

2025

REPORT ON PROPOSALS

The Water Efficiency and Sanitation Standard Technical Committee
Report on Proposals 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.



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Hugo Aguilar
Recording Secretary
IAPMO Executive
Committee

To: IAPMO Members and Other Interested Parties

Date: September 23, 2025

Billy Smith
Chairman
WE♣Stand

Enclosed is your 2025 Report on Proposals (ROP).

These proposals were presented to the WE♣Stand Technical Committee members who met in Ontario, California on June 19-20, 2025.

All comments for consideration by the Technical Committee should be submitted to IAPMO by January 16, 2026.

On May 13-14, 2026, the Technical Committee will consider all the comments received in response to the actions contained within the ROP for the WE♣Stand and will vote on whether to modify any of their previous actions.

THE BALLOT RESULTS ON ALL COMMITTEE ACTIONS ON PROPOSALS PASSED EXCEPT FOR THE FOLLOWING FIVE ACTIONS:

ITEM 004	FAILED TO ACHIEVE THE NECESSARY 2/3 AFFIRMATIVE VOTE OF RETURNED BALLOTS.
ITEM 018	FAILED TO ACHIEVE THE NECESSARY 2/3 AFFIRMATIVE VOTE OF RETURNED BALLOTS.
ITEM 027	FAILED TO ACHIEVE THE NECESSARY 2/3 AFFIRMATIVE VOTE OF RETURNED BALLOTS.
ITEM 038	FAILED TO ACHIEVE THE NECESSARY 2/3 AFFIRMATIVE VOTE OF RETURNED BALLOTS.
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 the Water Efficiency and Sanitary Standard where the technical committee actions failed to achieve the necessary 2/3 affirmative vote, a public comment is requested for each proposal listed above. All proposals listed above shall be reconsidered by the technical committee as an automatic public comment.



WATER EFFICIENCY & SANITATION STANDARD TECHNICAL COMMITTEE

(as of 5/20/25)

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
Rick Layton	Haines, Jones & Cadbury, LLC	Design Professional
Paula Kehoe, Primary Taylor Nokhoudian, Alternate	San Francisco Public Utilities Commission	Enforcing Authority
Damon Premer	ACCO	Enforcing Authority
Amir Tabakh	City of LA Department of Water and Power	Enforcing Authority
Aster Tseng	Self	Installer/Maintainer
Charles White	PHCC-National Association	Installer/Maintainer
Brian Granger	UA Plumbers Local 68	Labor
Rich Harlan	UA Local 38	Labor
James Majerowicz	Plumbers Local Union 130 U A	Labor
David Mann	UA Local 342	Labor
Shawn Crawford	Rainwater Management Solutions	Manufacturer
Michael Cudahy	Plastic Pipe & Fittings Association	Manufacturer
Avishai Moscovich	Reed Water	Manufacturer
David Nickelson	Uponor	Manufacturer
Kyle Thompson	Plumbing Manufacturers International (PMI)	Manufacturer
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	

The above listed TC Members are in order of classification (see far right column).

FORM FOR COMMENTS ON IAPMO WE⁺STAND COMMITTEE DOCUMENTS-2023

NOTE: All Comments MUST be received by 5:00 PM PST on January 16, 2026

Forms to be submitted electronically and accessed at the following: <https://codeproposals.iapmo.org/>

Date _____ Name _____ Tel. No. _____

Organization _____ Email Address _____

Street Address _____ City _____ State _____ Zip. _____

Please Indicate Organization Represented (if any) _____

Recommendation:

Check one (see instructions)

- Accept the Code Change Proposal as Submitted
- Accept the Proposal as Modified
- Reject the Code Change Proposal

Section number: _____ Code: WE⁺STAND 

Comment on Proposal Item number: _____

Proposed Text [Note: Proposed text must be in legislative format i.e., using underscore to denote wording to be inserted (wording) and strike through to denote wording to be deleted (~~wording~~.)]

Statement of Problem and Substantiation/Resolution:

Are you referencing standards in your comment? Check one Yes No

If yes, please provide two hard copies or one electronic copy with your comment. Please note that if a standard is referenced above in your comment you must submit such standard in order for your comment to be processed. If the standard is not received by the closing date, your comment is considered incomplete and will not be processed.

Where additional supplementary materials such as tests, research papers, or other documents need to be submitted, please provide supporting material electronically. Please note that if supporting material is not received by the closing date, it will not be accepted for review by the Technical Committee.

Copyright Assignment (This comment is original materials and is considered to be the submitter's own idea based on, or as a result of, research and experience, and is not copied from another source).

I hereby irrevocably grant and assign IAPMO all and full rights in copyright, in this proposal. I understand and intend that I acquire no rights, including rights as a joint author, in any publication of IAPMO in which this comment in this or another similar or analogous form is used. **I hereby warrant that I am the author of this comment and that I have full power and authority to enter into this copyright assignment.**

By checking this box, I affirm that I am and agree to be legally bound by the above Copyright Assignment and the terms and conditions contained therein. I understand and intend that, by checking this box, I am creating an electronic signature that will, upon my submission of this form, have the same legal force and effect as a handwritten signature.

Note: If you are not the author of this comment (this text is copied from another source) please do not submit. The author of the comment must give copyright assignment (which is the submitter's own idea based on or as a result of research, experience and is not copied from another source).

Patent Policy. IAPMO's patent policy is to adhere fully to the ANSI patent policy. Every proponent of a code change proposal should familiarize him or herself with the ANSI patent policy which is available in its entirety at www.ansi.org/essentialrequirements. Upon receipt of a notice of an essential patent claim, IAPMO will coordinate with the claimant to ensure collection of the assurance(s) required by IAPMO's adherence to the ANSI patent policy before the proposal that includes an essential patent claim is introduced into the code development process.

INSTRUCTIONS FOR SUBMITTING COMMENTS

PLEASE READ CAREFULLY

1. Check the appropriate box to indicate whether this comment recommends Accepting the Code Change Proposal as Submitted, as Modified, or Reject. (see examples below).
2. Enter the appropriate comment on proposal item number that the proposed text applies to.
3. In the space identified as "Proposed Text" indicate the exact wording you propose as new or revised text or the text you propose to be deleted.
4. In the space titled, "Statement of Problem and Substantiation/Resolution," state the problem that will be resolved by your recommendation and give the specific reason for your comment.
5. Where referencing a standard in your comment, such standard needs to be submitted. Please provide two hard copies or one electronic copy with your comment. Please note that if the standard is not received by the closing date, your comment is considered incomplete and will not be processed.
6. Where additional supplementary materials such as tests, research papers, or other documents, need to be submitted, please provide supporting material electronically. Please note that if supporting material is not received by the closing date, it will not be accepted for review by the Technical Committee.
7. Check the box for copyright assignment. Please note if you are not the author of this comment (this text is copied from another source) please do not submit the proposed change. The author of the comment must give copyright assignment (which is the submitter's own idea based on or as a result of research, experience and is not copied from another source).

Note: Content of Comments shall be in accordance with Section 7.4.1 of the IAPMO Regulations Governing Consensus Development of the We•Stand. **Failure to comply with the above requirements will result in the comment not being processed.** For further information on the standards process, please contact Code Development at 909-472-4111. For technical assistance, please call 909-218-8126 or 909-230-5528 or email alma.ramos@iapmo.org.

Please support IAPMO's green initiative to remain paper free by providing the Proposed Monographs, Report on Proposals and Report on Comments in digital Adobe PDF. Note printed copies of the above referenced documents will not be available at the hearings.

Examples for applying a charging statement for Recommendation above

Accept the Code Change Proposal as Submitted. (applies to the originally submitted proposal as written)

Accept the Proposal as Modified. (applies when revising an existing section by deleting text, adding text or both as follows):

Building Supply. ~~The pipe carrying potable water from the water meter or other source of water supply to the building or other point of use or distribution on the lot. Building supply shall also mean water service. Piping from the water main or source of water supply to the water distribution piping of the building or premises served irrespective of the water meter location.~~

Reject the Code Change Proposal. (applies when rejecting the originally submitted proposal)

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Item #:

001

Code Number:

2023 WE-Stand

Section Number:

101.7.5

SUBMITTER:

Jim Majerowicz

Organization Name:

Plumbers Local 130, UA

Organization Representation:**RECOMMENDATION:**

Revise text

Proposed Text :

101.0 General.

101.1 Title. (remaining text unchanged)

101.7.5 Renewables. Solar, hydronics, and geothermal energy systems shall be installed in accordance with the Uniform Solar, Hydronics and Geothermal Code (~~USHGCC~~ The Renewable Energy Code) promulgated by the International Association of Plumbing and Mechanical Officials (IAPMO).

SUBSTANTIATION:

Section 101.7.5 (Renewables) is being revised to include the title as shown on the latest edition of the referenced code. The title of the 2024 edition states: "Uniform Solar, Hydronics and Geothermal Code (The Renewable Energy Code)."

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, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, 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:

24

NEGATIVE:

1

ABSTAIN:

0

NOT RETURNED:

4

EXPLANATION OF NEGATIVE:

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

VOTES NOT RETURNED:

Crawford, Granger, Mann, 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:

14

NEGATIVE:

12

ABSTAIN:

0

NOT RETURNED:

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.

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, Smith

Item #:
005

Code Number:
2023 WE-Stand

Section Number:
209.0

SUBMITTER:
Markus Lenger

Organization Name:
WEStand Log Reduction Targets
Task Group, Chair

Organization Representation:

RECOMMENDATION:

Revise text

Proposed Text :

209.0 - G -

Gray Water. Untreated ~~waste water~~ **wastewater** that has not come into contact with toilet waste, kitchen sink waste, dishwasher waste or similarly contaminated sources. Gray water includes ~~waste water~~ **wastewater** from bathtubs, showers, lavatories, clothes washers and laundry tubs. Also known as grey water, graywater, and greywater.

SUBSTANTIATION:

The term “wastewater” is typically written as one word because it refers to a specific concept: used or contaminated water that needs treatment or disposal. It has become a compound noun that is widely recognized in environmental science, engineering, and public health.

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, Smith

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 -

Log₁₀ Reduction Target (LRT). The log₁₀ 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 “Log₁₀ 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, Smith

Item #:

007

Code Number:

2023 WE-Stand

Section Number:

220.0, 223.0

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :**220.0 - R -**

~~Raw Urine. Urine which has minimal contact with biofilms, feces, or similarly contaminated materials. Fresh urine is subject to biochemical reactions which are difficult to control.~~

223.0 - U -

~~Urine, Diverted Urine. Urine that is collected and has not made contact with feces~~ has been separated from other waste streams.

Urine, Sanitized Urine. ~~Raw~~ Diverted urine which has been treated and is therefore classified as a fertilizer and/or an agricultural amendment. Leachate of less than 3 percent solids which has been treated and is therefore classified as a fertilizer and/or an agricultural amendment.

Urine, Stored Urine. ~~Raw~~ Diverted urine which is collected for beneficial use, is biologically active, and is not a biosolid or part of a private sewage treatment system.

SUBSTANTIATION:

The related provisions for sanitized and stored urine are applicable to “diverted urine,” not “raw urine.” Therefore, the definitions for “sanitized urine” and “stored urine” are being updated accordingly. Since “raw urine” is only referenced within those definitions, the standalone definition for “raw urine” is no longer necessary and is proposed for deletion.

The definition of “diverted urine” is also being revised to provide a broader and more technically accurate description. The existing definition focuses solely on separation from feces, which excludes valid scenarios where urine is diverted after minimal or no fecal contact.

Committee Action:

Accept As Amended by the TC

Proposed Text :**223.0 - U -**

Urine, Diverted. Urine that ~~has been separated from other waste streams~~ is collected and has not made contact with feces.

Urine, Sanitized. Diverted urine which has been treated and is therefore classified as a fertilizer and/or an agricultural amendment. Leachate of less than 3 percent solids which has been treated and is therefore classified as a fertilizer and/or an agricultural amendment.

Urine, Stored. Diverted urine which is collected for beneficial use, is biologically active, and is not a biosolid or part of a private sewage treatment system.

Committee Statement:

The committee agrees with the relocation of definitions relating to urine. However, the term "separated" in the definition for "diverted urine" is misleading, as the urine is not entirely separated from other waste streams. Therefore, Item #007 is being amended to retain the current definition for "diverted urine."

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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	
<u>Water closets</u>	<u>1.1 gpf</u>
NON-RESIDENTIAL	
<u>Water closets</u>	<u>1.28 gpf</u>
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. WESand 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:

17

NEGATIVE:

8

ABSTAIN:

0

NOT RETURNED:

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, WESand is a stretch code (or standard) for water efficiency. As such, throughout WESand and the proposals being considered for the next version, there are many supposed conflicts. To not consider this significant change to WESand 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, Smith

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 <u>OR WATER CONSUMPTION</u> 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

EXPLANATION OF AFFIRMATIVE:

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

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

013

Code Number:

2023 WE-Stand

Section Number:

402.9, Table 1401.1

SUBMITTER:

Edward Osann

Organization Name:

Self

Organization Representation:**RECOMMENDATION:**

Delete text without substitution

Proposed Text :

402.0 Water-Conserving Plumbing Fixtures and Fittings.

~~402.9 Recirculating Shower Systems. Recirculating shower systems shall comply with IAPMO IGC 330.~~

**TABLE 1401.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
IAPMO IGC 330-2018	Recirculating Shower Systems	402.9

(portions of table not shown remain unchanged)

SUBSTANTIATION:

This proposal would delete the reference to recirculating shower systems compliant with IAPMO IGC 330. A companion proposal would also delete IAPMO IGC 330 from the list of referenced standards in Chapter 14.

IAPMO IGC 330 is not an ANSI standard, but rather an industry design guide covering a range of topics while failing to specify or test for the effective control of pathogens. IAPMO IGC 330 is not health-protective.

Among its many shortcomings, IAPMO IGC 330:

- * Fails to distinguish between residential and commercial applications, which can have significantly different risk profiles for users.
- * Allows for a category of recirculating shower system -- a so-called gray water recirculating system -- with NO integral water treatment to protect bathers.
- * Specifies the use of a filter compliant with NSF 53, even though NSF 53 applies to the filtration of drinking water, not to recirculating shower water with a full load of cleaning products, human detritus, and microbes.
- * Allows, but does not require, a UV system as a treatment option. No other part of the standard addresses microbial contaminants.
- * Seeks to exempt showerheads installed in a recirculating shower system from the maximum flow rate requirements set by federal and state law.

IAPMO has declared its intent to develop an American National Standard for recirculating shower systems, and has established the Z1398 TSC for this purpose. The technical committee began work with IAPMO IGC 330-2023 as its base text. The committee has identified these and other shortcomings, and has begun the work of coming up with workable and health-protective language to include in a new standard. When this work is completed, the WEStand

Technical Committee can review the published standard and consider it for reference in a future edition. Until then, WEstand should not encourage reliance on a product design guide that fails the basic test of protecting the health of users.

Committee Action:

Accept As Submitted

Committee Statement:

Although the committee agrees with the proposed changes, they do not consider the second paragraph of the provided substantiation to be a valid justification.

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

EXPLANATION OF AFFIRMATIVE:

OSANN: The IAPMO IGC 330 standard is not health-protective.

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

014

Code Number:

2023 WE-Stand

Section Number:

402.14

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.

402.14 Drinking Fountains and Bottle Filling Stations. Bottle filling stations shall be included on or used as a substitute to meet the requirements of drinking fountains in at least 50 percent of the requirements for drinking fountains. ~~Bottle filling stations and drinking fountains shall be self-closing.~~

SUBSTANTIATION:

Section 402.14 (Drinking Fountains and Bottle Filling Stations) is being updated to remove unnecessary provisions. Since all bottle filling stations are inherently self-closing, this requirement does not need to be explicitly stated. Furthermore, such specifications are the responsibility of the manufacturer.

Committee Action:

Reject

Committee Statement:

The committee disagrees with the justification provided for the proposed change. Requiring bottle filling stations and drinking fountains to be "self-closing" may fall outside the purview of the manufacturer. Furthermore, the substantiation does not reference any current industry standards to support the proposed update.

