Pipefitters and HVAC Technicians	H 102.5.5
ASSE/IAPMO/ANSI 12080-2024*	Professional Qualifications Standard for Legionella Water Safety and Management Specialist	H 102.5.6
ASSE/IAPMO/ANSI Series 13000-2015(R2020)*	Service Plumber and Residential Mechanical Service Technician Professional Qualifications Standard	H 102.3
ASSE/IAPMO/ANSI 13010-2015(R2020)*	Professional Qualifications Standard for the Service Plumber	H 102.3.1
ASSE/IAPMO/ANSI Series 16000-2019(R2025)*	Professional Qualifications Standard for Inspectors and Plans Examiners	H 102.2
ASSE/IAPMO/ANSI 16010-2019(R2025)*	Plumbing Inspector	H 102.2.1
ASSE/IAPMO/ANSI 16040-2019(R2025)*	Plumbing Plan Examiner	H 102.2.2
ASSE/ARCSA/IAPMO/ANSI Series 21000-2022*	Rainwater Catchment Systems Personnel	H 102.6

ASSE/ARCSA/IAPMO/ANSI 21110-2022*	Rainwater Catchment Systems Installers	H 102.6.1
ASSE/ARCSA/IAPMO/ANSI 21120-2022*	Rainwater Catchment Systems Designers	H 102.6.2
ASSE/ARCSA/IAPMO/ANSI 21130-2022*	Inspectors of Rainwater and Stormwater Catchment Systems	H 102.6.3

(portions of table not shown remain unchanged)

Note: The ASSE standards meet the requirements for mandatory referenced standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
A new appendix is being proposed which provides minimum qualifications for installers, inspectors, or employers for systems covered within the scope of this standard. These professional qualifications serve as a baseline for determining competency.

Committee Action:
Reject

Committee Statement:
The committee has concerns regarding the availability of these certifications and associated required training. Additionally, the existing language in Section H 102.1 (General) contains conflicting requirements. Furthermore, there are additional appropriate qualifications beyond those specified in this proposal.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

EXPLANATION OF AFFIRMATIVE:
KENDZEL: I agree with the TC rejection; however, I believe the rationale needs significant expansion. Prior to considering the inclusion of any professional qualification standards, significant work is needed to determine what is an acceptable standard for qualifications and what criteria should be required for an acceptable qualification certification program.

We have this type of fully defined systems for product certification/listing but not for personnel certification. The ASSE/IAPMO standards are ANSI accredited; however, the ANSI accreditation is not relevant for the development of a standard intended to be used by personnel certification programs. The ANSI consensus process is not sufficient for the development of a standard designed for use in personnel certification programs. ANSI/ANAB does provide accreditation programs for personnel certification programs, and it is based on the ISO 17024 standard. The ASSE/IAPMO standards that are in this proposal do not set up a program to comply with ISO 17024.

Careful consideration needs to be taken to ensure that the same rigor we place on the use of product standards and the approval of listing bodies is developed for personnel qualification standards prior to considering their addition to the standard or an appendix to the standard. In addition, personnel qualification requirements should be left to the professional licensing bodies, which are not the typical Authority Having Jurisdiction using the WEStand.

Finally, as I stated during the meeting, appendices are written in mandatory language in order for a AHJ to adopt the appendix. Therefore, we should be as stringent in our review of an appendix as we are with the body of the standard. So, all of my issues expressed on Item # 099 apply to this proposal.

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
100

Code Number:
2023 WE-Stand

Sections(s):
302.5, Chapter 14, Appendix H, Table 1501.1

Submitter Name:
Jim Majerowicz

Organization Name:
Plumbers Local 130, UA

Organization Representation:

Recommendation:
Accept the Code Change Proposal as Submitted

Proposed Text:

Request to accept the code change proposal **as submitted** by this public comment.

Substantiation:
WEStand covers systems that require specialized technical knowledge, yet the base standard does not establish minimum competency requirements for the individuals who install, design, inspect, or maintain these systems.

To address this issue, Appendix H references nationally recognized ASSE/IAPMO/ANSI professional qualifications that provide clear and measurable competency standards aligned with the technical needs of the systems covered in WEStand. These qualifications ensure that work is performed by individuals with verified knowledge and skills, which helps reduce installation errors, safety risks, and performance issues.

By including these qualifications in Appendix H, jurisdictions gain a consistent method for determining who is qualified to perform this work, and they may adopt and require these professional qualifications if they choose. The appendix also includes specialized qualifications for water management and infection risk mitigation, which are essential for addressing issues such as Legionella.

Read-only versions of the ASSE/IAPMO/ANSI standards are provided for your review via the following links: ASSE/IAPMO/ANSI Series 5000, ASSE/IAPMO/ANSI Series 12000, ASSE/IAPMO/ANSI Series 13000, ASSE/IAPMO/ANSI Series 16000, ASSE/ARCSA/IAPMO/ANSI Series 21000

Committee Action:
Reject

Committee Statement:
The proposed new appendix on professional qualifications introduces certification and training requirements that are not consistently available across jurisdictions. The limited availability of these certifications and the associated training creates an unnecessary barrier on compliance and enforcement. Additionally, there are other available options that should be included.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:	Code Number:	Sections(s):
100	2023 WE-Stand	415.3

Submitter Name:	Organization Name:	Organization Representation:
Jazmin Curiel	Self	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to replace the code change proposal by this public comment.

415.0 Landscape Design and Installation.

~~**415.3 Qualifications.** Where permits are required, the Authority Having Jurisdiction shall have the authority to require contractors, installers, or service technicians to demonstrate competency. Where determined by the Authority Having Jurisdiction, the irrigation contractor, installer, or service technician shall be approved to perform such work.~~

(renumber remaining sections)

Substantiation:
Section 415.3 (Qualifications) is being deleted as the requirements are already addressed in Chapter 3 (General Regulations), which applies to all systems covered by the WEStand.

[2025 WEStand ROP]

302.5 Qualifications. *Where permits are required, the Authority Having Jurisdiction shall have the authority to require contractors, installers, or service technicians to demonstrate competency. Where determined by the Authority Having Jurisdiction, the contractor, installer or service technician shall be licensed to perform such work.*

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
101

Code Number:
2023 WE-Stand

Section Number:
A 101.1 - A 101.4

SUBMITTER:
Shuo-Jan Teng

Organization Name:
Self

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

A 101.0 General.
A 101.1 ~~Scope~~**Applicability.** The provisions of this appendix shall apply to the design, installation, construction, ~~alteration,~~ and ~~repair~~maintenance of ~~potable~~ rainwater catchment systems for potable applications.
~~A 101.3~~**A 101.2 Permit.** It shall be unlawful for any person to construct, install, or alter, or cause to be constructed, installed, or altered any potable rainwater catchment systems in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.
~~A 101.3.1~~**A 101.2.1 Plumbing Plan Submission.** No permit for any rainwater catchment system ~~requiring a permit~~ shall be issued until complete plumbing plans, with appropriate data satisfactory to the Authority Having Jurisdiction, have been submitted and approved. ~~No changes or connections shall be made to either the rainfall catchment or the potable water system within any site containing a rainwater catchment water system without approval by the Authority Having Jurisdiction.~~
~~A 101.3.2~~**A 101.2.2 System Changes.** No changes or connections shall be made to either the rainwater catchment system or the potable water system within any site containing a rainwater catchment system requiring a permit without approval by the Authority Having Jurisdiction.
~~A 101.2~~**A 101.3** ~~System Design~~**Qualifications.** Potable rainwater catchment systems complying with this appendix shall be designed by a registered design professional or person deemed competent by the Authority Having Jurisdiction to perform potable rainwater catchment system design work.
A 101.4 Seismic Provisions. Where required, rainwater catchment systems shall be seismically restrained against earthquakes in accordance with the building code.