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

015

Code Number:

2023 WE-Stand

Section Number:

406.5, A 104.3.1, A 104.3.4, Table 1401.1

SUBMITTER:

Ilan Aberman

Organization Name:

WEStand Water Treatment Devices and Systems Task Group

Organization Representation:**RECOMMENDATION:**

Revise text

Proposed Text :

406.0 Water Softeners and Treatment Devices.

406.5 Legionella Treatment Devices. Where required by the Authority Having Jurisdiction, Legionella reduction and treatment devices shall comply with ASSE LEC 2011 and shall be installed in accordance with the manufacturer's installation instructions.

A 104.0 Design and Installation.

A 104.3 Water Quality Devices and Equipment. (remaining text unchanged)

A 104.3.1 Filtration Devices. Potable water filters shall comply with NSF/ANSI 53 and shall be installed in accordance with the manufacturer's installation instructions.

A 104.3.4 Legionella Treatment Devices. Where required by the Authority Having Jurisdiction, Legionella reduction and treatment devices shall comply with ASSE LEC 2011 and shall be installed in accordance with the manufacturer's installation instructions.

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
<u>ASSE LEC 2011-2022</u>	<u>Legionella Reduction and Treatment Devices</u>	<u>406.5, A 104.3.4</u>

(portions of table not shown remain unchanged)

Note: ASSE LEC 2011 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 406.5 (Legionella Treatment Devices) and Section A 104.3.4 (Legionella Treatment Devices) are being added to supplement the existing requirements for water quality devices and equipment. The referenced standard, ASSE LEC 2011, defines performance criteria for devices designed to reduce Legionella.

Per the scope of ASSE LEC 2011 (Legionella Reduction and Treatment Devices), "Legionella reduction and treatment devices are designed to reduce the microorganisms in the genus Legionella (e.g., Legionella pneumophila) typically found in potable water systems. The devices reduce the number of the bacteria through inactivation and/or filtration. They can reduce or prevent the downstream bacterial colonization of a water system and thus ultimately the release of the bacteria into the product water. Devices are intended to be used at Point of Entry (POE) or Point-Of-Use (POU) in applications for hot or cold-water or both for drinking water, washing hands or showering."

A read-only version of the ASSE standard is provided for your review via the following link: [ASSE LEC 2011](#)

Committee Action:

Reject

Committee Statement:

These requirements are already addressed by the plumbing code and incorporating them into the WEStand may create potential conflicts in the future. Additionally, further review is needed to confirm whether the referenced standards specifically address water efficiency.

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, 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
<u>Energy Star-2003</u>	<u>Program Requirements for Commercial Steam Cookers</u>	<u>407.2</u>

(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 Product Specification 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 WESand. 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

017

Code Number:

2023 WE-Stand

Section Number:

407.5

SUBMITTER:

Fred Betz

Organization Name:

NeuMod Labs

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 one or more of the following methods:

(1) Water flow shall not exceed the water capacity of the dipper well in one minute at supply pressure of 60 psi (414 kPa), and the maximum flow shall not exceed 0.25 gpm (0.016 L/s) 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)~~ 0.25 gpm (0.016 L/s) at a supply pressure of 60 psi (414 kPa).

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 dipper well faucets.

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. Furthermore, 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. 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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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:

17

NEGATIVE:

9

ABSTAIN:

0

NOT RETURNED:

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 WESand 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, Smith

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 (ft³/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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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 (CO₂, 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:

11

NEGATIVE:

15

ABSTAIN:

0

NOT RETURNED:

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.

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, Smith

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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 WESand. 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:

24

NEGATIVE:

1

ABSTAIN:

0

NOT RETURNED:

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, Smith

Item #:

029

Code Number:

2023 WE-Stand

Section Number:

412.4

SUBMITTER:

Avishai Moscovich

Organization Name:

WINT Water

Organization Representation:

RECOMMENDATION:

Add new text

Proposed Text :

412.0 HVAC Water Efficiency.

412.4 Cooling Tower Monitoring and Controls. Automatic water monitoring and control systems for flow analysis, leak detection, and water-use optimization of cooling towers shall be permitted. Where installed, such systems shall comply with the following:

(1) Evaporation, drift, and blowdown rates shall be continuously monitored.

(2) The makeup water supply shall be dynamically adjusted based on environmental conditions and operational demand.

(3) Integration with the HVAC and building automation systems shall be provided.

(renumber remaining sections)

SUBSTANTIATION:

Cooling towers represent one of the largest sources of water consumption in commercial buildings. Water loss due to drift, evaporation, and excessive blowdown should be minimized through real-time monitoring and automated optimization strategies.

AI-enhanced monitoring allows for proactive system adjustments, reducing operational waste while maintaining cooling performance.

Committee Action:

Reject

Committee Statement:

The proposed requirements in Section 412.4 (Cooling Tower Monitoring and Controls) may fall outside the scope of the WESStand. 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:

24

NEGATIVE:

1

ABSTAIN:

0

NOT RETURNED:

4

EXPLANATION OF NEGATIVE:

MOSCOVICH: I object to the committee’s decision to reject this proposal. The proposed expansion to Section 409.0 (Leak Detection and Control) was intended to modernize and broaden the scope of leak detection beyond basic domestic use. Water loss can occur in multiple subsystems of a building, including HVAC loops, cooling towers, irrigation systems, and process water lines. Failing to explicitly reference these applications in the standard creates a gap in guidance at a time when whole-building water intelligence is becoming the norm.

The proposed revision also introduced important best-practice features such as:

- Edge computing for real-time analysis and alerts, reducing latency in detecting critical water events.
- Multi-format alerting to ensure rapid response by operations teams.
- The ability to isolate subsystems when a leak is detected to limit damage and water waste.

These are not vendor-specific recommendations. They reflect industry trends and field-proven features that reduce water consumption and mitigate risk. The rejection of these updates misses an opportunity to elevate WESstand as a leading standard for smart water management practices.

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: This topic is part of ASHRAE P191, and all future discussions and specifications should be part of that standard once the IAPMO-ASHRAE MOU is fully implemented.

LENGER: I agree with Gary Klein.

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

031

Code Number:

2023 WE-Stand

Section Number:

415.21

SUBMITTER:

Kyle Thompson

Organization Name:

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

Organization Representation:**RECOMMENDATION:**

Revise text

Proposed Text :

415.0 Landscape Design and Installation.

415.21 Vegetated Roofs and Walls. Irrigation systems using potable water for vegetative roofs and walls are prohibited. The use of potable water for irrigation of vegetative roofs and walls shall not be permitted.

SUBSTANTIATION:

Section 415.21 (Vegetated Roofs and Walls) is being rewritten to enhance clarity and enforceability while maintaining the original intent. In alignment with IAPMO's Manual of Style, all requirements must be stated in mandatory language (e.g., shall or shall not). This revision ensures consistency without altering the section's intended requirements.

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, Smith

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 WESand 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 WESand 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

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, Smith

Item #:
033

Code Number:
2023 WE-Stand

Section Number:
501.1, Table 502.1.1, Figure 502.2.1,
C 101.1, C 102.6, Figure C 102.1(2) -
Figure C 102.6(2)

SUBMITTER:
Gary Klein

Organization Name:
Gary Klein Associates

Organization Representation:
Self

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 for new construction of single-family dwellings, and multi-family dwellings, and commercial buildings. 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/>.

TABLE 502.1.1
MAXIMUM DESIGN FLOW RATE FOR PLUMBING FIXTURES, FIXTURE FITTINGS, AND APPLIANCES

FIXTURE AND APPLIANCE	MAXIMUM DESIGN FLOW RATE (gallons per minute)	
	<u>SINGLE- AND MULTI-FAMILY DWELLINGS</u>	<u>COMMERCIAL BUILDINGS</u>
Bar Sink	1.5	1.5
Bathtubs ²	5.5	8.0
Bidet	2.0	2.0
Clothes Washer ¹	3.5	4.0
Combination Bath/Shower	5.5	5.5
Dishwasher ¹	1.3	1.5
<u>Drinking Fountain</u>	∴	1.0
<u>Ice Maker</u>	∴	0.5
<u>Jacuzzi</u>	∴	10.0
Kitchen Faucet	2.2	2.2
Laundry Faucet (with aerator)	2.0	2.0
Lavatory Faucet (private)	1.5	1.5
<u>Lavatory Faucet (public, metered)</u>	∴	0.5
<u>Lavatory Faucet (public, non-metered)</u>	∴	1.5
<u>Service Sink</u>	∴	3.5
Shower; (per head)	2.0	2.0

Urinal (Flushometer-valve)	1	8.0
Water Closet, (1.28 GPF gpf, Gravity Tank)	3.0	3.0
Water Closet (1.28 gpf, Flushometer-valve)	1	2.5
Other f <i>ixtures</i>	6.0 10.0	10.0

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

Notes:

¹ Clothes washers and dishwashers shall have an Energy Star label.

² Including whirlpools and similar fixtures.

Water Demand Calculator (WDC v2.1)

PROJECT NAME:
 Click for Drop-down Menu →

Friday, January 21, 2022
12:09 PM

FIXTURE GROUPS	FIXTURE	ENTER TOTAL NUMBER OF FIXTURES	PROBABILITY OF USE (%)	ENTER FIXTURE FLOW RATE (GPM)	MAXIMUM RECOMMENDED FIXTURE FLOW RATE (GPM)
Bathroom Fixtures	1 Bathtub (no Shower)	0	1.00	5.5	5.5
	2 Bidet	0	1.00	2.0	2.0
	3 Combination Bath/Shower	1	5.50	5.5	5.5
	4 Faucet, Lavatory	1	2.00	1.5	1.5
	5 Shower, per head (no Bathtub)	0	4.50	2.0	2.0
	6 Water Closet, 1.28 GPF Gravity Tank	1	1.00	3.0	3.0
Kitchen Fixtures	7 Dishwasher	1	0.50	1.3	1.3
	8 Faucet, Kitchen Sink	1	2.00	2.2	2.2
Laundry Room Fixtures	9 Clothes Washer	1	5.50	3.5	3.5
	10 Faucet, Laundry	0	2.00	2.0	2.0
Bar/Prep Fixtures	11 Faucet, Bar Sink	0	2.00	1.5	1.5
Other Fixtures	12 Kitchen Pot Filler	1	2.00	5.5	6.0
	13 Dog Bath	1	1.00	5.5	6.0
	14 Fixture 3	0	0.00	0.0	6.0

COMPUTED RESULTS FOR PEAK PERIOD CONDITIONS

Total No. of Fixtures in Calculation
n = 8

99th Percentile Demand Flow
Q = 11.0 GPM

Hunter Number
H[n,p] = 0.20

Stagnation Probability
Pr[Zero Demand] = 82%

↓ Select Units for Water Demand ↓

Water Demand Calculator (WDC v3.0)

Tuesday, September 12, 2023 9:07 PM

PROJECT NAME:
 Click for Drop-down Menu →

↓ Select Units ↓

FIXTURE	ENTER TOTAL NUMBER OF FIXTURES	PROBABILITY OF USE (%)	ENTER FIXTURE FLOW RATE (GPM)	MAXIMUM RECOMMENDED FIXTURE FLOW RATE (GPM)
1 Other Fixture 1	0	0.00	0.0	10.0
2 Other Fixture 2	0	0.00	0.0	10.0
3 Bathtub (no Shower)	0	0.00	5.5	5.5
4 Bidet	0	0.00	2.0	2.0
5 Clothes Washer	0	0.00	3.5	3.5
6 Combination Bath/Shower	0	0.00	5.5	5.5
7 Dishwasher	0	0.00	1.3	1.3
8 Faucet, Bar Sink	0	0.00	1.5	1.5
9 Faucet, Kitchen Sink	0	0.00	2.2	2.2
10 Faucet, Laundry	0	0.00	2.0	2.0
11 Faucet, Lavatory	0	0.00	1.5	1.5
12 Shower, per head (no Bathtub)	0	0.00	2.0	2.0
13 Water Closet, 1.28 GPF Gravity Tank	0	0.00	3.0	3.0

↑ CLICK BUTTON ↑

COMPUTED RESULTS FOR PEAK PERIOD CONDITIONS

Total No. of Fixtures in Calculation

99th Percentile Demand Flow

Hunter Number

Stagnation Probability

Method of Computation

**FIGURE 502.2.1
WATER DEMAND CALCULATOR**

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-family dwellings, and multi-family dwellings, and commercial buildings. See Chart 503.3(1) through Chart 503.3(9) for determining pipe size based on friction loss and maximum allowable pipe velocity.

Water Demand Calculator (WDC v2.1)

PROJECT NAME :
 Click for Drop-down Menu →

Friday, January 21, 2022
11:21 AM

FIXTURE GROUPS	FIXTURE	ENTER TOTAL NUMBER OF FIXTURES	PROBABILITY OF USE (%)	ENTER FIXTURE FLOW RATE (GPM)	MAXIMUM RECOMMENDED FIXTURE FLOW RATE (GPM)
Bathroom Fixtures	1 Bathtub (no Shower)	0	1.00	5.5	5.5
	2 Bidet	0	1.00	2.0	2.0
	3 Combination Bath/Shower	1	5.50	5.5	5.5
	4 Faucet, Lavatory	1	2.00	1.5	1.5
	5 Shower, per head (no Bathtub)	0	4.50	2.0	2.0
	6 Water Closet, 1.28 GPF Gravity Tank	1	1.00	3.0	3.0
Kitchen Fixtures	7 Dishwasher	1	0.50	1.3	1.3
	8 Faucet, Kitchen Sink	1	2.00	2.2	2.2
Laundry Room Fixtures	9 Clothes Washer	1	5.50	3.5	3.5
	10 Faucet, Laundry	0	2.00	2.0	2.0
Bar/Prep Fixtures	11 Faucet, Bar Sink	0	2.00	1.5	1.5
Other Fixtures	12 Fixture 1	0	0.00	0.0	6.0
	13 Fixture 2	0	0.00	0.0	6.0
	14 Fixture 3	0	0.00	0.0	6.0

COMPUTED RESULTS FOR PEAK PERIOD CONDITIONS

Total No. of Fixtures in Calculation
n = 6

99th Percentile Demand Flow
Q = 9.0 GPM

Hunter Number
H(n,p) = 0.17

Stagnation Probability
Pr[Zero Demand] = 84%

↓ Select Units for Water Demand ↓

Water Demand Calculator (WDC v3.0)

Tuesday, September 12, 2023 9:09 PM

PROJECT NAME :
 Click for Drop-down Menu →

↓ Select Units ↓

FIXTURE	ENTER TOTAL NUMBER OF FIXTURES	PROBABILITY OF USE (%)	ENTER FIXTURE FLOW RATE (GPM)	MAXIMUM RECOMMENDED FIXTURE FLOW RATE (GPM)
1 Other Fixture 1	0	0.00	0.0	10.0
2 Other Fixture 2	0	0.00	0.0	10.0
3 Bathtub (no Shower)	0	0.00	5.5	5.5
4 Bidet	0	0.00	2.0	2.0
5 Clothes Washer	1	5.50	3.5	3.5
6 Combination Bath/Shower	1	5.50	5.5	5.5
7 Dishwasher	1	0.50	1.3	1.3
8 Faucet, Bar Sink	0	0.00	1.5	1.5
9 Faucet, Kitchen Sink	1	2.00	2.2	2.2
10 Faucet, Laundry	0	0.00	2.0	2.0
11 Faucet, Lavatory	1	2.00	1.5	1.5
12 Shower, per head (no Bathtub)	0	0.00	2.0	2.0
13 Water Closet, 1.28 GPF Gravity Tank	1	1.00	3.0	3.0

COMPUTED RESULTS FOR PEAK PERIOD CONDITIONS

Total No. of Fixtures in Calculation
N = 6

99th Percentile Demand Flow
Q = 9.0 GPM

Hunter Number
H(n,p) = 0.17

Stagnation Probability
Pr[Zero Demand] = 84%

Method of Computation
Convolution

FIGURE C 102.1(2)

WATER DEMAND CALCULATOR FOR INDOOR USE AT HOME WITH SIX EFFICIENT FIXTURES (EXAMPLE 1)

Water Demand Calculator (WDC v2.1)

PROJECT NAME :
 Click for Drop-down Menu → -

Friday, January 21, 2022
12:09 PM

FIXTURE GROUPS	FIXTURE	ENTER TOTAL NUMBER OF FIXTURES	PROBABILITY OF USE (%)	ENTER FIXTURE FLOW RATE (GPM)	MAXIMUM RECOMMENDED FIXTURE FLOW RATE (GPM)	
Bathroom Fixtures	1	Bathtub (no Shower)	0	1.00	5.5	5.5
	2	Bidet	0	1.00	2.0	2.0
	3	Combination Bath/Shower	1	5.50	5.5	5.5
	4	Faucet, Lavatory	1	2.00	1.5	1.5
	5	Shower, per head (no Bathtub)	0	4.50	2.0	2.0
	6	Water Closet, 1.28 GPF Gravity Tank	1	1.00	3.0	3.0
Kitchen Fixtures	7	Dishwasher	1	0.50	1.3	1.3
	8	Faucet, Kitchen Sink	1	2.00	2.2	2.2
Laundry Room Fixtures	9	Clothes Washer	1	5.50	3.5	3.5
	10	Faucet, Laundry	0	2.00	2.0	2.0
Bar/Prep Fixtures	11	Faucet, Bar Sink	0	2.00	1.5	1.5
Other Fixtures	12	Kitchen Pot Filler	1	2.00	5.5	6.0
	13	Dog Bath	1	1.00	5.5	6.0
	14	Fixture 3	0	0.00	0.0	6.0

COMPUTED RESULTS FOR PEAK PERIOD CONDITIONS

Total No. of Fixtures in Calculation
n = 8

99th Percentile Demand Flow
Q = 11.0 GPM

Hunter Number
H(n,p) = 0.20

Stagnation Probability
Pr[Zero Demand] = 82%

↓ Select Units for Water Demand ↓

Water Demand Calculator (WDC v3.0)

Tuesday, September 12, 2023 9:10 PM

PROJECT NAME :
 Click for Drop-down Menu →

↓ Select Units ↓

	FIXTURE	ENTER TOTAL NUMBER OF FIXTURES	PROBABILITY OF USE (%)	ENTER FIXTURE FLOW RATE (GPM)	MAXIMUM RECOMMENDED FIXTURE FLOW RATE (GPM)
1	Pot Filler	1	2.00	5.5	10.0
2	Dog Bath	1	1.00	5.5	10.0
3	Bathtub (no Shower)	0	0.00	5.5	5.5
4	Bidet	0	0.00	2.0	2.0
5	Clothes Washer	1	5.50	3.5	3.5
6	Combination Bath/Shower	1	5.50	5.5	5.5
7	Dishwasher	1	0.50	1.3	1.3
8	Faucet, Bar Sink	0	0.00	1.5	1.5
9	Faucet, Kitchen Sink	1	2.00	2.2	2.2
10	Faucet, Laundry	0	0.00	2.0	2.0
11	Faucet, Lavatory	1	2.00	1.5	1.5
12	Shower, per head (no Bathtub)	0	0.00	2.0	2.0
13	Water Closet, 1.28 GPF Gravity Tank	1	1.00	3.0	3.0

COMPUTED RESULTS FOR PEAK PERIOD CONDITIONS

Total No. of Fixtures in Calculation
N = 8

99th Percentile Demand Flow
Q = 11.0 GPM

Hunter Number
H(n,p) = 0.20

Stagnation Probability
Pr[Zero Demand] = 82%

Method of Computation
Convolution

FIGURE C 102.3
WATER DEMAND CALCULATOR TO ACCOMMODATE OTHER FIXTURES (EXAMPLE 3)

Water Demand Calculator (WDC v2.1)

PROJECT NAME :
 Click for Drop-down Menu →

Friday, January 21, 2022
12:19 PM

FIXTURE GROUPS	FIXTURE	ENTER TOTAL NUMBER OF FIXTURES	PROBABILITY OF USE (%)	ENTER FIXTURE FLOW RATE (GPM)	MAXIMUM RECOMMENDED FIXTURE FLOW RATE (GPM)
Bathroom Fixtures	1 Bathtub (no Shower)	0	1.00	5.5	5.5
	2 Bidet	0	1.00	2.0	2.0
	3 Combination Bath/Shower	1	5.50	5.5	5.5
	4 Faucet, Lavatory	1	2.00	1.5	1.5
	5 Shower, per head (no Bathtub)	0	4.50	2.0	2.0
	6 Water Closet, 1.28 GPF Gravity Tank	0	1.00	3.0	3.0
Kitchen Fixtures	7 Dishwasher	1	0.50	1.3	1.3
	8 Faucet, Kitchen Sink	1	2.00	2.2	2.2
Laundry Room Fixtures	9 Clothes Washer	1	5.50	3.5	3.5
	10 Faucet, Laundry	0	2.00	2.0	2.0
Bar/Prep Fixtures	11 Faucet, Bar Sink	0	2.00	1.5	1.5
Other Fixtures	12 Fixture 1	0	0.00	0.0	6.0
	13 Fixture 2	0	0.00	0.0	6.0
	14 Fixture 3	0	0.00	0.0	6.0

DOWNLOAD RESULT

RESET WDC

↓ Select Units for Water Demand ↓

GPM

LPM

LPS

RUN WDC

COMPUTED RESULTS FOR PEAK PERIOD CONDITIONS

Total No. of Fixtures in Calculation
n = 5

99th Percentile Demand Flow
Q = 9.0 GPM

Hunter Number
H(n,p) = 0.16

Stagnation Probability
Pr[Zero Demand] = 85%

Water Demand Calculator (WDC v3.0)

Tuesday, September 12, 2023 9:23 PM

PROJECT NAME :
 Click for Drop-down Menu →

↓ Select Units ↓

GPM

LPM

LPS

DOWNLOAD RESULT

 RESET

 RUN WDC

	FIXTURE	ENTER TOTAL NUMBER OF FIXTURES	PROBABILITY OF USE (%)	ENTER FIXTURE FLOW RATE (GPM)	MAXIMUM RECOMMENDED FIXTURE FLOW RATE (GPM)
1	Other Fixture 1	0	0.00	0.0	10.0
2	Other Fixture 2	0	0.00	0.0	10.0
3	Bathtub (no Shower)	0	0.00	5.5	5.5
4	Bidet	0	0.00	2.0	2.0
5	Clothes Washer	1	5.50	3.5	3.5
6	Combination Bath/Shower	1	5.50	5.5	5.5
7	Dishwasher	1	0.50	1.3	1.3
8	Faucet, Bar Sink	0	0.00	1.5	1.5
9	Faucet, Kitchen Sink	1	2.00	2.2	2.2
10	Faucet, Laundry	0	0.00	2.0	2.0
11	Faucet, Lavatory	1	2.00	1.5	1.5
12	Shower, per head (no Bathtub)	0	0.00	2.0	2.0
13	Water Closet, 1.28 GPF Gravity Tank	0	0.00	3.0	3.0

COMPUTED RESULTS FOR PEAK PERIOD CONDITIONS

Total No. of Fixtures in Calculation
N = 5

99th Percentile Demand Flow
Q = 9.0 GPM

Hunter Number
H(n,p) = 0.16

Stagnation Probability
Pr[Zero Demand] = 85%

Method of Computation
Convolution

FIGURE C 102.4
WATER DEMAND CALCULATOR FOR THE HOT WATER BRANCH (EXAMPLE 4)

Water Demand Calculator (WDC v2.1)

PROJECT NAME: Total Number of Apartments in the Building →
 Click for Drop-down Menu → Total Apartments in this Calculation → Friday, February 4, 2022 4:37 PM

FIXTURE GROUPS	FIXTURE	ENTER TOTAL NUMBER OF FIXTURES	PROBABILITY OF USE (%)	ENTER FIXTURE FLOW RATE (GPM)	MAXIMUM RECOMMENDED FIXTURE FLOW RATE (GPM)
Bathroom Fixtures	1 Bathtub (no Shower)	0	0.45	5.5	5.5
	2 Bidet	0	0.57	2.0	2.0
	3 Combination Bath/Shower	0	1.69	5.5	5.5
	4 Faucet, Lavatory	0	1.22	1.5	1.5
	5 Shower, per head (no Bathtub)	0	1.14	2.0	2.0
	6 Water Closet, 1.28 GPF Gravity Tank	0	0.57	3.0	3.0
Kitchen Fixtures	7 Dishwasher	0	0.34	1.3	1.3
	8 Faucet, Kitchen Sink	0	1.22	2.2	2.2
Laundry Room Fixtures	9 Clothes Washer	0	1.62	3.5	3.5
	10 Faucet, Laundry	0	1.22	2.0	2.0
Bar/Prep Fixtures	11 Faucet, Bar Sink	0	1.22	1.5	1.5
Other Fixtures	12 Fixture 1	0	0.00	0.0	6.0
	13 Fixture 2	0	0.00	0.0	6.0
	14 Fixture 3	0	0.00	0.0	6.0

COMPUTED RESULTS FOR PEAK PERIOD CONDITIONS

Total No. of Fixtures in Calculation

99th Percentile Demand Flow

Hunter Number

Stagnation Probability

DOWNLOAD RESULT RESET WDC Select Units for Water Demand RUN WDC CLICK BUTTON

GPM LPM LPS

Water Demand Calculator (WDC v3.0)

Tuesday, September 12, 2023 9:25 PM

PROJECT NAME: Total Number of Apartments in the Building →
 Click for Drop-down Menu → Total Apartments in this Calculation →

FIXTURE	ENTER TOTAL NUMBER OF FIXTURES	PROBABILITY OF USE (%)	ENTER FIXTURE FLOW RATE (GPM)	MAXIMUM RECOMMENDED FIXTURE FLOW RATE (GPM)
1 Other Fixture 1	0	0.00	0.0	10.0
2 Other Fixture 2	0	0.00	0.0	10.0
3 Bathtub (no Shower)	0	0.00	5.5	5.5
4 Bidet	0	0.00	2.0	2.0
5 Clothes Washer	50	1.62	3.5	3.5
6 Combination Bath/Shower	50	1.69	5.5	5.5
7 Dishwasher	50	0.34	1.3	1.3
8 Faucet, Bar Sink	0	0.00	1.5	1.5
9 Faucet, Kitchen Sink	50	1.22	2.2	2.2
10 Faucet, Laundry	50	1.22	2.0	2.0
11 Faucet, Lavatory	100	1.22	1.5	1.5
12 Shower, per head (no Bathtub)	50	1.14	2.0	2.0
13 Water Closet, 1.28 GPF Gravity Tank	100	0.57	3.0	3.0

COMPUTED RESULTS FOR PEAK PERIOD CONDITIONS

Total No. of Fixtures in Calculation
N = 500

99th Percentile Demand Flow
Q = 31.5 GPM

Hunter Number
H(n,p) = 5.4

Stagnation Probability
Pr[Zero Demand] = 0%

Method of Computation
Wistort Method

DOWNLOAD RESULT RESET RUN WDC

FIGURE C 102.5
WATER DEMAND CALCULATOR FOR MULTI-FAMILY DWELLINGS (EXAMPLE 5)

C 102.6 Example 6: Office Building and Hotel Application. When using the WDC for an office building or hotel, select the building type from the drop-down menu in the top left corner. Choosing either “Office Building” or “Hotel” will display a utilization factor box. Enter the expected utilization factor within the range provided. Figure C 102.6(1) shows a utilization factor of 0.150 for the office building, and Figure C 102.6(2) shows a utilization factor of 0.160 for the hotel.) Once entered, proceed to use the WDC for sizing branches and risers.

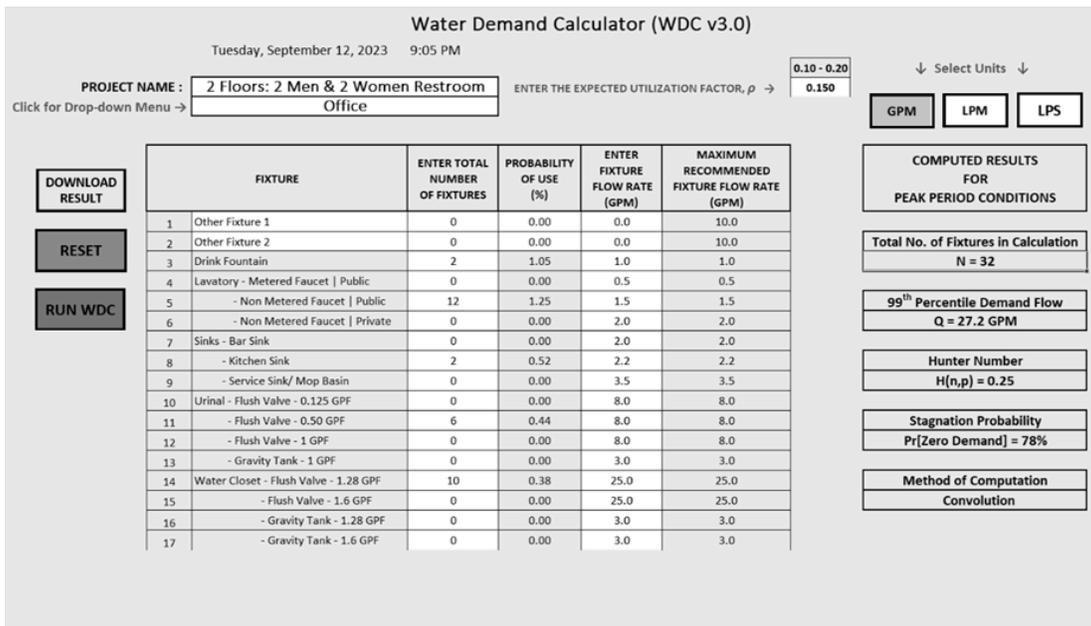


FIGURE C 102.6(1)

WATER DEMAND CALCULATOR FOR OFFICE BUILDING (EXAMPLE 6)

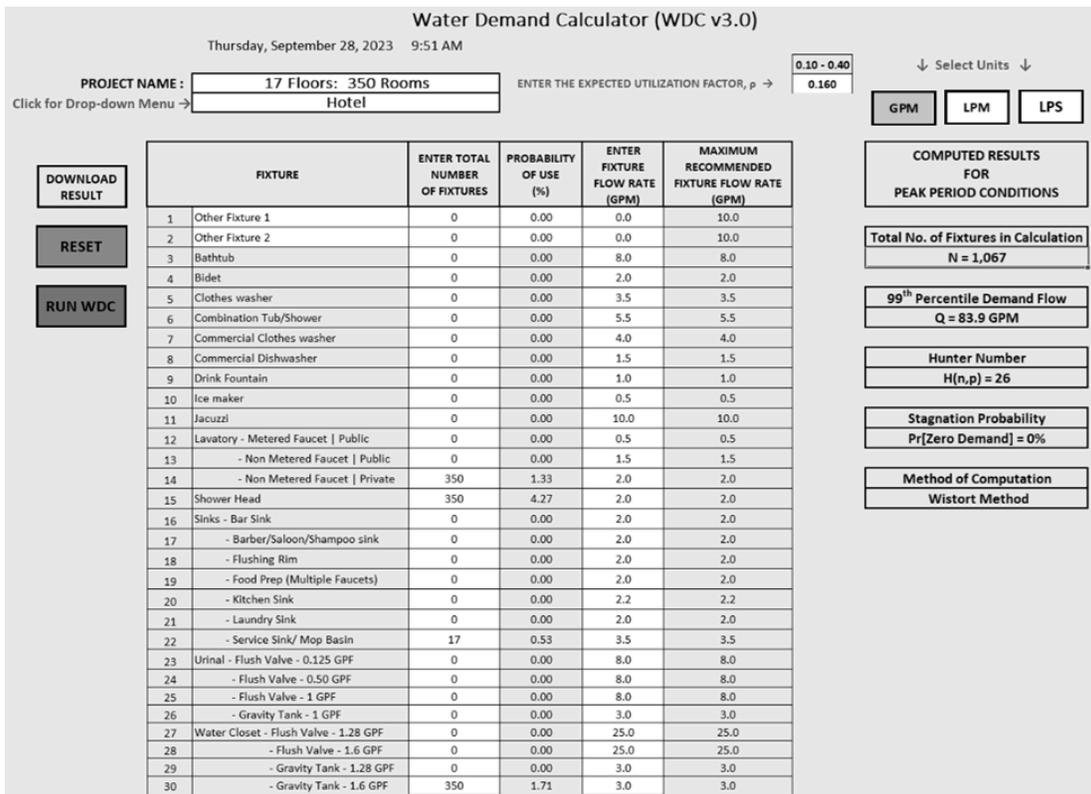


FIGURE C 102.6(2)

WATER DEMAND CALCULATOR FOR HOTEL (EXAMPLE 6)

SUBSTANTIATION:

The Water Demand Calculator® (WDC) version 3.0 has been expanded to include commercial buildings. A drop-down menu in the upper left corner allows users to select both residential and commercial building types. The underlying algorithms remain the same as those used in version 2.2 and are identified in the solution box labeled "Method of Computation." Version 3.0 introduces two key new features.