SUBSTANTIATION:
Appendix A is being reorganized to clearly dictate design versus system requirements. Revisions are also being proposed to consolidate repeated requirements and improve enforceability and adoptability. Due to the length of Appendix A, the proposed updates are being separated by header sections. This proposal addresses the following issues:

Section A 101.1 (Applicability): This appendix provides "design, installation, construction, and maintenance" of these systems. Alterations and repairs are addressed in Section 102.4 (Additions, Alterations, Renovations, or Repairs). Also, the other chapters in WEStand identify the system addressed and then specify the application. In this case, the appendix covers "rainwater catchment systems for potable applications."

> ***[2023 WEStand]***
> ***102.4 Additions, Alterations, Renovations, or Repairs.*** *Additions, alterations, renovations, or repairs shall not cause an existing system to become unsafe, insanitary, or overloaded. Additions, alterations, renovations, or repairs to existing installations shall comply with the provisions for new construction unless such deviations are found to be necessary and are first approved by the Authority Having Jurisdiction.*

Section A 101.2.1 (Plumbing Plan Submission): Connections are already addressed in another section within this appendix. Also, a simple cleanup is required for the first sentence.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
101	2023 WE-Stand	1101.1, 1102.2, 1102.3

Submitter Name:	Organization Name:	Organization Representation:
Shuo-Jan Teng	CA Department of Water Resources	Self

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

1101.0 General.
1101.1 ~~Scope~~**Applicability**. The provisions of this chapter shall apply to the design, installation, construction, ~~alteration,~~ and ~~repair~~maintenance of ~~nonpotable~~ rainwater catchment systems for nonpotable applications.

1101.3 Permit. (remaining text unchanged)
~~1102.2~~**1101.3.1 Plumbing Plan Submission.** (remaining text unchanged)
~~1102.3~~**1101.3.2 System Changes.** (remaining text unchanged)

(renumber remaining sections)

Substantiation:
The revisions align Chapter 11 with the updated structure and applicability language already accepted in Appendix A. Appendix A governs potable rainwater catchment systems, while Chapter 11 governs nonpotable systems, and updating Chapter 11 maintains consistent organization and terminology between the two sections.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
103

Code Number:
2023 WE-Stand

Section Number:
A 101.5 - A 101.6, A 101.8, A 101.9, A 102.0 - A 102.3, A 103.0 - A 103.4, A 104.0 - A 104.12

SUBMITTER:
Shuo-Jan Teng

Organization Name:
Self

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

A 103.0 System Requirements.
A 103.1 General. Potable rainwater catchment systems shall be installed in accordance with Section A 103.1 through Section A 103.14.
A 103.2 Materials. Materials used in potable rainwater catchment systems shall be in accordance with Section A 103.2.1 through Section A 103.2.6.
~~A 101.8~~A 103.2.1 ~~Material~~ **Compatibility.** In addition to the requirements of this appendix, potable rainwater catchment systems shall be constructed of materials that are compatible with the type of pipe and fitting materials and water conditions in the system.
~~A 101.9~~A 103.2.2 **System Controls.** Controls for pumps, valves, and other devices that contain mercury that come in contact with the water supply are prohibited.
~~A 103.1~~A 103.2.3 **Collections Surfaces.** ~~The~~Rainwater collection surfaces ~~for potable applications~~ shall be constructed of a hard, impervious material. Roof materials used as collection surfaces shall not be constructed of wood and shall not contain~~ing~~ lead, arsenic, or biocides ~~shall be prohibited~~. Roof coatings, paints, and liners shall comply with NSF P151 and shall not contain lead, chromium, or zinc.
~~**A 103.1.1 Prohibited.** Roof paints and coatings with lead, chromium, or zinc are prohibited. Wood roofing material and lead flashing are prohibited.~~
~~A 103.0 Potable Rainfall Catchment System Materials.~~
~~A 103.2~~A 103.2.4 ~~Rainwater Catchment~~ **System Drainage** ~~Materials~~**.** Gutters and downspouts used in rainwater catchment drainage systems shall be made from metal or plastic pipe that meets the requirements of NSF/ANSI 14 and NSF/ANSI/CAN 61. All rainwater system components under the scope of NSF/ANSI/CAN 61 shall comply with it. Additional rainwater components under the scope of NSF P151 shall comply with it.
~~A 103.3~~A 103.2.5 **Storage Tanks.** Rainwater storage shall be in accordance with Section A 104.5.
~~A 103.4~~A 103.2.6 **Water Supply and Distribution** ~~Materials~~**.** Potable rainwater supply and distribution materials shall be in accordance with the requirements of the plumbing code for potable water supply and distribution systems.
~~A 102.0~~A 103.3 **Connections.**
~~A 102.1 General.~~ No water piping supplied by a potable rainwater catchment system shall be connected to any other source of supply without the approval of the Authority Having Jurisdiction~~, Health Department or other department having jurisdiction~~.
~~A 102.2~~A 103.3.1 **Connections to Public or Private Potable Water Systems.** Potable rainwater catchment systems shall have no direct connection to any public or private potable water supply or alternate water source system. Potable water from a public or private potable water system shall be permitted to be used as makeup water to the rainwater storage tank provided the public or private potable water supply connection is protected by an airgap or reduced-pressure principle backflow preventer in accordance with the plumbing code.
~~A 102.3~~A 103.3.2 **Backflow Prevention.** The potable rainwater catchment system shall be protected against backflow in accordance with the plumbing code.

~~A 104.4~~A 103.4 **Overhanging Tree Branches and Vegetation.** Tree branches and vegetation shall not be located over the roof or other aboveground rainwater collection surface. Where existing tree branch and vegetation growth extends over the rainwater collection surface, it shall be removed as required in Section A 101.5.
~~A 104.0 Design and Installation.~~
~~A 104.1~~A 103.5 Rainwater **Collection** ~~Surfaces~~**.** Rainwater shall be collected from roofs or other cleanable aboveground surfaces specifically designed for rainwater catchment. Rainwater catchment systems shall not collect rainwater from the following sources:
(1) Vehicular parking surfaces.
(2) Surface water runoff.
(3) Bodies of standing water.
~~A 104.1.1~~A 103.5.1 **Prohibited Discharges.** Overflows, condensate, and bleed-off pipes from roof-mounted equipment and appliances shall not discharge onto roof surfaces that are intended to collect rainwater.
~~A 104.3~~A 103.6 **Water Quality Devices and Equipment.** (remaining text unchanged)

(renumber remaining subsections)

~~A 104.5~~A 103.7 **Rainwater Storage Tanks.** (remaining text unchanged)

(renumber remaining subsections)

~~A 104.6~~A 103.8 **Pumps.** (remaining text unchanged)
~~A 104.7~~A 103.9 **Roof Drains.** (remaining text unchanged)
~~A 104.8~~A 103.10 **Freeze Protection.** (remaining text unchanged)
~~A 104.9~~A 103.11 **Roof Washer or Pre-Filtration System.** (remaining text unchanged)

(renumber remaining subsections)

~~A 104.10~~A 103.12 **Roof Gutters.** (remaining text unchanged)
~~A 104.11~~A 103.13 **Drains, Conductors, and Leaders.** (remaining text unchanged)
~~A 104.12~~A 103.14 **Size of Potable Water Piping.** (remaining text unchanged)

~~A 101.5~~A 104.0 **Maintenance and Inspection.**
A 104.1 General. Potable rainwater catchment systems and components shall be inspected and maintained in accordance with Section ~~A 101.5.1~~A 104.2 through Section ~~A 101.5.3~~A 104.4.