First, the fixture list is now dynamic and adjusts based on the selected building type. Residential buildings will display only residential-type fixtures, while commercial buildings will display fixtures appropriate to the selected commercial category. The fixture list updates automatically to reflect the selected building type.

Second, when a commercial building is selected, a "utilization factor" feature becomes available. A utilization box appears in the upper right corner of the WDC interface. Users must select a value within the suggested range, which is based on monitored field data. This factor influences the "Probability of Use" column, which varies by commercial building type to reflect differences in fixture usage patterns.

This proposal also replaces prior versions of the WDC templates with the updated version and revises associated language to align with the new format.

Committee Action:

Reject

Committee Statement:

A version of the Water Demand Calculator for commercial applications is currently under development and has not yet been finalized. Additionally, references to the trademarked name "jacuzzi" in Table 502.1.1 should be replaced with the generic term "spas."

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

EXPLANATION OF AFFIRMATIVE:

OSANN: Much good work has been done here. If multi-family revisions are completed before the end of the comment period, the submitter should submit a comment that will enable the TC to take positive action.

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

034

Code Number:

2023 WE-Stand

Section Number:

501.1, 502.1, 502.2.2

SUBMITTER:

Gary Klein

Organization Name:

Self

Organization Representation:

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

035

Code Number:

2023 WE-Stand

Section Number:

503.3

SUBMITTER:

Gary Klein

Organization Name:

Self

Organization Representation:

Michael McNally (Department of
Safety and Professional Services)

RECOMMENDATION:

Revise text

Proposed Text :**503.0 Size of Water Piping.**

503.3 Determining Pipe Diameters. After determining the permissible friction loss per 100 feet of pipe and the total demand loads in accordance with Section 503.2. The diameter of the building supply pipe, branches and risers shall be determined in accordance with Chart 503.3(1) through Chart 503.3(9).

Exception: The flow rates for the cold water and hot water fixture branches connected to a mixing valve serving a bathtub, combination bath/shower, or shower valve shall be permitted to be each taken as three-quarters of the design flow rate, or the maximum flow rate listed in Table 502.1.1, whichever is less.

(shown for information purposes only)

TABLE 502.1.1

MAXIMUM DESIGN FLOW RATE FOR PLUMBING FIXTURES, FIXTURE FITTINGS, AND APPLIANCES

FIXTURE AND APPLIANCE	MAXIMUM DESIGN FLOW RATE (gallons per minute)
Bar Sink	1.5
Bathtubs ²	5.5
Bidet	2.0
Clothes Washer ¹	3.5
Combination Bath/Shower	5.5
Dishwasher ¹	1.3
Kitchen Faucet	2.2
Laundry Faucet (with aerator)	2.0
Lavatory Faucet	1.5
Shower, per head	2.0
Water Closet, 1.28 gpf Gravity Tank	3.0
Other fixtures	6.0

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

Notes:

¹ Clothes washers and dishwashers shall have an Energy Star label.

² Including whirlpools and similar fixtures.

SUBSTANTIATION:

The Water Demand Calculator is intended for use on branches or risers serving two or more fixtures, fixture fittings, or appliances. The calculations need inputs for the flow rate on each fixture branch that is connected to a single fixture, fixture fitting, or appliance.

Section 503.3 (Determining Pipe Diameters): The proposed modification allows for reducing the flow rate on the fixture branches with mixing valves that serve a bathtub, a combination bath/shower valve, or a shower valve to three quarters of the total flow rate. This reduction is appropriate because anti-scald mixing valves used for these applications need flow from both the hot and cold feeds in order to operate properly. This means that the flow rate on either the hot or cold fixture branch is always less than the total.

Committee Action:

Reject

Committee Statement:

The provided substantiation lacks technical data to support the proposed new exception to Section 503.3 (Determining Pipe Diameters). Additionally, there are concerns regarding misapplication of the three-fourths reduction rule which applies to water supply fixture units in the plumbing code, not to a direct fractional reduction of flow rate. Furthermore, the language pertaining to mixing valves is broad, incomplete, and lacks reference to appropriate industry standards.

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

EXPLANATION OF AFFIRMATIVE:

OSANN: This proposal is compelling, but it needs some refinement. The proponent should come back with a public comment providing the clarifications sought by the TC.

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:
036

Code Number:
2023 WE-Stand

Section Number:
Chapter 6

SUBMITTER:
Pat Lando

Organization Name:
WEStand Ecological Sanitation
Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

CHAPTER 6

~~ECOLOGICAL SANITATION:~~ COMPOSTING TOILET AND URINE ~~REUSE~~ DIVERSION SYSTEMS

SUBSTANTIATION:

Although the systems covered by Chapter 6 are categorized as types of ecological-sanitation systems, including this distinction within the title is unnecessary as the provisions do not contain any reference to “ecological-sanitation.”

Additionally, the chapter specifically contains provisions for composting toilet and urine “diversion” systems. Therefore, the title should be updated to remove unnecessary terms and more appropriately align with the contents of the chapter.

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, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

038

Code Number:

2023 WE-Stand

Section Number:

205.0, 601.2

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****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:

17

NEGATIVE:

9

ABSTAIN:

0

NOT RETURNED:

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.

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 WESstand, resulting in systems that have no mandate to complete the circle.

VOTES NOT RETURNED:

Crawford, Granger, Smith

Item #:

039

Code Number:

2023 WE-Stand

Section Number:

603.0 – 603.1.1, 604.1.3, 602.3

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :~~603.0~~**601.3** Permits.

~~603.1~~**General:** It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any composting toilet ~~and/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 ~~reuse~~**diversion** systems ~~s~~ that meets the following criteria:

- (1) Volume does not exceed 16 ounces (473 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; ~~and~~
- (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.~~

~~603.1.1~~**601.4** ~~Urine Diversion Systems~~**Construction Documents.** No permit for any urine diversion system shall be issued until the following information is provided to the Authority Having Jurisdiction:

- (1) Name of property owner
- (2) Address
- (3) Date of application
- (4) Parcel number and size, where applicable
- (5) Identification of the public sewer system or documentation for the onsite sewage system serving the property
- (6) System design information:
 - (a) Location
 - (b) Type
 - (c) Flow rate (gpm) (L/min)
 - (d) Application rate (in/h) (mm/h)
 - (e) Design operating pressure (psi) (kPa)
 - (f) Manufacturer(s) of urine reuse fixtures
 - (g) Location of diversion valve(s)
- (7) Other information required by the Authority Having Jurisdiction

~~604.1.3~~**601.5** ~~Inspections and Testing.~~ In the event of a nuisance complaint or documented system failure, the composting toilet ~~and/or~~ urine diversion system shall be made available for inspection and the owner or owner's agent shall conduct sufficient repairs or alterations ~~to the composting toilet system.~~ ~~At the request of~~ **Where required by** the Authority Having Jurisdiction, ~~results of all laboratory testing and new tests~~ **composting toilet systems shall be retested** in accordance with Section 605.6 ~~following repairs to alleviate dangerous or unsanitary conditions shall be provided at the owner's expense.~~

602.3601.6 System Design Qualifications. Composting toilet and urine diversion systems 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.

SUBSTANTIATION:

The WEstand Ecological Sanitation Systems Task Group has generated proposals to improve enforceability and reorganize the provisions of Chapter 6. For reference, this proposal is part of a series of Task Group submissions relating to this topic.

In this proposal, sections containing either general or administrative requirements are being relocated to the beginning of the chapter.

Section 601.3 (Permits): A new exception is being added to expand the list of criteria to address application, reuse and disposal of collected urine. In a separate proposal, all provisions relating to application, reuse, and disposal are being relocated under Section 611.0.

Section 601.5 (Inspections and Testing): The section is being updated to remove conflicting language which references different systems. The updates also make clear that the laboratory tests apply specifically to composting toilet systems.

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, Smith

Item #:

040

Code Number:

2023 WE-Stand

Section Number:

602.0 – 602.1.3, 605.0, 605.1

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****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 eComposting 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #: 041 **Code Number:** 2023 WE-Stand **Section Number:** 602.2, 605.2, 605.3, 605.5.4, 603.0

SUBMITTER: Pat Lando **Organization Name:** WEstand Ecological Sanitation Systems Task Group, Chair **Organization Representation:**

RECOMMENDATION:

Revise text

Proposed Text :

603.0 Materials.

~~602.2~~**603.1 System Materials and Components****General.** Pipe, pipe fittings, traps, fixtures, material, and devices used in composting toilet and urine diversion systems that are expected to contact leachate or diverted urine shall be listed or labeled (third-party certified) by a listing agency (accredited conformity assessment body), unless otherwise approved by the Authority Having Jurisdiction, **shall comply with Section 603.0 and Section 301.2.** ~~Materials and components shall comply to 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, 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.~~

~~605.2~~**603.2 Corrosion Resistance.** All **System** components ~~expected to~~ **which come in** contact **with** excreta or leachate shall be constructed of corrosion-resistant material ~~such as~~ **including, but not limited to**, stainless steel or ~~durable~~ **approved** polymers. Concrete in contact with excreta or leachate shall meet requirements of Section

~~605.3~~**603.3.**

~~605.3~~**603.3 Concrete Construction.** Concrete construction shall be reinforced, watertight, and ~~able to withstand~~ loading weight **capable of withstanding applied loads.** Where drainage is required, the processor floor shall be sloped not less than 1/4 inch per foot (20.8 mm/m) or 2 percent slope. The flange of each sub-drain shall be set level.

~~605.5.4 Watertightness.~~ Processors shall be constructed of watertight material in accordance with Section ~~605.2.~~

(shown for information purposes only)

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.

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 603.0 (Materials): All material requirements for composting toilet systems are provided within this section.

Section 603.1 (General): Duplicative requirements which are already covered by Chapter 3 (General Regulations) are being removed and instead reference to the applicable section is provided.

Section 603.2 (Corrosion Resistance): The term “durable” is ambiguous and unenforceable. Instead, such polymers should be “approved” by the Authority Having Jurisdiction.

Section 603.3 (Concrete Construction): Such construction must be “capable of withstanding applied loads.”

This verbiage is also consistent with the Uniform Codes. The last provision of this section is being deleted as it pertains to drainage and not materials. For reference, a separate proposal inserts this provision into new Section 605.4 (Drainage).

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, 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 is 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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Item #:

043

Code Number:

2023 WE-Stand

Section Number:

605.1, 605.5, 605.5.1

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :**605.5 605.0 Compost Processors.**

605.1 General. Compost processors shall be designed **and installed** in accordance with Section ~~605.5.1~~ **605.2** through Section ~~605.8~~ **605.5.9** and shall maintain unsaturated aerobic composting conditions within the compost mass, through the drainage, absorption, or desiccation of leachate, and aeration of the processor.

~~605.5.1~~ **605.2 Leachate Collection.** Leachate shall be collected for removal, ~~or~~ recirculation within the **compost** processor, evaporated **within the system**, or ~~drained to an approved~~ **discharged to the** plumbing drainage system or other **approved** location ~~approved by the Authority Having Jurisdiction.~~ ~~Leachate s~~ Storage tanks **for leachate** shall be constructed and installed in accordance with ~~the following:~~ **Part III of this chapter.**

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 605.0 (Compost Processors): This section contains all requirements pertaining to the design and installation of compost processors.

Section 605.2 (Leachate Collection): The language is being revised for consistent verbiage and to clearly outline the allowable options. Reference is made to Part III (Storage Tanks) which is included within a separate proposal. The remaining updates are for improvement of code language.

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, Smith

Item #:

044

Code Number:

2023 WE-Stand

Section Number:

605.5.6, 605.5.9

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :

~~605.5.6~~**605.3 Sizing (Active Conditions)**. The compost processor(s) shall maintain unsaturated aerobic composting conditions within the compost mass. ~~or The compost processor(s) shall be sized to~~ ~~compost~~ accommodate the composting of excreta for a minimum retention time of not less than one year of under biologically active conditions. Biologically active conditions ~~are at or above~~ shall be defined as maintaining a daily average temperature of not less than 42°F (5.6°C).

Exception: Systems with a shorter composting retention time shall be permitted where either of the following conditions are met:

(1) Humus from the compost processor has been tested according to in accordance with Section ~~605.6.2~~**606.3** and there is either undergoes a secondary composting stage where humus is retained in a well-maintained compost bin or other facility exclusively designated for the exclusive such purpose of containing humus removed from the compost processor, or,

(2) Humus is removed off site for processing or disposal at an approved facility.

~~605.5.9 Sizing.~~ The compost processor shall be sized to accommodate the maximum daily adult usage as specified by the manufacturer's published ratings. Site built compost processors shall be sized to hold a minimum of 10 gallons of material per person per year while allowing for the removal of the humus, or as specified by the system designer.

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).

Section 605.3 [Sizing (Active Conditions)]: These updates clarify that compost processors must maintain unsaturated aerobic composting conditions within the compost mass, and the processor must be sized to accommodate composting for the specified duration.

Additionally, existing Section 605.5.9 (Sizing) is being deleted as all necessary provisions are addressed via these updates, and providing a general minimum sizing metric is not suitable for all processors.

Committee Action:

Accept As Submitted

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

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Item #:

045

Code Number:

2023 WE-Stand

Section Number:

605.4, 605.5, 605.5.8, 605.5.8.1

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :

605.4 Drainage. Where drainage of the compost processor is required, the processor floor shall be sloped not less than ¼ inch per foot (20.8 mm/m) or 2 percent. The flange of each sub-drain shall be level.

605.5 Venting. Compost processors shall be vented directly to the outdoors through one or more vent pipes. The vent pipe(s) shall extend through and terminate above the roof of the building or structure in accordance with the plumbing code. Where a trap is not installed between the dry toilet and compost processor, means shall be provided to maintain a negative pressure within the compost processor.

605.5.8 Ventilation. Negative ventilation between the dry toilet and compost processor shall be provided when the compost processor is connected directly to the dry toilet without a trap. Dry toilets that are not connected to the compost processor do not require a vent.

605.5.8.1 Vent Terminals. Vent stacks shall terminate exterior the building as required by the plumbing or mechanical code.

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 605.4 (Drainage): This language incorporates the slope requirements that were removed from existing Section 605.3 (Concrete Construction) via a separate proposal. For reference, this relocation is needed to appropriately organize provisions by topic.

Section 605.5 (Venting): This language is based on existing requirements from Section 605.5.8 (Ventilation) and Section 605.5.8.1 (Vent Terminals). The provisions have been rewritten and improved to be consistent with verbiage used in the plumbing code.