~~A 101.5.1~~A 104.2 **Frequency.** (remaining text unchanged)
~~A 101.5.2~~A 104.3 **Maintenance Log.** (remaining text unchanged)
~~A 101.5.3~~A 104.4 **Maintenance Responsibility.** (remaining text unchanged)
~~A 101.6~~A 104.5 **Operation and Maintenance Manual.** (remaining text unchanged)

(renumber remaining subsections)

SUBSTANTIATION:
Appendix A is being reorganized to clearly dictate design versus system requirements. Revisions are also being proposed to consolidate repeated requirements and improve enforceability and adoptability. Due to the length of Appendix A, the proposed updates are being separated by header sections. This proposal contains revisions only pertaining to system requirements, including materials, construction, and installation of systems, equipment, and components.

Section A 103.2.3 (Collections Surfaces): This section consolidates the existing material requirements for roofs which are used as collection surfaces.

Section A 103.3 (Connections): By definition, the Authority Having Jurisdiction (AHJ) includes the health department. Therefore, only the AHJ needs to be referenced in this section.

> ***[2023 WEStand]***
> ***203.0 (-A-)***
> ***Authority Having Jurisdiction.*** *The organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, installations, or procedures. The Authority Having Jurisdiction shall be a federal, state, local, or other regional department or an individual such as a plumbing official, mechanical official, labor department official, health department official, building official, or others having statutory authority. In the absence of a statutory authority, the Authority Having Jurisdiction may be some other responsible party. This definition shall include the Authority Having Jurisdiction's duly authorized representative.*

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
103	2023 WE-Stand	Chapter 11

Submitter Name:	Organization Name:	Organization Representation:
Shuo-Jan Teng	CA Department of Water Resources	Self

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

1102.0 Design Requirements.
~~1103.5~~1102.1 **Minimum Water Quality.** (remaining text unchanged)

1103.0 ~~Design and Installation~~System Requirements.
1103.1 ~~Rainwater Catchment Systems~~General. ~~The design and installation of n~~Nonpotable rainwater catchment systems shall be installed in accordance with Section 1103.2 through Section ~~1103.15~~1103.22.

1103.2 Materials. Materials used in nonpotable rainwater catchment systems shall be in accordance with Section 1103.2.1 through Section 1103.2.6.

~~1101.7~~**1103.2.1** ~~Material~~ **Compatibility.** Rainwater catchment systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system.

~~1101.8~~**1103.2.2** **System Controls.** Controls for pumps, valves, and other devices that contain mercury that come in contact with rainwater supply are prohibited.

~~**1102.7 Rainwater Catchment System Materials.** Rainwater catchment system materials shall be in accordance with Section 1102.7.1 through Section 1102.7.4.~~

~~1102.7.4~~**1103.2.3** **Collections Surfaces.** The collection surface shall be constructed of a hard, impervious material.

~~1102.7.2~~**1103.2.4** ~~Rainwater Catchment~~ **System Drainage** ~~Materials~~**.** Materials used in rainwater catchment drainage systems, including gutters, downspouts, conductors, and leaders shall comply with the requirements of the plumbing code for storm drainage.

~~1102.7.3~~**1103.2.5** **Storage Tanks.** Rainwater storage tanks shall be in accordance with Section 1103.6.

~~1102.7.1~~**1103.2.6** **Water Supply and Distribution** ~~Materials~~**.** Rainwater catchment water supply and distribution materials shall comply with the requirements of the plumbing code for potable water supply and distribution systems, unless otherwise provided for in this section.

~~1102.4~~**1103.3** **Connections to Potable or Reclaimed (Recycled) Water Systems.** (remaining text unchanged)

~~1103.7~~**1103.4** **Pumps.** (remaining text unchanged)

~~1102.5~~**1103.5** **Initial Cross-Connection Test.** (remaining text unchanged)

~~1103.3~~**1103.6** **Deactivation and Drainage for Cross-Connection Test.** (remaining text unchanged)

~~1101.9~~**1103.7** **Separation Requirements.** (remaining text unchanged)

1103.8 Overhanging Tree Branches and Vegetation. Tree branches and vegetation shall not be located over the roof or other aboveground rainwater collection surface. Where existing tree branch and vegetation growth extends over the rainwater collection surface, it shall be removed as required in Section 1104.0.

~~1103.4~~**1103.9** **Rainwater** ~~Catchment~~ **Collection** ~~Surfaces~~**.** Rainwater shall be collected from roof surfaces or other manmade, aboveground collection surfaces.Rainwater catchment systems shall not collect rainwater from the following sources:

(1) Vehicular parking surfaces.

(2) Surface water runoff.

(3) Bodies of standing water.

~~**1103.4.1 Other Surfaces.** Natural precipitation collected from surface water runoff, vehicular parking surfaces or manmade surfaces at or below grade shall comply with the stormwater requirements for onsite treated nonpotable water systems in Chapter 10.~~

~~1103.4.2~~**1103.10** **Prohibited Discharges.** (remaining text unchanged)

~~1103.9~~**1103.11** **Water Quality Devices and Equipment.** (remaining text unchanged)

~~1103.11~~**1103.12** **Debris Removal.** (remaining text unchanged)

~~1103.12~~**1103.13** **Required Filters.** (remaining text unchanged)

~~1103.6~~**1103.14** **Rainwater Storage Tanks.** (remaining text unchanged)

(renumber remaining subsections)

~~1103.10~~**1103.15** **Freeze Protection.** (remaining text unchanged)

~~1103.8~~**1103.16** **Roof Drains.** (remaining text unchanged)

~~1103.13~~**1103.17** **Roof Gutters.** (remaining text unchanged)

~~1102.6~~**1103.18** ~~Sizing~~**Drains, Conductors, and Leaders.** The design and size of rainwater drains, gutters, conductors, and leaders shall be in accordance with the plumbing code.

~~1101.11~~**1103.19** **Sizing of Potable Water Piping.** Unless otherwise provided for in this standard, rainwater catchment piping shall be sized in accordance with the plumbing code for sizing potable water piping.