Committee Action:

Accept As Submitted

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

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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 **pip**~~ing,~~ ~~er~~**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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

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Item #:

047

Code Number:

2023 WE-Stand

Section Number:

606.1, 605.6 – 605.6.2

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :~~605.6~~**606.0** Testing.~~606.1~~**606.1** General. Composting toilet systems shall be tested in accordance with Section ~~605.6.1~~**606.2** and Section ~~605.6.2~~**606.3**.~~605.6.1~~**606.2** Compost Processors **Leakage Test**. Compost processors shall be tested for water tightness **Prior to the use of a compost processor, a leakage test shall be performed to determine that processor is liquid tight. The leakage test shall be performed** by filling the ~~system~~**processor with water** to ~~the~~**its** maximum designed ~~liquid~~ storage capacity ~~of the unit~~ for a duration of **not less than** 24 hours.~~605.6.2~~**606.3** Humus. The owner or owner's agent of the composting toilet system shall verify ~~user's~~ compliance with the ~~manufacturer's maintenance and operation~~ **and maintenance** manual ~~in accordance with Section 604.2~~ by submitting a sample of the humus from the first treatment period after a minimum of one year of biologically active conditions to a certified laboratory before removal of humus from the composting processor. Where multiple compost processors are used, the humus sample shall be removed from the last compost processor. The sample collection shall be tested in accordance with EPA/625/R-92/013, ~~Appendix F, Section 1.2~~. Humus shall not have a moisture content exceeding 75 percent by weight, and shall not exceed 200 fecal coliforms per gram (CFU/g).**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 606.0 (Testing): This section contains all requirements pertaining to testing of compost processors.

Section 606.2 (Leakage Test): This section specifies the procedure for "leakage testing" of the compost processor to confirm that it is liquid tight. This leakage test is needed prior to use to ensure that the compost processor can safely contain urine, leachate, or added water without risk of environmental contamination, equipment damage, or operational failure.

Section 606.3 (Humus): Reference to the "operation manual" is being replaced with "operation and maintenance manual." Additionally, referencing a specific appendix and section of a standard is inconsistent with IAPMO's Manual of Style.

Committee Action:

Accept As Submitted

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

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Item #:

048

Code Number:

2023 WE-Stand

Section Number:

217.0, 604.0 – 604.2, 607.0

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :**607.0 Operation and Maintenance.**

~~604.1.2~~**607.1 Operation.** Composting toilet ~~and urine diversion~~ systems shall be operated in a safe and sanitary condition in accordance with the ~~owner's~~ **operation and maintenance** manual ~~in accordance with Section 604.2.~~

~~604.1.1~~**607.2 Maintenance Responsibility.** The required maintenance ~~and inspection of a~~ composting toilet ~~and urine diversion~~ systems shall be the responsibility of the property owner, unless otherwise required by the Authority Having Jurisdiction. The property owner ~~is~~ **shall be** responsible for retaining test result records in accordance with Section 605.6.2 and ~~making~~ **providing** them ~~available to the Authority Having Jurisdiction upon request.~~

~~604.2~~**607.3 Composting Toilet; Operation and Maintenance Manual.** An ~~owner's~~ **operation and maintenance** manual shall present clear instructions for maintenance and be transferred **for the composting toilet system shall be**

provided to the ~~new owner.~~ **Upon transfer of property, or tenancy the manual shall be provided to the new owner.**

The ~~owner's~~ **operation and maintenance** manual shall ~~include~~ **contain not less than the following information:**

- (1) Schedule for addition of necessary compost additives.
- (2) Source or provider of necessary compost additives. Source may be on-site.
- (3) Schedule and instructions for all regular maintenance tasks.
- (4) Expected input of and capacity for excreta and compost additives to compost toilet system specifying loading of dry toilet(s) and compost processor(s).
- (5) Plan for container transfer and cleaning where transfer is used.
- (6) Expected schedule for removing humus from composting processors and where used secondary composting bins.
- (7) Plan for on-site disposal of humus or professional removal.
- (8) Plan for managing leachate.
- (9) Plan for microbial testing in accordance with Section 605.6.2.

~~**604.0 Maintenance and Inspection.**~~

~~**604.1 General.** Composting toilet and urine diversion systems and components shall be maintained and inspected in accordance with Section 604.1.1 through Section 604.1.3.~~

217.0 - 0 -

~~Owner's~~ **Operation and Maintenance** Manual. A manual provided to the owner containing instructions for all management aspects of that system.

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.

Section 607.0 (Operation and Maintenance): This section contains all provisions pertaining to the maintenance and operation of composting toilet systems. Reference to urine diversion systems is being removed as the corresponding requirements for operation and maintenance manuals are being relocated under Part II (Urine Diversion Systems) via a separate proposal.

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, Smith

Item #:

049

Code Number:

2023 WE-Stand

Section Number:

606.1, 606.2, 608.0 – 608.2.2

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

050

Code Number:

2023 WE-Stand

Section Number:

606.3, 609.0, 609.1

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :**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 shall comply with Section 604.0.

~~606.3 Material Requirements.~~ Material used in urine reuse/diversion systems shall be impermeable and corrosion resistant.

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.

This recommendation proposes the following updates:

Section 609.0 (Materials): This section contains all material requirements for urine diversion systems.

Section 609.1 (General): Rather than repeating the existing requirements in Section 301.2, which specify that all pipe, pipe fittings, traps, fixtures, materials, and devices must be listed, reference to this section is provided. In a separate proposal, the requirements for dry toilets are being relocated under new Section 604.0 (Dry Toilets). Since dry toilets may be installed in urine diversion systems, reference to this section is being added.

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, Smith

Item #:

051

Code Number:

2023 WE-Stand

Section Number:

606.0, 606.4 – 606.10, 610.1

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :~~606.0~~ **610.0 Urine Diversion System Design Piping.****610.1 General.** Urine diversion piping shall be installed in accordance with Section 610.2 through Section 610.8.~~606.4~~ **610.2 Identification.** All urine diversion piping shall be identified.~~606.5~~ **610.3 Change of Direction.** Changes in direction of urine diversion piping shall be ~~made by a long sweep 90 degree fitting or other approved fittings of equivalent sweep~~ **in accordance with the drainage piping requirements of the plumbing code.**~~606.6~~ **610.4 Pipe Sizing.** Pipe sizes shall be in accordance with the plumbing code. Each urine diversion fixture shall be rated as one drainage fixture unit. Piping or tubing for urine diversion that is less than the minimum pipe diameter required in the plumbing code shall be approved by the Authority Having Jurisdiction.~~606.7~~ **610.5 Traps.** Fixtures discharging into urine diversion piping connected to the plumbing drainage system shall be trapped and vented according to the plumbing code.~~606.7.1~~ **610.5.1 Vapor Backflow Protection.** Where the urine diversion system is not connected to the plumbing drainage system, urine diversion fixtures discharging into piping shall be protected with a vapor backflow seal.~~606.8~~ **610.6 Gradient of Horizontal Piping.** Urine diversion piping shall be installed at a minimum gradient of 1/2-inch per foot (in/ft) (41.7 mm/m), or 4 percent toward the point of disposal or storage.~~606.9~~ **610.7 Cleanouts.** A cleanout shall be provided at the upper terminal of each drain line, every 50 feet (15 240 mm) and at an aggregate horizontal change of direction exceeding 135 degrees (2.4 rad).~~606.10~~ **610.8 Venting.** Dry toilet fixtures without traps that require ventilation shall be connected to either a dry toilet ventilation stack or a urine diversion ventilation stack. Nonwater urinals used as urine diversion systems shall be connected to a dry toilet ventilation stack or a urine diversion ventilation stack.**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.

This recommendation proposes the following updates:

Section 610.0 (Urine Diversion Piping): This section contains all installation requirements for urine diversion piping.

Section 610.3 (Change of Direction): Fittings used for changes in the direction of piping are best regulated by the drainage piping requirements in the plumbing code. To prevent potential conflicts and ensure that the most relevant requirements are implemented, reference to this code is being included.

Committee Action:

Accept As Submitted

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

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Item #:

052

Code Number:

2023 WE-Stand

Section Number:

606.11 – 606.12.1, 606.14, 611.0

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :**611.0 Treatment, Reuse, and Disposal.**

~~606.11~~ **611.1 Discharge.** A urine-diversion system shall be diverted to a storage tank or discharged to an approved plumbing drainage system.

~~606.12~~ **611.2 Urine Storage Tanks.** Urine storage tanks greater than 55 gallons (208 L) and having an application area of not less than 1150 square feet (106.8 m²) shall be constructed and installed in accordance with ~~Section 606.12.1 through Section 606.12.9~~ **Part III of this chapter.** The total required storage volume shall be in accordance with Section 611.2.1.

~~606.12.1~~ **611.2.1 Total Storage Volume.** The total required storage volume (*V*) for a urine diversion system shall be determined in accordance with Equation ~~606.12.1~~ **611.2.1**. The use of multiple storage tanks to meet the required total storage volume shall be permitted.

$$V = A \times N \times \frac{h}{24} \quad (\text{Equation } ~~606.12.1~~ \mathbf{611.2.1})$$

Where:

A = 0.4*h* = number of hours where the system is accessible to users, hours per day*N* = number of expected users*t* = duration of storage time, days*V* = total required volume, gallonsFor SI units: 1 gallon = 3.785 L, *A* = 1.5

~~606.14~~ **611.3 Treatment and Application.** Where stored urine is to be reused onsite, a treatment method for achieving sanitized urine shall be included in the owner's manual. Approved methods of treatment shall include:

(1) Retention of stored urine without addition for six months before usage. Two or more holding tanks shall be required for retention,

(2) Direct application to the compost processor, or through an approved nutrient management plan (NMP) meeting fecal coliforms not exceeding 2.2 Colony Forming Units (CFU) per 100 millimeters (mL), or as determined by the Authority Having Jurisdiction, or

~~(3) Alkaline treatment, or~~

~~(4)~~ **(3)** Where urine is heated for at least 15 seconds and not more than 30 minutes, Equation ~~606.14~~ **611.3(1)** shall be used to determine the required duration of treatment (*D*). Where urine is heated for at least 30 minutes at a temperature of not less than 122°F (50°C), Equation ~~606.14~~ **611.3(2)** shall be used to determine the required duration of treatment (*D*).

$$D = \frac{131\,700\,000}{10^{0.14T}} \quad [\text{Equation } ~~606.14~~ \mathbf{611.3(1)}]$$

$$D = \frac{50\,070\,000}{10^{0.14T}}$$

[Equation 606.14-611.3(2)]

Where:

D = duration of treatment, days

T = temperature, °C

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.

This recommendation proposes the following updates:

Section 611.0 (Treatment, Reuse, and Disposal): This section contains all requirements pertaining to discharge, storage, treatment, and application of diverted urine.

Section 611.2 (Urine Storage Tanks): While the sizing requirements are included under this section, the construction and installation requirements for storage tanks are being relocated to Part III (Storage Tanks) via a separate proposal. The requirements for urine and leachate storage tanks were duplicated within the chapter, and Part III aims to consolidate such provisions. Therefore, reference to Part III is included.

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, Smith

Item #:

053

Code Number:

2023 WE-Stand

Section Number:604.3, 606.13, 606.13.1, 612.0 –
612.2**SUBMITTER:**

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :**612.0 Operation and Maintenance.**

612.1 Operation. Urine diversion systems shall be operated in a safe and sanitary condition in accordance with the operation and maintenance manual.

612.2 Maintenance Responsibility. The required maintenance of a urine diversion system shall be the responsibility of the property owner, unless otherwise required by the Authority Having Jurisdiction.

~~604.3~~ **612.3 Urine Diversion; Operation and Maintenance Manual.** An owner's operation and maintenance manual shall contain instructions for maintenance and shall be transferred for the urine diversion system shall be provided to the new owner. ~~u~~ Upon transfer of property, ~~or tenancy~~ the manual shall be provided to the new owner. ~~The owner's manual shall include:~~ The operation and maintenance manual shall contain not less than the following information:

- (1) Expected input of and capacity for urine storage and urine treatment additives.
- (2) Nutrient management plan (sample plan).
 - (a) Expected schedule for application.
 - (b) Plan for application.
 - (c) Source of additional additives (including onsite materials).
- (3) ~~Schedule and instructions for all regular maintenance tasks.~~ Maintenance plan including the following:
 - (a) Either a pumpout schedule and a contract, or an onsite discharge plan.
 - (b) Pipe cleaning schedule.
 - (c) Designation of cleaning agent(s) used for pipe cleaning, as approved by the manufacturer and or the system designer.
- (4) Plan for container transfer and cleaning where transfer is used.
- (5) Plan for testing in accordance with the following:
 - (a) Nutrient management plan.
 - (b) Certification of commercial product such as fertilizers and agricultural amendments.

~~606.13 Maintenance Plan.~~ Every urine diversion system shall have a maintenance plan supplied to the building owner.

~~606.13.1 Contents of Maintenance Plan.~~ The maintenance plan shall include the following information:

- (1) ~~Either a pumpout schedule and a contract, or an onsite discharge plan;~~
- (2) ~~A pipe cleaning schedule; and~~
- (3) ~~Designation of one or more of the following agents used for pipe cleaning:~~
 - (a) ~~Acetic acid;~~
 - (b) ~~Citric acid;~~
 - (c) ~~Sodium hydroxide;~~
 - (d) ~~Suitable biodegradable surfactant, or~~
 - (e) ~~Other cleaning agents approved by the Authority Having Jurisdiction.~~

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.

This recommendation proposes the following updates:

Section 612.0 (Operation and Maintenance): This section contains all provisions pertaining to the maintenance and operation of urine diversion systems.

Section 612.1 (Operation) & Section 612.2 (Maintenance Responsibility): For consistency, these sections mimic those addressing the operation and maintenance manuals for composting toilet systems.

Section 612.3 (Operation and Maintenance Manual): This section outlines the required contents of operation and maintenance manuals for urine diversion systems. The updates consolidate existing requirements from Section 606.13.1 (Contents of Maintenance Plan) and, instead of listing specific cleaning agents, refers users to the manufacturer or system designer for guidance.

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, Smith

Item #:

054

Code Number:

2023 WE-Stand

Section Number:605.5.1.1, 605.5.1.1.1, 606.12.2,
606.12.2.1, 613.0, 613.1**SUBMITTER:**

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :**Part III – Storage Tanks.****613.0 General.**

613.1 Installation. Storage tanks for leachate from compost processors or for diverted urine shall be installed in accordance with Section 613.2 through Section 613.10.

~~605.5.1.1~~ **613.2 Venting.** Leachate sStorage tanks shall be vented as required for pressure equalization.

When ~~Where~~ **Where** required, vents ~~pipng~~ **pipng** shall be installed on ~~leachate storage tanks,~~ **leachate storage tanks,** and shall extend from the top of the tank, ~~and connect to the plumbing venting system or discharge to the outdoors.~~ **and connect to the plumbing venting system or discharge to the outdoors.** The ~~e~~ **Connections** of storage tank vents to the plumbing venting system shall be ~~six~~ **not less than 6** inches ~~(152 mm)~~ **(152 mm)** above the flood level rim of the highest fixture. Vents ~~extending~~ **discharging** to the outdoors shall terminate ~~no~~ **not** less than 12 inches (305 mm) above grade. 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~~ **entrance** of ~~rodents, vermin,~~ **rodents, vermin,** and insects.

~~606.12.2 Venting.~~ Urine storage tanks shall be vented as required for pressure equalization. When required, vents shall be installed on urine storage tanks and shall extend from the top of the tank. The connection of storage tank vents to the plumbing venting system shall be six inches above the flood level rim of the highest fixture. Vents extending to the outdoor shall terminate no less than 12 inches (305 mm) above grade. 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.

~~605.5.1.1.1~~ **613.3 Vent Size.** Pressure equalization vents that prevent nitrogen loss by the use of restrictions, or 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.

~~606.12.2.1 Vent Size.~~ Pressure equalization vents that prevent nitrogen loss by the use of restrictions, or 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.

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 construction and installation requirements for urine and leachate storage tanks were duplicated within the chapter, and Part III (Storage Tanks) aims to consolidate these provisions.

This recommendation proposes the following updates:

Section 613.0 (General): This section contains all construction and installation requirements for leachate and urine storage tanks. Where a provision is specific to either a urine diversion or composting toilet system, such distinction is provided.

Section 613.2 (Venting): The language is being updated for compliance with IAPMO's Manual of Style.

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, Smith

Item #:

055

Code Number:

2023 WE-Stand

Section Number:605.5.1.2, 605.5.1.2.1, 606.12.4,
606.12.4.1**SUBMITTER:**

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :

~~605.5.1.2~~**613.4** Overflow. Where installed, storage tank overflows ~~are installed they~~ shall be connected to the plumbing drainage system. A backwater valve shall be provided in accordance with the plumbing code.

~~605.5.1.2.1 Backwater Valve.~~ Storage tank overflows, when subject to backflow, shall be provided with a backwater valve at the point of connection to the plumbing drainage system. ~~The backwater valve shall be accessible for inspections and maintenance.~~

~~606.12.4 Overflow.~~ Where storage tank overflows are installed they shall be connected to a plumbing drainage system.

~~606.12.4.1 Backwater Valve.~~ Storage tank overflows subject to backflow shall be provided with a backwater valve at the point of connection to the plumbing drainage system when connected to a public sewer system or on-site wastewater system. ~~The backwater valve shall be accessible for inspections and maintenance.~~

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).

Provisions for backwater valves are sufficiently covered by the plumbing code. To prevent potential conflicts and ensure the most relevant provisions are applied, reference to this code is being included and the corresponding sections on backwater valves are being deleted.

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, Smith

Item #:

056

Code Number:

2023 WE-Stand

Section Number:

606.12.3

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :

~~606.12.3~~**613.5** Traps. Urine storage tanks shall prevent odors and nitrogen loss from the tank inlet by means of a P-trap, mechanical trap, submerged inlet piping, or other means approved by the Authority Having Jurisdiction. Submerged inlet piping shall remain submerged during use and after pumpout.

Exception: ~~Tanks of five gallons or less connected to fixtures with active ventilation or having an integrated seal.~~ 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.

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).

The exception to Section 613.5 (Traps) is being revised to improve clarity and ensure compliance with IAPMO's Manual of Style.

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, Smith

Item #:

057

Code Number:

2023 WE-Stand

Section Number:

605.5.1.3, 606.12.5

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :

~~606.12.5~~ **613.6 Construction Materials.** Urine storage tanks shall be constructed of polyethylene terephthalate (PET), polyethylene naphthalate (PEN), polyamide (Nylon), or a blend of PET, PEN, ethylene vinyl alcohol (EVOH), Nylon, high density polyethylene (HDPE), or other tanks listed or certified to US 49 CFR Section 178.274 Specifications for UN Portable Tanks **a compatible blend of these materials.**

Exception: Storage tanks complying with 49 CFR Section 178.274.

~~605.5.1.3 Construction.~~ Leachate storage tanks shall be 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.

Note: 49 CFR Section 178.274 does not meet 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 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 revisions to Section 613.6 (Materials) clarify that storage tanks may be constructed from any compatible combination of the listed materials, whether individually or in blends. Additionally, tanks certified under [49 CFR Section 178.274](#) are permitted as alternatives, as they are constructed from metal and do not conform to the material list provided in this section; however, 49 CFR Section 178.274 requires metal tanks to be lined with a corrosion resistant material compatible with their contents.

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, Smith

Item #:

058

Code Number:

2023 WE-Stand

Section Number:

605.5.1.4, 606.12.4.2, 606.12.6

SUBMITTER:

Pat Lando

Organization Name:

WEStand Ecological Sanitation
Systems Task Group, Chair

Organization Representation:

RECOMMENDATION:

Revise text

Proposed Text :

~~606.12.6~~ **613.7 Above Grade.** Where subject to freezing, above grade storage tanks shall be provided with means for freeze protection. Above grade storage tanks shall be prohibited where subject to freezing conditions, or shall be provided with an ~~adequate means of freeze protection~~ audible and visual alarm, readily accessible, that signals an overload condition.

Exception: Where freezing conditions are necessary for treatment and the storage tanks are listed for such use, means for freeze protection shall not be required.

~~605.5.1.4 Above Grade.~~ 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 an audible and visual high-water alarm.

~~606.12.4.2 Alarms.~~ Storage tanks shall be equipped with a visible and audible alarm to indicate when the tank has reached 80 percent capacity.

~~Exception: Urine storage tanks utilized for sterilization or other approved treatment methods in accordance with Section 606.14.~~

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 613.7 (Above Grade) consolidate existing requirements for these tanks and improve readability and enforceability.

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, Smith

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) bBe 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/ft²) (14.4 kPa) ~~when the tank is designed for underground installation.~~

(3) Below grade urine tanks installed underground shall bBe provided with manholes for inspection and maintenance. The manhole openings s 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 s.

(4) Underground tanks shall bBe 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/ft²) (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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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Item #:

060

Code Number:

2023 WE-Stand

Section Number:

605.5.1.6, 606.12.8

SUBMITTER:

Pat Lando

Organization Name:WEStand Ecological Sanitation
Systems Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :

~~606.12.8~~**613.9** Marking. Where openings are provided to allow a person to enter the tank, the opening shall be marked with the following words: "DANGER-CONFINED SPACE."

~~605.5.1.6~~ Marking. Where openings are provided to allow a person to enter the tank, the opening shall be marked with the following words: "DANGER-CONFINED SPACE."

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.

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, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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** 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** 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

063

Code Number:

2023 WE-Stand

Section Number:

701.2

SUBMITTER:

Pat Lando

Organization Name:WEStand Gray Water Systems Task
Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :**701.0 General.**

701.2 System Design. ~~Alternate water source~~ **Untreated gray water** 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 the ~~alternate water source~~ **untreated gray water** system as required by the Authority Having Jurisdiction. Components, piping, and fittings used in ~~any alternate water source~~ **the** system shall be listed.

Exceptions:

~~(1) A person registered or licensed to perform plumbing design work is~~ **shall** not **be** required ~~to~~ **for** design **of** **untreated** gray water systems having a maximum discharge capacity of 250 gallons per day (gal/d) (946 L/d) ~~for single family and multi-family dwellings.~~

~~(2) A person registered or licensed to perform plumbing design work is not required to design an on-site treated nonpotable water system for single family dwellings having a maximum discharge capacity of 250 gal/d (946 L/d).~~

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, Exception (2) is being stricken as it directly pertains to "onsite treated nonpotable water systems." Additionally, the phrase "for single-family and multi-family dwellings" is being removed, as this exception should not be limited to those specific occupancy types.

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, Smith

Item #:

064

Code Number:

2023 WE-Stand

Section Number:

205.0, 701.3

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. It shall be unlawful for any person to construct, install, alter, or cause to be constructed, installed, or altered any ~~alternate water source~~ **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.

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. ~~A written notification shall be provided to the Authority Having Jurisdiction in accordance with Section 701.3.1.~~

205.0 - C -

Clothes Washer System. A gray water system for subsoil or subsurface irrigation receiving the discharge from only one residential clothes washing machine in a single family dwelling and is independent from the plumbing system.

SUBSTANTIATION:

The last sentence of the exception is being removed as this is already stated in Section 701.3.1 and does not need to be repeated.

In order to be exempt from a plumbing permit, the plumbing system cannot be altered in any way. The clothes washer system must be an independent irrigation system using gray water only from clothes washing machines. The piping must be separate and independent from the plumbing system. The proposed definition details the intent of these systems as used in the WEStand and adds clarity regarding its independence from the drainage system.

Committee Action:

Accept As Amended by the TC

Proposed Text :**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.

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.

205.0 - C -

Clothes Washer System. A gray water system for subsoil or subsurface irrigation receiving the discharge from only one residential clothes washing machine in a single family dwelling and is independent from the plumbing system.

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.

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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:

~~(31)~~ (31) 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.~~

~~(42)~~ (42) 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.

~~(23)~~ (23) 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.

~~(45)~~ (45) The gray water shall be contained on the site where it is generated.

~~(56)~~ (56) Gray water shall be directed to and contained within an irrigation or disposal field.

~~(67)~~ (67) Ponding or runoff ~~is prohibited~~ shall not be permitted and shall be considered a nuisance.

~~(78)~~ (78) 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)~~ (8) Gray water systems shall be designed to minimize contact with humans and domestic pets.

~~(9)~~ (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.

~~(1211)~~ (1211) 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.

~~(1312)~~ (1312) ~~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.

(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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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) Details on deactivating the system for maintenance, repair, or other purposes.
- (5) Applicable testing, inspection, and maintenance frequencies as required by Table 701.5.1.
- (6) A method of contacting the manufacturer(s).
- (7) 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:
067

Code Number:
2023 WE-Stand

Section Number:
701.7, Table 1401.1

SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task
Group, Chair

Organization Representation:

RECOMMENDATION:
Delete text without substitution

Proposed Text :

701.0 General.

~~701.7 Minimum Water Quality Requirements. The minimum water quality for alternate water source systems shall meet the applicable water quality requirements for the intended application as determined by the Authority Having Jurisdiction. In the absence of water quality requirements for on-site treated nonpotable systems, the water quality requirements of IAPMO IGC 324, NSF/ANSI 350, or the EPA/600/R-12/618 shall apply.~~

~~Exception: Water treatment is not required for gray water used for subsurface irrigation.~~

(renumber remaining sections)

**TABLE 1401.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
EPA/600/R-12/618-2012	Guidelines for Water Reuse	701.7

(portions of table not shown remain unchanged)

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 701.7 (Minimum Water Quality Requirements) is being deleted.

Additionally, the referenced standards (IAPMO IGC 324 and NSF/ANSI 350) for treatment and minimum water quality are addressed in other sections of the WEStand such as Table 802.9(2) (Monitoring Parameters) for blackwater treatment systems, Section 902.1.1 (Listed Devices and Equipment) and Table 902.9(2) (Monitoring Parameters) for onsite gray water treatment systems, and Chapter 11 for onsite stormwater treatment systems.

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, Smith

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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~~**308.15** **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~~**308.15.1** **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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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Item #:

069

Code Number:

2023 WE-Stand

Section Number:

701.12

SUBMITTER:

Pat Lando

Organization Name:WEStand Gray Water Systems Task
Group, Chair**Organization Representation:****RECOMMENDATION:**

Delete text without substitution

Proposed Text :**701.0 General.**

~~701.12 Separation Requirements. All underground alternate water source service piping other than gray water shall be separated from the building sewer in accordance with the plumbing code. Pipes carrying treated nonpotable water shall be permitted to be run or laid in the same trench as potable water pipes with a 12 inch (305 mm) minimum vertical and horizontal separation where both pipe materials are approved for use within a building. Where horizontal piping materials do not comply with 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)

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 701.12 (Separation Requirements) is being deleted as it directly pertains to treated nonpotable water piping and potable water piping. For reference, these requirements are also currently found in Chapter 9 and Chapter 11.

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, Smith

Item #:

070

Code Number:

2023 WE-Stand

Section Number:

701.14

SUBMITTER:

Pat Lando

Organization Name:WEStand Gray Water Systems Task
Group, Chair**Organization Representation:****RECOMMENDATION:**

Delete text without substitution

Proposed Text :

701.0 General.

~~701.14 Sizing. Unless otherwise provided for in this standard, alternate water source piping shall be sized in accordance with the plumbing code for sizing potable water piping.~~

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 701.14 (Sizing) is being deleted. This section is applicable to potable water pipe sizing and not to untreated gray water systems for irrigation. Additionally, applicable sizing provisions are already addressed elsewhere in the chapter.

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, Smith

Item #:

071

Code Number:

2023 WE-Stand

Section Number:

702.0, 702.2.1

SUBMITTER:

Pat Lando

Organization Name:WEStand Gray Water Systems Task
Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :702.0 Untreated Gray Water Systems.

702.2 Gray Water Collection Piping. (remaining text unchanged)

702.2.1 Diverter. The diverter valve shall be connected ~~and installed in the open position to the building sewer~~ untreated gray water system and the drainage system. ~~The gray water diversion port shall remain capped off for future use until a gray water irrigation/reuse system is installed.~~

SUBSTANTIATION:

Section 702.2.1 (Diverter) is being revised to remove the phrase "and installed in the open position," as it is unenforceable and creates confusion. Additionally, the term "building sewer" is being replaced with "drainage system," as the defined term "building sewer" is overly specific and may not encompass all applications of diverter valves. Finally, the last sentence, which includes provisions for the diversion port, is being removed due to concerns that piping intended for untreated gray water may accumulate stagnant water, posing a potential health risk.

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, Smith

Item #:
072

Code Number:
2023 WE-Stand

Section Number:
702.2.3

SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task
Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

702.2 Gray Water Collection Piping. (remaining text unchanged)

702.2.3 Regulatory. **Untreated** Gray water ~~reuse and irrigation~~ system components shall meet local, and state code and regulatory requirements.

SUBSTANTIATION:

Section 702.2.3 (Regulatory) is being revised to remove unnecessary language and to align 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.

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, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

074

Code Number:

2023 WE-Stand

Section Number:

702.12, 702.12.1

SUBMITTER:

Pat Lando

Organization Name:WEStand Gray Water Systems Task
Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :

702.12 Procedure for Estimating Gray Water Discharge. Untreated gray water systems shall be designed to distribute the total ~~amount of~~ estimated volume of gray water ~~on a daily basis~~ discharge for irrigation purposes. The total volume of gray water discharge ~~for gray water systems~~ shall be determined in accordance with Section 702.12.1 or Section 702.12.2.

702.12.1 Single Family Dwellings and Multi-Family Dwellings. The gray water discharge for single family and multi-family dwellings shall be calculated by water use records, calculations of local daily per person interior water use, or the following procedure:

(1) The number of occupants of each dwelling unit shall be calculated as follows:

First bedroom 2 occupants

Each additional bedroom 1 occupant

(2) The estimated gray water flows of each occupant shall be calculated as follows:

Showers and bathtubs 13 gallons (49 L) per day/occupant

Lavatories 4 gallons (15 L) per day/ occupant

Laundry 10 gallons (38 L) per day/ occupant

(3) The total number of occupants shall be multiplied by the applicable estimated gray water discharge as provided above and the type of fixtures connected to the untreated gray water system.

SUBSTANTIATION:

Section 702.12 (Procedure for Estimating Gray Water Discharge) and Section 702.12.1 (Single Family Dwellings and Multi-Family Dwellings) are being updated to clarify that the “total estimated volume” of the gray water discharge is used to design the system. Additionally, the phrase “on a daily basis” is unnecessary as the discharge is determined in the following subsections. The remaining revisions are for 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.

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, Smith

Item #:

075

Code Number:

2023 WE-Stand

Section Number:

702.13 - 702.13.2

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. Untreated Gray water system components shall be in accordance with Section 702.13.1 through Section 702.13.7.

702.13.1 Surge Tanks. Where installed, surge tanks shall comply with the following:

(1) – (4) (remaining text unchanged)

(5) Each Where a surge tank shall have has an overflow drain, the overflow drains shall have a permanent connections to the building drain or building sewer, upstream of septic tanks, if any. The overflow drain shall not be equipped with a shutoff valve.

(6) – (9) (remaining text unchanged)

(10) Surge tanks shall be anchored to prevent against resist overturning when installed aboveground. 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 shall meet or exceed the buoyancy forces of the tank.

702.13.2 Gray Water Pipe and Fitting Materials. Aboveground and underground building drainage and vent pipe and fittings for untreated gray water systems shall comply with the requirements for aboveground and underground sanitary building drainage and vent pipe and fittings in the plumbing code.

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 702.13 (Gray Water System Components) and Section 702.13.2 (Gray Water Pipe and Fitting Materials) are being updated. Additionally, Item (5) of Section 702.13.1 (Surge Tanks) is being rewritten to provide guidance on overflow drains, where installed. This update removes the overly stringent mandate of always installing an overflow drain. Also, Item (10) of Section 702.13.1 (Surge Tanks) is being updated to use terms which more appropriately align with the intent of the provision.