~~1102.8~~**1103.20** **Rainwater Catchment Water System Color and Marking Information.** (remaining text unchanged)

~~1103.2~~1103.21 **Outside Hose Bibbs.** (remaining text unchanged)
~~1103.14~~1103.22 **Signs.** (remaining text unchanged)

(renumber remaining subsections)

~~1101.5~~1104.0 **Maintenance and Inspection.**
1104.1 General. Rainwater catchment systems and components shall be inspected and maintained in accordance with Section ~~1101.5.1~~1104.1.1 through Section ~~1101.5.3~~1104.1.3.

(renumber remaining subsections)

~~1101.6~~1104.2 **Operation and Maintenance Manual.** (remaining text unchanged)
~~1101.10~~1104.3 **Abandonment.** (remaining text unchanged)

~~1103.15~~1105.0 **Inspection and Testing.**
1105.1 General. Rainwater catchment systems shall be inspected and tested in accordance with Section ~~1103.15.1~~1105.1.1 and Section ~~1103.15.2~~1105.1.2. Irrigation systems not connected to a potable water system shall be exempt from testing requirements in Section ~~1103.15.2~~1105.1.2.

(renumber remaining subsections)

Substantiation:
These revisions bring Chapter 11 into alignment with the organizational structure and terminology already accepted in Appendix A under Item #101. Because Appendix A applies to potable rainwater catchment systems and Chapter 11 applies to nonpotable systems, updating Chapter 11 maintains consistent language and formatting between the two sections.

Committee Action:
Accept As Amended by the TC

Proposed Text (Modified by TC) :

1102.0 Design Requirements.
1102.1 Minimum Water Quality. (remaining text unchanged)

1103.0 System Requirements.
1103.1 General. Nonpotable rainwater catchment systems shall be installed in accordance with Section 1103.2 through Section 1103.22.
1103.2 Materials. Materials used in nonpotable rainwater catchment systems shall be in accordance with Section 1103.2.1 through Section 1103.2.6.
1103.2.1 Compatibility. Rainwater catchment systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system.
1103.2.2 System Controls. Controls for pumps, valves, and other devices that contain mercury that come in contact with rainwater supply are prohibited.
1103.2.3 Collections Surfaces. The collection surface shall be constructed of a hard, impervious material.
1103.2.4 System Drainage . Materials used in rainwater catchment drainage systems, including gutters, downspouts, conductors, and leaders shall comply with the requirements of the plumbing code for storm drainage.
1103.2.5 Storage Tanks. Rainwater storage tanks shall be in accordance with Section 1103.6.

1103.2.6 Water Supply and Distribution. Rainwater catchment water supply and distribution materials shall comply with the requirements of the plumbing code for potable water supply and distribution systems, unless otherwise provided for in this section.
1103.3 Connections to Potable or Reclaimed (Recycled) Water Systems. (remaining text unchanged)
1103.4 Pumps. (remaining text unchanged)
1103.5 Initial Cross-Connection Test. (remaining text unchanged)
1103.6 Deactivation and Drainage for Cross-Connection Test. (remaining text unchanged)
1103.7 Separation Requirements. (remaining text unchanged)
~~**1103.8 Overhanging Tree Branches and Vegetation.** Tree branches and vegetation shall not be located over the roof or other aboveground rainwater collection surface. Where existing tree branch and vegetation growth extends over the rainwater collection surface, it shall be removed as required in Section 1104.0.~~

(renumber remaining sections)

1103.9 Rainwater Collection. Rainwater shall be collected from roof surfaces or other manmade, aboveground collection surfaces. Rainwater catchment systems shall not collect rainwater from ~~the following sources:~~
~~(1) V~~vehicular parking surfaces.
~~(2) Surface water runoff.~~
~~(3) Bodies of standing water.~~
1103.10 Prohibited Discharges. (remaining text unchanged)
1103.11 Water Quality Devices and Equipment. (remaining text unchanged)
1103.12 Debris Removal. (remaining text unchanged)
1103.13 Required Filters. (remaining text unchanged)
1103.14 Rainwater Storage Tanks. (remaining text unchanged)
1103.15 Freeze Protection. (remaining text unchanged)
1103.16 Roof Drains. (remaining text unchanged)
1103.17 Roof Gutters. (remaining text unchanged)
1103.18 Drains, Conductors, and Leaders. The design and size of rainwater drains, gutters, conductors, and leaders shall be in accordance with the plumbing code.
1103.19 Sizing of Potable Water Piping. Unless otherwise provided for in this standard, rainwater catchment piping shall be sized in accordance with the plumbing code for sizing potable water piping.
1103.20 Rainwater Catchment Water System Color and Marking Information. (remaining text unchanged)
1103.21 Outside Hose Bibbs. (remaining text unchanged)
1103.22 Signs. (remaining text unchanged)

1104.0 Maintenance and Inspection.
1104.1 General. Rainwater catchment systems and components shall be inspected and maintained in accordance with Section 1104.1.1 through Section 1104.1.3.
1104.2 Operation and Maintenance Manual. (remaining text unchanged)
1104.3 Abandonment. (remaining text unchanged)

1105.0 Inspection and Testing.
1105.1 General. Rainwater catchment systems shall be inspected and tested in accordance with Section 1105.1.1 and Section 1105.1.2. Irrigation systems not connected to a potable water system shall be exempt from testing requirements in Section 1105.1.2.

Committee Statement:
Section 1103.8 is being deleted since overhanging vegetation does not negatively impact nonpotable rainwater catchment surfaces or the location of where the collected water will be used. The requirement is also not consistently enforceable and is better addressed through routine maintenance provisions rather than prescriptive vegetation-removal language. Additionally, the reference to "bodies of standing water" and "surface water runoff" are not applicable to nonpotable rainwater systems since they are not "roof surfaces or other manmade, aboveground collection surfaces."

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
104

Code Number:
2023 WE-Stand

Section Number:
Figure F 301.1(6), Figure F 301.1(7)

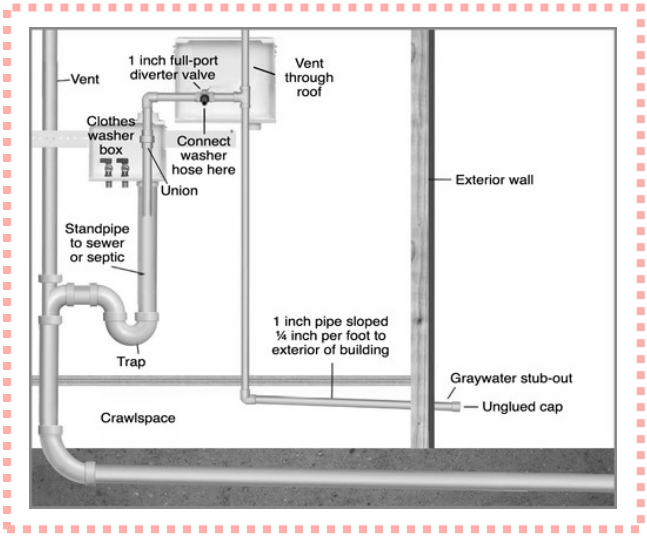
SUBMITTER:
Pat Lando

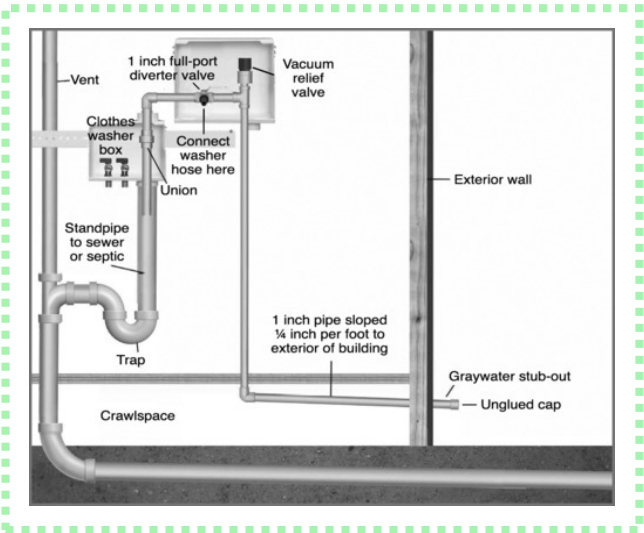
Organization Name:
WEStand Gray Water Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