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, Smith

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:

24

NEGATIVE:

0

ABSTAIN:

1

NOT RETURNED:

4

EXPLANATION OF ABSTAIN:

SOVOCOL: 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, Smith

Item #:
077

Code Number:
2023 WE-Stand

Section Number:
702.15.1.2

SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task
Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

702.15 Subsurface and Subsoil Irrigation Field, and Mulch Basin Design and Construction. (remaining text unchanged)

702.15.1 Subsurface Irrigation Field. (remaining text unchanged)

702.15.1.2 Filter. ~~Not less than 140 mesh (115 micron) filter with a capacity of 25 gallons per minute (gpm) (1.58 L/s), or equivalent shall be installed.~~ Filters shall be sized based on the design flow rate and intended application and shall be installed in accordance with the manufacturer's installation instructions. Where a filter backwash is installed, the backwash and flush discharge shall discharge into the building sewer or private sewage disposal system. Filter backwash and flush water shall not be used for any purpose.

SUBSTANTIATION:

The current filtration requirements for subsurface irrigation fields are overly specific and stringent. Rather than specifying the level of filtration and capacity, the filter should be sized based on the design flow rate and intended application. Once selected, the filter must be installed according to the manufacturer's instructions.

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, Smith

Item #:

078

Code Number:

2023 WE-Stand

Section Number:

702.15.1.5

SUBMITTER:

Pat Lando

Organization Name:WEStand Gray Water Systems Task
Group, Chair**Organization Representation:****RECOMMENDATION:**

Revise text

Proposed Text :

702.15 Subsurface and Subsoil Irrigation Field, and Mulch Basin Design and Construction. (remaining text unchanged)

702.15.1 Subsurface Irrigation Field. (remaining text unchanged)

702.15.1.5 Controls. ~~The system design shall provide~~ Where the system is designed with multiple irrigation zones, user controls, such as valves, switches, timers, and other controllers, shall be provided to rotate the distribution of gray water between irrigation zones.

SUBSTANTIATION:

The proposed change to Section 702.15.1.5 (Controls) adds a leading statement clarifying that this section is intended for control requirements when the system contains multiple irrigation zones. This removes the ambiguity of the section and adds clear direction to the end user.

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, Smith

Item #:
079

Code Number:
2023 WE-Stand

Section Number:
702.15.2.2

SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task
Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

702.15 Subsurface and Subsoil Irrigation Field, and Mulch Basin Design and Construction. (remaining text unchanged)

702.15.2 Mulch Basin. (remaining text unchanged)

702.15.2.2 Minimum Depth. Gray water supply piping, including drip feeders, shall be a minimum 2 inches (51 mm) below finished grade ~~and covered with mulch.~~

SUBSTANTIATION:

Based on the layout of provisions, it is already understood that the covering is mulch. Therefore, the last portion of the section is unnecessary and can be removed.

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, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

081

Code Number:

2023 WE-Stand

Section Number:

704.0 - 704.13

SUBMITTER:

Pat Lando

Organization Name:WEStand Gray Water Systems Task
Group, Chair**Organization Representation:****RECOMMENDATION:**

Delete text without substitution

Proposed Text :**~~704.0 On-Site Treated Nonpotable Water Systems.~~**

~~704.1 General.~~ The provisions of this section shall apply to the installation, construction, alteration, and repair of on-site treated nonpotable water systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, above and below ground irrigation, and other uses approved by the Authority Having Jurisdiction.

~~704.2 Plumbing Plan Submission.~~ No permit for any on-site treated nonpotable water system shall be issued until complete plumbing plans, with appropriate data satisfactory to the Authority Having Jurisdiction, have been submitted and approved.

~~704.3 System Changes.~~ No changes or connections shall be made to either the on-site treated nonpotable water system or the potable water system within any site containing an on-site treated nonpotable water system without approval by the Authority Having Jurisdiction.

~~704.4 Connections to Potable or Reclaimed (Recycled) Water Systems.~~ On-site treated nonpotable water systems shall have no connection to any potable water supply or reclaimed (recycled) water source system. Potable or reclaimed (recycled) water is permitted to be used as makeup water for a non-pressurized storage tank provided the makeup water supply is protected by an airgap in accordance with the plumbing code.

~~704.5 Water Pressure.~~ On-site 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) residual pressure at the highest and most remote outlet served. Where the water pressure in the on-site 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.

~~704.6 Initial Cross-Connection Test.~~ A cross-connection test is required in accordance with Section 701.11.2. 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.

~~704.7 On-Site Treated Nonpotable Water System Materials.~~ On-site treated nonpotable 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.

~~704.8 On-Site Treated Nonpotable Water Devices and Systems.~~ Devices or equipment used to treat on-site treated nonpotable 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 on-site treated nonpotable 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.

~~704.9 On-Site Treated Nonpotable Water System Color and Marking Information.~~ On-site treated water systems shall have a colored background in accordance with the plumbing code. On-site treated water systems shall be marked or field-marked, in lettering in accordance with the plumbing code, with the words: "CAUTION: ON-SITE TREATED NONPOTABLE WATER, DO NOT DRINK."

704.10 Valves. Valves, except fixture supply control valves, shall be equipped with a locking feature.

704.11 Design and Installation. The design and installation of on-site treated nonpotable systems shall be in accordance with Section 704.11.1 through Section 704.11.5.

704.11.1 Listing Terms and Installation Instructions. On-site treated nonpotable water systems shall be installed in accordance with the terms of its listing and the manufacturer's installation instructions.

704.11.2 Minimum Water Quality. On-site treated nonpotable water supplied to toilets or urinals or for other uses in which it is sprayed or exposed shall be disinfected. Acceptable disinfection methods shall include chlorination, ultraviolet disinfection, ozonation, or other methods as approved by the Authority Having Jurisdiction. The minimum water quality for on-site treated nonpotable water systems shall meet the applicable water quality requirements for the intended applications as determined by the Authority Having Jurisdiction. Potable water shall be supplied to personal hygiene devices (bidet and bidet seats).

704.11.3 Deactivation and Drainage. The on-site treated nonpotable 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 accordance with Section 701.11.2.

704.11.4 Near Underground Potable Water Pipe. On-site 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 on-site treated nonpotable water piping.

704.11.5 Required Filters. A filter permitting the passage of particulates no larger than 100 microns (100 µm) shall be provided for on-site treated nonpotable water supplied to water closets, urinals, trap primers, and drip irrigation system.

704.12 Signs. Signs in buildings using on-site treated nonpotable water shall be in accordance with Section 701.10.

704.13 Inspection and Testing. On-site treated nonpotable water systems shall be inspected and tested in accordance with Section 701.11.

SUBSTANTIATION:

Section 704.0 (On-Site Treated Nonpotable Water Systems) is being stricken in its entirety. Onsite nonpotable treatment systems are currently covered in Chapters 8 through 10 and rainwater catchment in Chapter 11. Section 704.0 was originally a catch-all for onsite treatment systems when NSF 350 was the only available reference standard for these systems. Since then, Section 704.0 has been superseded by the provisions in Chapters 8 through 10, therefore this section is being removed.

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, Smith

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:

24

NEGATIVE:

1

ABSTAIN:

0

NOT RETURNED:

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, Smith

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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 Log₁₀ 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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 sewageblackwater 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 sewageblackwater 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:

24

NEGATIVE:

1

ABSTAIN:

0

NOT RETURNED:

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, Smith

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 **Organization Representation:** Task Group, Chair

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 ICC 324Z1324-2019 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:

18

NEGATIVE:

8

ABSTAIN:

0

NOT RETURNED:

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, Smith

Item #:

086

Code Number:

2023 WE-Stand

Section Number:

802.3, 902.3, 1002.3

SUBMITTER:

Markus Lenger

Organization Name:WEStand Log Reduction Targets
Task Group, Chair**Organization Representation:****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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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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 902.5903.1

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	5-5.5	4.5	3-3.5
Indoor Use	6-7.5	4.5	3.5

* Not including crops intended for human consumption that have come in contact with soil.

902.6903.2 Effluent Water Quality Parameters. (remaining text unchanged)

902.7903.3 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.

902.8903.4 Health and Safety. (remaining text unchanged)

1003.0 Design Requirements.

1002.51003.1 Log Reduction Targets. Onsite stormwater treatment systems shall be designed to meet/achieve the log reduction targets (LRT) as set forth in accordance with Table 1002.51003.1. 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 1002.51003.1

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 contribution²			
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 contribution²			
Ornamental pPlant irrigation ^{1*} /dust suppression	3-7.5	2.5	2-4.5
Indoor Use	3-8.0	3.5	3-5.5

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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 <u>l</u> ant 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 902.903.5(2)
MONITORING PARAMETERS

CATEGORY RISK LEVEL	PARAMETERS TO BE MONITORED	VALIDATION PROCEDURE
1	Turbidity ORP UV intensity (if used)	APMO IGC 324/APMO/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	

902.903.5 Monitoring Requirements. Monitoring of onsite gray water treatment systems shall be based on the risk level in accordance with Table 902.903.5(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 902.903.5(1)
RISK LEVELS

RISK LEVEL	TREATED WATER USAGE*¹
1	Surface 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 902.91003.5(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	

1002.91003.5 Monitoring Requirements. Monitoring of onsite stormwater treatment systems shall be based on the risk level in accordance with Table 1002.91003.5(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 1002.91003.5(1)
RISK LEVELS**

RISK LEVEL	TREATED WATER USAGE*1
1	Ornamental pPlant 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 Z1324-20192022*	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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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, ARCISA/ASPE/ANSI 63, IAPMO/ANSI IGC-324Z1324, 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 ICC 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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:

23

NEGATIVE:

2

ABSTAIN:

0

NOT RETURNED:

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, Smith

Item #:

094

Code Number:

2023 WE-Stand

Section Number:

1104.0 - 1104.3, Table 1401.1

SUBMITTER:

Ilan Aberman

Organization Name:WEStand Water Treatment Devices
and Systems Task Group**Organization Representation:****RECOMMENDATION:**

Add new text

Proposed Text :**1104.0 Fire Protection Systems.**

1104.1 Private Fire Protection. Rainwater storage tanks that supply water for private fire protection systems shall be in accordance with NFPA 22.

1104.2 Minimum Storage Capacity. The minimum storage capacity required for fire suppression shall be determined by the registered design professional.

1104.3 Maintenance. Water-based fire protection systems shall be maintained in accordance with NFPA 25.

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
NFPA 22-2023	Water Tanks for Private Fire Protection	1104.1
NFPA 25-2023	Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems	1104.3

(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:

While rainwater harvesting is legal and in use in many parts of the U.S. states, local laws vary on the application. Some states limit rainwater storage capacity, while others actively encourage it. In a general sense, most states allow rainwater collection for non-potable uses like irrigation or fire suppression. The new Section 1104.0 (Rainwater Harvesting for Fire Suppression Systems) adds minimum requirements for systems that are already in use in many states. The concept of harvested water tanks being used for fire suppression is a critical part of fire protection.

NFPA 22 is the standard on water storage tanks for fire protection, and it outlines requirements for ensuring these tanks, including those used for rainwater harvesting, are designed, installed, and maintained to meet specific safety and performance standards.

Additionally, regular maintenance of fire suppression tanks and sprinklers, along with periodic checks of the water level, guarantees that your system will function as expected when needed. NFPA 25 provides the needed provisions for these types of systems.

Read-only versions of the NFPA standards are provided for your review via the following links: [NFPA 22](#), [NFPA 25](#)

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, Smith

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Item #:

095

Code Number:

2023 WE-Stand

Section Number:

1202.1.1

SUBMITTER:

John Lansing

Organization Name:

PAE Consulting Engineers

Organization Representation:**RECOMMENDATION:**

Revise text

Proposed Text :

1202.0 Recirculation Systems.

1202.1 Pump Operation. (remaining text unchanged)

1202.1.1 For Low-Rise Residential Buildings. Circulating hot water systems shall be arranged so that the circulating pump(s) can be turned off (automatically or manually) when the hot water system is not in

operation. Where one or more of the following conditions are met, the water temperature within the circulation piping shall be maintained at not less than 120°F (49°C):

(1) A building is more than ten stories in height.

(2) The hot water system serves 50 or more dwelling units.

(3) The hot water system serves a healthcare facility.

SUBSTANTIATION:

This text is intended to ensure that energy conservation measures do not create undue risk to building occupants from Legionnaires' disease or other illnesses caused by waterborne pathogens. The requirements related to buildings with 10 or more stories and healthcare facilities are aligned with ASHRAE standards.

Committee Action:

Reject

Committee Statement:

The proposed requirements to Section 1202.1.1 (For Low-Rise Residential Buildings) are not applicable to low-rise residential buildings and are therefore misplaced. If additional requirements are needed for other building types, they should be addressed separately.

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

096

Code Number:

2023 WE-Stand

Section Number:210.0, 1203.3 - 1203.3.7, Table
1401.1**SUBMITTER:**

Gary Klein

Organization Name:UPC/UMC Heat Pump Water Heater
Task Group, Chair**Organization Representation:****RECOMMENDATION:**

Add new text

Proposed Text :**1203.0 Service Hot Water – Low-Rise Residential Buildings.**

1203.3 Air-Source Heat Pump Water Heaters. Air-source heat pump water heaters (HPWH) shall comply with UL 1995 or UL 60335-2-40, be listed for the heat source used, and meet the refrigerant requirements in the mechanical code. Installation of air-source HPWH shall be in accordance with the manufacturer's installation instructions and Section 1203.3.1 through Section 1203.3.7.

1203.3.1 Condensate, Defrost, and Overflow. Drainage and disposal of condensate shall be in accordance with the plumbing code. Drainage and disposal of defrost or overflow discharges shall be in accordance with the mechanical code.

1203.3.2 Safety Devices. Pressure and temperature limiting devices, and temperature, pressure, and vacuum relief devices, or combinations thereof, shall be installed in accordance with plumbing code.

1203.3.3 Access. Air-source HPWH shall be located so as to permit access for servicing, repair, and replacement of the evaporator coil, blower, compressor, anode rod, air filters, control panels, and thermostats.

1203.3.4 Protection. The HPWH shall be protected against freezing, corrosion, and physical damage.

1203.3.5 Supports and Anchorage. Air-source HPWH located in areas classified as seismic design categories shall be anchored or strapped to resist horizontal displacement due to earthquake motion. Strapping shall be at points within the upper one-third and lower one-third of its vertical dimensions. At the lower point, a distance of not less than 4 inches (102 mm) shall be maintained from the controls with the strapping.

1203.3.6 Condensation on Surfaces. Provisions shall be made to prevent condensation on building and equipment surfaces, or within interstitial spaces (such as wall, floor, and ceiling cavities). Such provisions shall include, but not be limited to, the following:

- (1) Exhaust air shall not be discharged in such a manner that condensation accumulates on surrounding surfaces.
- (2) Confined spaces containing HPWH shall be provided with sufficient airflow to prevent the accumulation of exhaust air within the space.
- (3) Duct surfaces shall be insulated and installed with a vapor barrier to prevent the accumulation of condensation on interior and exterior duct surfaces.

1203.3.7 Airflow for Operation. Provisions shall be made to provide sufficient airflow for operation. Such provisions shall include, but not be limited to, the following:

- (1) Air-source HPWH shall be provided with sufficient heat energy to continuously operate in heat pump mode.
- (2) The air intake and exhaust outlet of the HPWH shall be located within the same pressure zone including, but not limited to, the following configurations:
 - (a) Intake from and exhaust to the outdoors
 - (b) Intake from and exhaust to conditioned spaces
 - (c) Intake from and exhaust to unconditioned spaces
- (3) Gravity airflow, ducting, fan-assist, or a combination thereof, shall be permitted for the intake and exhaust.

(4) Exhaust air shall be prevented from short-circuiting into the intake, or the exhaust air shall be mixed thoroughly with source air prior to returning to the intake of the HPWH.