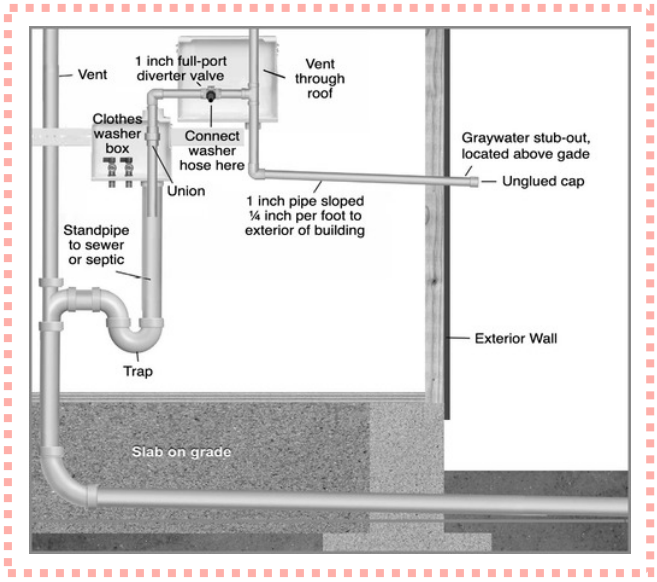
Proposed Text :

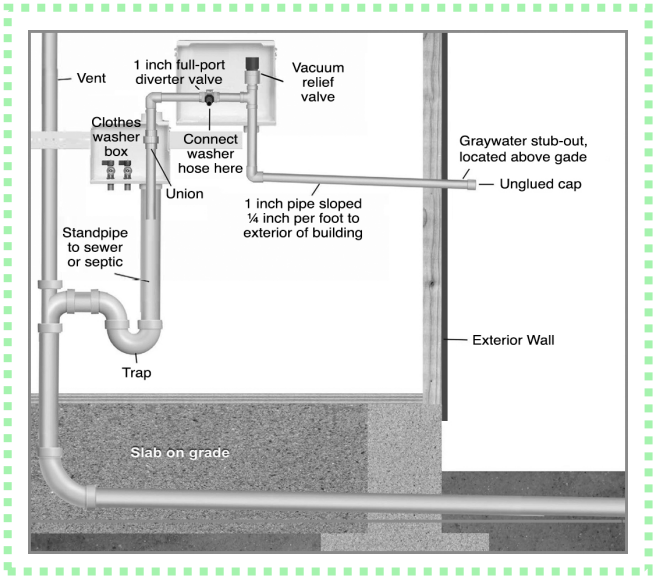




For SI units: 1 inch = 25 mm, 1 inch per foot = 83.333 mm/m
*The union is necessary to provide access for maintenance of the standpipe and trap.

FIGURE F 301.1(6)
GRAY WATER DRAINAGE SYSTEM – CLOTHES WASHER GRAYWATER SYSTEM WHERE GRAYWATER IRRIGATION PIPE IS RUN THROUGH CRAWLSPACE*





For SI units: 1 inch = 25 mm, 1 inch per foot = 83.333 mm/m

FIGURE F 301.1(7)
GRAY WATER DRAINAGE SYSTEM – CLOTHES WASHER GRAYWATER SYSTEM WHERE CLOTHES WASHER IS NEAR AN EXTERIOR WALL OR ON A CONCRETE SLAB FOUNDATION

SUBSTANTIATION:
The proposed change updates the illustrations to include a vacuum relief valve, which serves to protect the plumbing system in this design. Offering the option to use a relief valve in lieu of venting through the roof, when roof venting may not be practical, provides a viable design solution that still ensures system protection.

Committee Action:
Reject

Committee Statement:
A vacuum relief valve may not have the appropriate pressure rating for the application shown, and no referenced standards are provided to verify its suitability. Additionally, the installation appears to be an extension of the washing machine hose, which does not require venting.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
17	9	0	3

Failed Ballot Disclaimer:
NOTE: Item #104 failed to achieve the necessary 2/3 affirmative vote of returned ballots. In accordance with Section 6.8.2 of the Regulations Governing Consensus Development of WEStand, a public comment is requested for this proposal. The technical committee will reconsider this proposal as a public comment.

EXPLANATION OF NEGATIVE:
ALLEN: What is being rejected by the committee is currently allowed and promoted by many cities and water agencies, including SF Water, Valley Water (San Jose), Pasadena Water and Power, and others. I have observed hundreds of these systems functioning effectively over many years. I know professional installers who regularly install them for clients, many of whom receive rebates. These systems are not new; they have been field tested and proven over time. The concerns raised by the committee regarding this type of system were not based on evidence or firsthand experience. In contrast, the configuration currently depicted in WEStand and which will remain by default is not one I am confident will perform well. I would not support including it in the standard in its current form. In the field, when installers tie into the vent, as shown in the illustration, they typically include a check valve to prevent graywater from being pushed up into the vent pipe. No such valve is shown in the drawing.

KEHOE: I agree with Laura Allen's comments.

KENDZEL: I agree with Laura Allen's comments.

KLEIN: Laura Allen makes some excellent points.

KOELLER: I agree with Laura Allen's comments.

LANDO: I agree with Laura Allen's comments.

LENGER: I agree with Laura Allen.

PREMER: I agree with Laura Allen.

SOVOCOOL: I feel Laura Allen advances excellent points, and the impact on utility conservation programs cannot be ignored.

EXPLANATION OF AFFIRMATIVE:
CUDAHY: I agree with the potential concern raised that this application is only completely workable with complete dual standpipes. Either swap the discharge hose to the other standpipe or install a valve that performs this function. Some washing machines likely have timed discharge cycles, and backflow may occur if the machine experiences excessive back pressure due to a long hose run and is not emptied in time. This could also place additional strain on appliance parts and motors. Dual standpipes seem to work.

HARLAN: Is it possible for the submitter to resubmit a revised drawing through the comment process in which the 1-inch discharge wording is changed to "drain per code" and the vacuum relief valve is changed to "vent per code"? This seems like a reasonable compromise.

RIBBS: Remove the vent and the air admittance valve (AAV) which is not needed or required. Verify that the one inch discharge pipe to the outside is adequately sized. San Jose Valley Water District does not promote this type of system, nor do they have the authority to allow the system. The allowance and approval of any system of this type can only be approved by the AHJ.

VOTES NOT RETURNED:
Crawford, Granger, A. Smith

Comment 1

Item #:	**Code Number:**	**Sections(s):**
104	2023 WE-Stand	Figure F 301.1(6), Figure F 301.1(7)

Submitter Name:	**Organization Name:**	**Organization Representation:**
Pat Lando	WEStand Gray Water Systems Task Group (Chair)	

Recommendation:
Accept the Code Change Proposal as Submitted

Proposed Text:

Request to accept the code change proposal **as submitted** by this public comment.

Substantiation:
The proposed figures illustrate clothes washer gray water systems incorporating a vacuum relief valve to protect against siphonage. This design provides an alternative to conventional roof venting where such venting is impractical, such as in slab-on-grade construction or retrofits where access to existing vents is limited.

Regarding the committee's concerns: The vacuum relief valve shown is not intended to serve as a vent for a drainage system in the traditional sense. Its function is to break siphon and admit air when the clothes washer pump creates negative pressure during discharge. Vacuum relief valves rated for this application are readily available and are routinely specified for similar uses in irrigation and pump discharge systems. The committee also noted that "the installation appears to be an extension of the washing machine hose, which does not require venting." This is precisely the point. The vacuum relief valve does not provide drainage system venting. It provides siphon protection specific to the gray water distribution piping.

This configuration is not experimental. It is currently permitted and actively promoted by multiple water agencies, including San Francisco Public Utilities Commission, Valley Water (San Jose), and Pasadena Water and Power, among others. These agencies offer rebates for systems installed using this design. The configuration has been field-proven through hundreds of installations over many years.

Including Figures F 301.1(6) and F 301.1(7) in Appendix F provides code officials and installers with recognized design options for two common construction scenarios: buildings with crawlspaces and buildings on slab-on-grade foundations. These figures reflect current best practices as documented by water agencies actively encouraging gray water reuse. Omitting them creates a gap between what the standard illustrates and what is successfully installed in the field under programs specifically designed to promote water conservation.

Committee Action:
Reject

Committee Statement:
Public Comment #2 was heard prior to Public Comment #1. The committee is aware that the last action prevails.

Failed Ballot Disclaimer:
NOTE: Item #104 PC 01 failed to achieve the necessary 2/3 affirmative vote of returned ballots. In accordance with Section 7.7 of the Regulations Governing Consensus Development of WEStand, the TC action on the Comment shall be reported in the ROC as rejected.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
11	13	0	5

EXPLANATION OF NEGATIVE:
CRAWFORD: I agree with the intent of the vacuum relief valve, but the figures are a little confusing and need to be updated.

HARLAN: The addition of this drawing containing the errors pointed out in discussion undermines the credibility of the rest of the standard. While I am not opposed to the intent, the drawing is wrong and needs to be revised before being resubmitted.

KEHOE: I agree with some of the comments provided.

MAJEROWICZ: This would indicate that the valve should be an air admittance valve which is not currently included in the UPC.

NICKELSON: I agree with comments from Phil Ribbs. The substantiation of this comment says the purpose of the valve is to admit air to break the siphon. This would indicate that the valve should be an air admittance valve which is not currently included in the UPC.

NOKHOUDIAN: I agree with the intent, but the figures are confusing, and there is no clear consensus from the committee.

OSANN: I agree with at least some of Phil Ribbs' negative comments.

PREMER: While I am voting against this, I have a few notes for making the drawing better. AAVs are not mentioned in the UPC, and I think Phil Ribbs' statement, "They are not in the UPC and not designed to accept pressure," is accurate. The nomenclature should state "vacuum relief valve as in UPC Section 608.7." This is a different application, but that is the intended concept (to allow air in when the pump is not pumping).
I also wanted to address the 1-inch I.D. discharge pipe size. This is the exact size of the pump discharge of the clothes washer. Yes, we know the receiver pipe at minimum is to be 2-inches for a clothes washer standpipe.

RIBBS: I am casting a negative vote on this item for the following reasons:
1. There is no need for an air admittance valve (AAV), which is prohibited by the UPC and does not have an industry recognized standard of construction. Also, AAV will fail when subjected to pressure and therefore will leak.

2. There is no requirement for a vent on the discharge piping of the automatic washer terminating to the exterior.
3. The piping going outside is fine, except it is undersized. In my opinion, the drain pipe to the exterior should be a minimum of 1½ inches since it will receive the pressure discharge from the automatic washer.
4. The fitting at the change of direction from vertical to horizontal should be a medium sweep drainage fitting as required by the UPC.
5. Most importantly, I believe it is inappropriate to include a non-compliant plumbing diagram in a code or standard published by IAPMO.

B. SMITH: I agree with Phil Ribbs' comments.

THOMPSON: Full removal of the figures would be preferential to the inclusion of figures that promote the use of a product that conflicts with the UPC.

TSENG: I agree with Phil Ribbs' comments.

WHITE: Phil Ribbs makes excellent points regarding the plumbing situation. Discussion of what is plumbing or what other jurisdictions allow is nonsense. The drawings are incomplete as they show an exterior cap, not glued on, and no direction of what happens after the cap blows off. I have concern for what the proper disposal of the wash wastewater will be, and relying on homeowners to make decisions as to contaminants contained on clothing is irresponsible. Saying no one got hurt yet is of little value when this application will be a long term situation with possibly multiple owners.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

Comment 2

Item #:
104

Code Number:
2023 WE-Stand

Sections(s):
F 301.2, F 301.5.1, Figure F 301.1(6), Figure F 301.1(7)

Submitter Name:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to **replace** the code change proposal by this public comment.

F 301.0 Gray Water Drainage System Design.

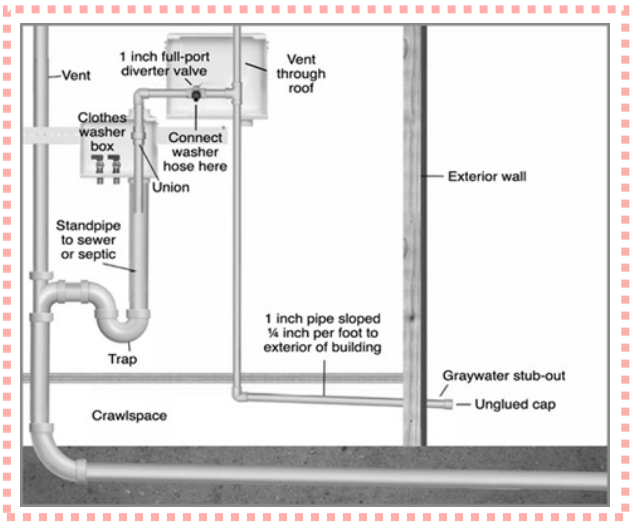
F 301.2 Diversion. Gray water drainage piping shall be diverted downstream of fixture traps and vent connections through a diverter valve. [See Figure F 301.1(1) through Figure F 301.1(5).]
Exception: Gray water drainage piping coming directly from a clothes washer. ~~[See Figure F 301.1(6) and Figure F 301.1(7).]~~

F 301.5 Stub Out(s). (remaining text unchanged)

F 301.5.1 Electrical Requirements. A dedicated 120V electrical receptacle shall be located not more than 10 feet (3048 mm) from a gray water stub out. All wiring and electrical equipment shall comply with NFPA 70.

Exception: Gray water drainage piping from a clothes washer system that diverts directly from the appliance. ~~[See Figure F 301.1(6) and Figure F 301.1(7).]~~

Note: A dedicated electrical receptacle is required to ensure that power is available for a future gray water system pump.

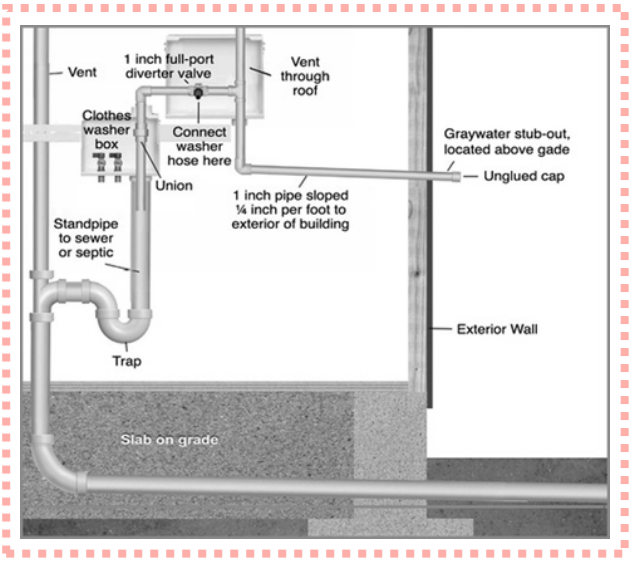


~~For SI units: 1 inch = 25 mm, 1 inch per foot = 83.333 mm/m~~

~~*The union is necessary to provide access for maintenance of the standpipe and trap.~~

~~FIGURE F 301.1(6)~~

~~GRAY WATER DRAINAGE SYSTEM — CLOTHES WASHER GRAYWATER SYSTEM WHERE GRAYWATER IRRIGATION PIPE IS RUN THROUGH CRAWLSPACE*~~



~~For SI units: 1 inch = 25 mm, 1 inch per foot = 83.333 mm/m~~

~~FIGURE F 301.1(7)~~

~~GRAY WATER DRAINAGE SYSTEM — CLOTHES WASHER GRAYWATER SYSTEM WHERE CLOTHES WASHER IS NEAR AN EXTERIOR WALL OR ON A CONCRETE SLAB FOUNDATION~~

(renumber remaining figures)

Substantiation:
Based on the continuing confusion regarding the intent of Figure F 301.1(6) and Figure F 301.1(7), the Gray Water Systems Task Group is proposing an alternative recommendation to strike these two figures and their corresponding references within Appendix F.

Committee Action:
Accept As Submitted

Committee Statement:
Public Comment #2 was heard prior to Public Comment #1. The committee is aware that the last action prevails.

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
23	1	0	5

EXPLANATION OF NEGATIVE:
WHITE: Phil Ribbs makes excellent points regarding the plumbing situation in Public Comment #1. Discussion of what is plumbing or what other jurisdictions allow is nonsense. The drawings are incomplete as they show an exterior cap, not glued on, and no direction of what happens after the cap blows off. I have concern for what the proper disposal of the wash wastewater will be, and relying on homeowners to make decisions as to contaminants contained on clothing is irresponsible. Saying no one got hurt yet is of little value when this application will be a long term situation with possibly multiple owners.

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
106

Code Number:
2023 WE-Stand

Section Number:
F 301.3

SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

F 301.0 Gray Water Drainage System Design.

F 301.3 Diverter Valve(s). The diverter valve(s) shall be readily accessible for operation and clearly indicate the direction of flow. The gray water diversion port shall be plumbed to a stub out that is capped off for future use until a gray water irrigation/reuse system is installed. The diverter valve shall be ~~left~~maintained in the open position to the building ~~sewer~~drainage system. A means of automatic or manual operation shall be provided for control of the diverter valve(s).
Note: Where actuators are to be used as a means of controlling the diverter valve(s), an electrical outlet should be located within 10 feet (3048 mm) of the diverter valve for power connection, unless the valve is controlled by an external controller providing power for the valve.

SUBSTANTIATION:
Because “building sewer” is a defined term, it is overly specific and may not encompass all applications of diverter valves. Therefore, it is being replaced with the more general term “drainage system.”

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
106

Code Number:
2023 WE-Stand

Sections(s):
F 101.2

Submitter Name:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task Group (Chair)

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

F 101.0 General.

F 101.2 Scope. This appendix provides requirements for the design and installation of gray water drainage systems for future installation of gray water irrigation or reuse systems in new construction, additions, and retrofits in accordance with Section F 101.3 and Section F 101.4. Gray water systems shall comply with Chapter 7 or Chapter 9 of this ~~code~~standard, as applicable.

Substantiation:
Appendix F contains provisions for gray water drainage systems, which may serve untreated and/or onsite treated gray water systems. Section F 101.2 (Scope) is therefore being revised to reference both Chapter 7 (Untreated Gray Water Systems) and Chapter 9 (Onsite Gray Water Treatment Systems).

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
112

Code Number:
2023 WE-Stand

Section Number:
Table 1401.1

SUBMITTER:
Terry Burger

Organization Name:
ASSE

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
ASSE 1016-2017/ASME A112.1016-2017/CSA B125.16-2017 (R2021)*	Performance Requirements for Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations	402.8

(portions of table not shown remain unchanged)

Note: ASSE 1016/ASME A112.1016/CSA B125.16 meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
The above revision reflects the latest update to the ASSE standard that is referenced in Table 1401.1.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:
25

NEGATIVE:
0

ABSTAIN:
0

NOT RETURNED:
4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
112

Code Number:
2023 WE-Stand

Sections(s):
Table 1501.1

Submitter Name:
Terry Burger

Organization Name:
ASSE

Organization Representation:
ASSE

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

TABLE 1501.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
ASSE/ANSI 1086-~~2022~~2025*	Performance Requirements for Reverse Osmosis Water Efficiency – Drinking Water	406.3, E 104.5.2

(portions of table not shown remain unchanged)

Note: ASSE/ANSI 1086 meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:
The above revision reflects the latest update to the ASSE standard that is referenced in Table 1501.1.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:
24

NEGATIVE:
0

ABSTAIN:
0

NOT RETURNED:
5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
114

Code Number:
2023 WE-Stand

Section Number:
Table 1401.1

SUBMITTER:
Paul Olson

Organization Name:
AWWA

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
AWWA F120-~~2018~~2024*	Ozone Systems for Water	E 104.4.1

(portions of table not shown remain unchanged)

Note: AWWA F120 meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
The above revision reflects the latest update to the AWWA standard that is referenced in Table 1401.1.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:
25

NEGATIVE:
0

ABSTAIN:
0

NOT RETURNED:
4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
114

Code Number:
2023 WE-Stand

Sections(s):
Table 1501.1

Submitter Name:
Paul Olson

Organization Name:
AWWA

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

TABLE 1501.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
AWWA C655-~~2018~~2025*	Field Dechlorination	E 104.4.2

(portions of table not shown remain unchanged)

Note: AWWA C655 meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:
The above revision reflects the latest update to the AWWA standard that is referenced in Table 1501.1.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:
24

NEGATIVE:
0

ABSTAIN:
0

NOT RETURNED:
5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
117

Code Number:
2023 WE-Stand

Section Number:
Table 1401.1

SUBMITTER:
Robert Pickering

Organization Name:
ERG

Organization Representation:
EPA WaterSense

RECOMMENDATION:
Revise text

Proposed Text :

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
EPA WaterSense ~~2014~~2024	Specification for Tank-Type Toilets	402.2.1

(portions of table not shown remain unchanged)

Note: The EPA WaterSense Specification meets the requirements for a mandatory referenced standard in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
The above revision reflects the latest update to the EPA standard that is referenced in Table 1401.1.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:
25

NEGATIVE:
0

ABSTAIN:
0

NOT RETURNED:
4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
117

Code Number:
2023 WE-Stand

Sections(s):
Table 1501.1

Submitter Name:
Robert Pickering

Organization Name:
ERG

Organization Representation:
EPA WaterSense

Recommendation:
Reject the Code Change Proposal

Proposed Text:

Request to **reject** the code change proposal by this public comment.

Substantiation:
Version 2.0 of the WaterSense Specification for Tank-Type Toilets was published in May 2024 and was originally scheduled to take effect on July 1, 2025. However, EPA has since paused the effective date of Version 2.0 indefinitely, and the Version 1.2 specification (published in 2014) remains in effect until further notice. Because of the ongoing uncertainty around the timeline, propose reverting the specification reference back to the 2014 version of the WaterSense Specification for Tank-Type Toilets.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
118

Code Number:
2023 WE-Stand

Section Number:
Table 1401.1

SUBMITTER:
Terry Burger

Organization Name:
IAPMO

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
IAPMO IGC 115-2013[e1]	Automatic Water Leak Detection ~~and Control~~ Devices	409.1
IAPMO/ANSI ~~IGC 324~~Z1324-~~2019~~2022*	Alternate Water Source Systems for Multi-Family, Residential, and Commercial Use	701.7, 704.8, Table 802.9(2), 902.1.1, Table 902.9(2), Table 1002.9(2), 1103.5
IAPMO IGC 330-~~2018~~2023	Industry Standard for Recirculating Shower Systems	402.9
IAPMO/ANSI/CAN ~~PS 119~~Z1119-~~2012a~~[e3]2024*	Water-Powered Backup Sump Pumps	414.1
IAPMO/ANSI USHGC 1-~~2021~~2024*	Uniform Solar, Hydronics and Geothermal Code (The Renewable Energy Code)	101.7.5
IAPMO/ANSI USPSHTC 1-~~2021~~2024*	Uniform Swimming Pool, Spa~~,~~ and Hot Tub Code	101.7.6
CSA B45.5-2022/IAPMO Z124-2022[e1]*	~~Standard for~~ Plastic Plumbing Fixtures	402.3, 402.3.1

(portions of table not shown remain unchanged)

Note: The IAPMO standards meet the requirements for mandatory referenced standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
The above revisions reflect the latest updates to the IAPMO standards that are referenced in Table 1401.1.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
25	0	0	4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:	Code Number:	Sections(s):
118	2023 WE-Stand	Table 1501.1

Submitter Name:	Organization Name:	Organization Representation:
Alexander Ing	NFPA	

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal as modified by this public comment.

TABLE 1501.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
NFPA 25-~~2023~~2026*	Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems	1104.3
NFPA 70-~~2023~~2026*	National Electrical Code	F 301.5.1

(portions of table not shown remain unchanged)

Note: The NFPA standards meet the requirements for mandatory referenced standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:
The above revision reflects the latest updates to the NFPA standards that are referenced in Table 1501.1.

Read-only versions of the NFPA standards are provided for your review via the following links: NFPA 25, NFPA 70

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:	NEGATIVE:	ABSTAIN:	NOT RETURNED:
24	0	0	5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved

Item #:
119

Code Number:
2023 WE-Stand

Section Number:
Table 1401.1

SUBMITTER:
Jeremy Brown

Organization Name:
NSF

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
NSF/ANSI 14-~~2022~~2023*	Plastics Piping System Components and Related Materials	301.2.2, A 103.2
NSF/ANSI 41-~~2018~~2023*	Non-Liquid Saturated Treatment Systems	602.1.1
NSF/ANSI 44-~~2021~~2024*	Residential Cation Exchange Water Softeners	406.1
NSF/ANSI 53-~~2022~~2023*	Drinking Water Treatment Units – Health Effects	A 104.3.1
NSF/ANSI 55-~~2021~~2024*	Ultraviolet Microbiological Water Treatment Systems	E 104.5.1
NSF/ANSI 58-~~2022~~2023*	Reverse Osmosis Drinking Water Treatment Systems	406.3, E 104.5.2
NSF/ANSI/CAN 61-~~2022~~2024*	Drinking Water Systems Components - Health Effects	A 103.2, A 104.5.1, E 103.4
NSF/ANSI 350-~~2022~~2023*	Onsite Residential and Commercial Water Reuse Treatment Systems	701.7, 704.8, 802.1.1, 902.1.1, 1103.5

(portions of table not shown remain unchanged)

Note: The NSF standards meet the requirements for mandatory referenced standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

SUBSTANTIATION:
The above revisions reflect the latest updates to the NSF standards that are referenced in Table 1401.1.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:
25

NEGATIVE:
0

ABSTAIN:
0

NOT RETURNED:
4

VOTES NOT RETURNED:
Crawford, Granger, Mann, A. Smith

Comment 1

Item #:
119

Code Number:
2023 WE-Stand

Sections(s):
Table 1501.1

Submitter Name:
Jeremy Brown

Organization Name:
NSF

Organization Representation:

Recommendation:
Accept the Proposal as Modified

Proposed Text:

Request to accept the code change proposal **as modified** by this public comment.

TABLE 1501.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
NSF/ANSI 14-~~2023~~2024*	Plastics Piping System Components and Related Materials	301.2.2, A 103.2.4
NSF/ANSI 53-~~2023~~2024*	Drinking Water Treatment Units – Health Effects	A 103.6.1
NSF/ANSI 58-~~2023~~2024*	Reverse Osmosis Drinking Water Treatment Systems	406.3, E 104.5.2

(portions of table not shown remain unchanged)

Note: The NSF standards meet the requirements for mandatory referenced standards in accordance with Section 15.0 of IAPMO's Regulations Governing Consensus Development of the Water Efficiency and Sanitation Standard.

Substantiation:
The above revisions reflect the latest updates to the NSF standards that are referenced in Table 1501.1.

Committee Action:
Accept As Submitted

TOTAL ELIGIBLE TO VOTE:
29

AFFIRMATIVE:
24

NEGATIVE:
0

ABSTAIN:
0

NOT RETURNED:
5

VOTES NOT RETURNED:
Braband, Kendzel, Koeller, Layton, A. Smith

© 2026 - International Association of Plumbing and Mechanical Officials, All Rights Reserved