210.0 - H -

Heat Pump Water Heater (HPWH). A water heating system, containing a heat pump and a storage tank, where the heat pump extracts thermal energy from one source and transfers it to the water.

Heat Pump Water Heater, Air-Source. A heat pump water heater that uses air as the heat source.

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
<u>UL 1995-2015</u>	<u>Heating and Cooling Equipment (with revisions through August 1, 2022).</u>	<u>1203.3</u>
<u>UL 60335-2-40-2022*</u>	<u>Household and Similar Electrical Appliances – Safety – Part 2-40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers</u>	<u>1203.3</u>

(portions of table not shown remain unchanged)

Note: UL 1995 and UL 60335-2-40 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:

Air-source HPWH are becoming an increasingly common type of water heater installed across many jurisdictions. However, the codes do not explicitly address installation requirements for these appliances. As a result, installation practices are primarily guided by the manufacturer's installation instructions. Beyond the information provided by manufacturers, relevant provisions for condensate drainage and safety devices exist in the plumbing and mechanical codes, and appropriate references have been included, where applicable.

Section 1203.3 (Air-Source Heat Pump Water Heaters): The section begins with listing requirements for air-source HPWH and includes reference to UL 1995 and UL 60335-2-40. Although UL 1995 has been withdrawn and replaced by UL 60335-2-40, there are HPWH currently listed to UL 1995, and referencing both standards is needed to address both new and existing appliances. Since heat pumps are designed to operate within specific temperature ranges and utilize specific air types (conditioned, unconditioned, or outdoor air), provisions were added to this section to ensure that the heat source used aligns with the terms of the appliance's listing and the manufacturer's specifications. Compliance with the mechanical code is also needed to address the refrigerants used in these appliances.

Section 1203.3.3 (Access): In the case of air-source HPWH, key components that must remain accessible include the evaporator coil, blower, compressor, anode rod, air filters, control panels, and thermostats. Regular maintenance of air filters is needed due to their impact on airflow, while inspection and replacement of anode rods is needed to prevent tank corrosion. Additionally, critical components such as the evaporator coil, blower, and compressor must be easily accessible for repair and replacement as they are essential for operation. See discussion on Access for more details.

Section 1203.3.6 (Condensation on Surfaces): Air source HPWH operate by extracting heat from air to heat water. This process results in the discharge of cool, moist exhaust air, which creates a significant risk of condensation if not properly managed. Condensation on building surfaces, equipment, or within interstitial spaces can lead to various issues, including mold growth, structural damage, corrosion, and reduced equipment lifespan.

Item (1): Discharging cool, moist exhaust air directly onto nearby walls, ceilings, or equipment can cause surface condensation, particularly in environments with low surface temperatures. Proper exhaust air routing, such as directing it away from surfaces and providing adequate clearance, prevents condensation buildup.

Item (2): In confined spaces, the accumulation of cool exhaust air can create a localized environment with high humidity. Adequate airflow prevents stagnant air pockets, maintains a balanced humidity level, and minimizes condensation. Strategies for achieving necessary airflow include the installation of ventilation grilles, mechanical fans, or passive vents. Such strategies are prescribed by the manufacturer and widely vary. Therefore, detailed requirements for these strategies were not included.

Item (3): Ductwork used for HPWH exhaust air must be insulated to prevent surface temperatures from dropping below the dew point of the surrounding air. A vapor barrier is then needed to prevent moisture within the surrounding environment from infiltrating the duct insulation and forming condensation inside the duct system.

Section 1203.3.7 (Airflow for Operation): Air source HPWH rely on a steady supply of air to extract heat efficiently for water heating. See discussion on Airflow for more details.

Item (1): Continuous operation in heat pump mode is needed to provide a steady supply of hot water. When sufficient heat energy is available, the heat pump can meet the hot water demand without relying on backup electric resistance heating.

Item (2): The intake and exhaust must be located within the same pressure zone to maintain balanced airflow, prevent backdrafts, and prevent recirculation of exhaust air back into the intake.

Item (3): Different installation environments require flexibility in how airflow is provided to the HPWH. Depending on the specific layout and size of the space, gravity airflow may be sufficient in larger, open spaces, while confined or isolated spaces may require ducting or fan-assisted airflow to ensure adequate air exchange. Therefore, all options are provided.

Item (4): If exhaust air is allowed to directly re-enter the intake without mixing or dispersion, it results in a recirculation of cool, moisture-laden air. This significantly reduces the temperature of the intake air and decreases heat transfer. Separation or mixing of exhaust air with the surrounding air ensures that the intake air remains at an appropriate temperature and humidity level for heat transfer.

General discussion on the overall comment:

Context

1. The code always relies on manufacturers to provide installation instructions specific to their product. At the same time, however, the code also provides clear boundaries establishing the minimum requirements for any installation. Manufacturer's literature generally only discusses how to properly install their product. The code needs to address the unintended negative interactions that installing one product can have on the building and on occupant health and safety.

2. Air-source HPWH will be installed in a location today. This location needs to be able to have another unit installed in the same location at some time in the future. Probably more than once over the life of the building.

a) This has been relatively straightforward for most of the 10 million storage water heaters installed each year because units from different manufacturers with similar capacities are very, very similar to install. By comparison, air-source HPWH are still in their infancy, each manufacturer having its own locations of inlet and outlet water connections, location of condensate drains, and inlet and exhaust ports for the air. Some air-source HPWH come with electric resistance elements, some do not. The size of the heat pump compressor is still being sorted out, with a good chance that it will increase to about 15,000 BTU/hour in the not-too-distant future so that the heat rate is essentially the same as that found in a standard electric resistance water heater.

3. If US and state policy makers have their way, hundreds of thousands of HPWH will be installed by the time the 2027 code is adopted for use. This is likely to be followed by millions more soon thereafter. It makes sense for the code to get ahead of this by establishing a level playing field for all products that come onto the market. Here are some key elements that need to be established in code:

a) That electric air-source HPWH are a different type of electric water heater. The typical features of an electric water heater, and the special features of this new type both need to be properly addressed during installation.

b) The minimum airflow requirements for air-source HPWH to run in heat pump mode as many hours a day as needed for the hot water needs of the occupants.

c) The need to prevent adversely affecting the health and safety of the occupants in the building by:

i. Ensuring that inlet air comes from the same pressure zone that the exhaust air discharges to.

ii. Ensuring that the exhaust air does not create condensation that leads to moisture damage and mold.

Condensation on surfaces

There are two primary high-risk situations:

1. When the cold discharge air (often around 45°F) is allowed to directly impact surfaces near the HPWH, it often cools those surfaces below the dew point of indoor air.

2. When HPWH are installed in enclosed spaces, the dew point of the air in the enclosure drops along with the temperature. However, the enclosure often ends up at being cooled down near 45°F. While condensation may not occur within the enclosed space, it may create a condensing surface on the back side of building materials facing that enclosure.

How large are these risks?

1. At present, unitary HPWH are rated for their efficiency at temperature and RH conditions found inside buildings, 67.5 F and 50% RH. The dew point of this air is about 48F.

2. At some point, moisture in the surrounding air will reach a surface that is below the dew point and the water vapor will condense on that surface. The most likely surface(s) where condensation will form will be on the surfaces inside the walls, floor and ceiling of the enclosure. These interstitial spaces are hidden from view and the moisture damage and mold will not be visible to the occupants.

3. The solution to preventing the formation of condensation is to not allow the exhaust air to cool any surfaces below the dew point. Mixing the exhaust air from the HPWH with enough warmer air shortly after leaving the HPWH will raise the temperature above the dew point, preventing the formation of condensation and minimizing or eliminating the risk of moisture damage and mold.

Committee Action:

Reject

Committee Statement:

The proposed requirements are not appropriate for inclusion in the WESand as they are unrelated to water conservation or efficiency, which are the primary objectives of the standard.

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

EXPLANATION OF AFFIRMATIVE:

OSANN: I disagree with the committee statement. The suitability of this proposal within the scope of WESand should be evaluated by a working group, along with the other proposals regarding plumbing and mechanical systems that were submitted on behalf of ASHRAE.

SOVOCOOL: I need a better understanding of how this proposal specifically relates to water conservation. If that can be clearly explained, I may be willing to reconsider and change my vote.

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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
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SUBMITTER: Fred Betz	Organization Name: NeuMod Labs	Organization Representation:
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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 $(13.3 \times \text{pmd} + 400)/n$, 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 WESand, this code change proposal removes requirements pertaining to equipment performance and energy efficiency from WESand 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

099

Code Number:

2023 WE-Stand

Section Number:

302.3, Chapter 13, Table 1401.1

SUBMITTER:

Jim Majerowicz

Organization Name:

Plumbers Local 130, UA

Organization Representation:**RECOMMENDATION:**

Revise text

Proposed Text :

CHAPTER 13

~~INSTALLER~~ PROFESSIONAL QUALIFICATIONS**1301.0 General.**

1301.1 Scope. The provisions of this chapter address minimum qualifications of installers, inspectors, or employers ~~efor~~ systems covered within the scope of this standard.

1302.0 Qualifications.

1302.1 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.

1302.2 Inspectors and Plans Examiners. Professional qualification for plumbing inspectors and plumbing plans examiners shall be qualified in accordance with ASSE/IAPMO/ANSI Series 16000.

1302.2.1 Qualification for Plumbing Inspector. Professional qualification for plumbing inspectors shall be in accordance with ASSE/IAPMO/ANSI 16010.

1302.2.2 Qualification for Plumbing Plan Examiner. Professional qualification for plumbing plans examiners shall be in accordance with ASSE/IAPMO/ANSI 16040.

1302.3 Service Plumber Technician. Professional qualification for plumbing service technicians shall be qualified to ASSE/IAPMO/ANSI Series 13000.

1302.3.1 Qualification for Service Plumbers. Professional qualification for service plumbers shall be in accordance ASSE/IAPMO/ANSI 13010.

1302.4 Cross-Connection Control. Professional qualification for cross-connection control professionals shall be in accordance with ASSE/IAPMO/ANSI Series 5000.

1302.4.1 Qualification for Backflow Testers. Professional qualification for backflow assembly testers shall be in accordance with ASSE/IAPMO/ANSI 5110.

1302.4.2 Qualification for Surveyors. Professional qualification for cross-connection assembly surveyors shall be qualified in accordance with ASSE/IAPMO/ANSI 5120.

1302.4.3 Qualification for Repairers. Professional qualification for backflow prevention assembly repairers shall be in accordance with ASSE/IAPMO/ANSI 5130.

1302.4.4 Qualification for Program Administrator. Professional qualification for backflow prevention administrator shall be in accordance with ASSE/IAPMO/ANSI 5150.

1302.5 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.

1302.5.1 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.

1302.5.2 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.

1302.5.3 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.

1302.5.4 Qualification for Water Quality Program, Plumbers. Professional qualification for plumbers implementing a water quality program shall be in accordance with ASSE/IAPMO/ANSI 12061.

1302.5.5 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.

1302.5.6 Legionella Water Safety and Management Specialist. 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.

1302.6 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.

1302.6.1 Qualification for Installer. Professional qualification for rainwater catchment systems installers shall be in accordance with ASSE/ARCSA/IAPMO/ANSI 21110.

1302.6.2 Qualification for Designer. Professional qualification for rainwater catchment system designers shall be in accordance with ASSE/ARCSA/IAPMO/ANSI 21120.

1302.6.3 Qualification for Inspectors. Professional qualification for rainwater and stormwater catchment systems inspectors shall be in accordance with ASSE/ARCSA/IAPMO/ANSI 21130.

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. Minimum qualifications for installers, inspectors, or employers for systems covered within the scope of this standard shall be in accordance with Chapter 13.

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
<u>ASSE/IAPMO/ANSI Series 5000-2022^{e1*}</u>	<u>Cross-Connection Control Professional Qualifications Standard</u>	<u>1302.4</u>
<u>ASSE/IAPMO/ANSI 5110-2022^{e1*}</u>	<u>Backflow Prevention Assembly Testers</u>	<u>1302.4.1</u>
<u>ASSE/IAPMO/ANSI 5120-2022^{e1*}</u>	<u>Cross-Connection Control Surveyor/Specialist</u>	<u>1302.4.2</u>
<u>ASSE/IAPMO/ANSI 5130-2022^{e1*}</u>	<u>Backflow Prevention Assembly Repairers</u>	<u>1302.4.3</u>
<u>ASSE/IAPMO/ANSI 5150-2022^{e1*}</u>	<u>Backflow Prevention Program Administrators</u>	<u>1302.4.4</u>
<u>ASSE/IAPMO/ANSI Series 12000-2024*</u>	<u>Professional Qualifications Standard for Water Management and Infection Control Risk Assessment for Building Systems</u>	<u>1302.5</u>
<u>ASSE/IAPMO/ANSI 12010-2024*</u>	<u>Environment of Care, Infection Control and Construction Risk Assessment Professional Qualification Standard</u>	<u>1302.5.1</u>
<u>ASSE/IAPMO/ANSI 12020-2024*</u>	<u>Environment of Care, Infection Control and Construction Risk Assessment Professional Qualification Standard for Construction and Maintenance Employers</u>	<u>1302.5.2</u>
<u>ASSE/IAPMO/ANSI 12060-2024*</u>	<u>Water Quality Program Professional Qualifications Standard for Employers and Designated Representatives</u>	<u>1302.5.3</u>
<u>ASSE/IAPMO/ANSI 12061-2024*</u>	<u>Water Quality Program Professional Qualifications Standard for Plumbers</u>	<u>1302.5.4</u>
<u>ASSE/IAPMO/ANSI 12062-2024*</u>	<u>Water Quality Program Professional Qualifications Standard for Pipefitters and HVAC Technicians</u>	<u>1302.5.5</u>
<u>ASSE/IAPMO/ANSI 12080-2024*</u>	<u>Professional Qualifications Standard for Legionella Water Safety and Management Specialist</u>	<u>1302.5.6</u>
<u>ASSE/IAPMO/ANSI Series 13000-2015(R2020)*</u>	<u>Service Plumber and Residential Mechanical Service Technician Professional Qualifications Standard</u>	<u>1302.3</u>
<u>ASSE/IAPMO/ANSI 13010-2015(R2020)*</u>	<u>Professional Qualifications Standard for the Service Plumber</u>	<u>1302.3.1</u>
<u>ASSE/IAPMO/ANSI Series 16000-2019(R2025)*</u>	<u>Professional Qualifications Standard for Inspectors and Plans Examiners</u>	<u>1302.2</u>
<u>ASSE/IAPMO/ANSI 16010-2019(R2025)*</u>	<u>Plumbing Inspector</u>	<u>1302.2.1</u>
<u>ASSE/IAPMO/ANSI 16040-2019(R2025)*</u>	<u>Plumbing Plan Examiner</u>	<u>1302.2.2</u>

<u>ASSE/ARCSA/IAPMO/ANSI Series 21000-2022*</u>	<u>Rainwater Catchment Systems Personnel</u>	<u>1302.6</u>
<u>ASSE/ARCSA/IAPMO/ANSI 21110-2022*</u>	<u>Rainwater Catchment Systems Installers</u>	<u>1302.6.1</u>
<u>ASSE/ARCSA/IAPMO/ANSI 21120-2022*</u>	<u>Rainwater Catchment Systems Designers</u>	<u>1302.6.2</u>
<u>ASSE/ARCSA/IAPMO/ANSI 21130-2022*</u>	<u>Inspectors of Rainwater and Stormwater Catchment Systems</u>	<u>1302.6.3</u>

(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:

As an alternative to my other proposal which adds these professional qualifications under new Appendix H, this proposal revises existing Chapter 13 to include these requirements.

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 1302.1 (General) contains conflicting requirements. Furthermore, there are additional appropriate qualifications beyond those specified in this proposal.

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

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.

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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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

<u>ASSE/ARCSEA/IAPMO/ANSI</u> <u>Series 21000-2022*</u>	<u>Rainwater Catchment Systems Personnel</u>	<u>H 102.6</u>
<u>ASSE/ARCSEA/IAPMO/ANSI</u> <u>21110-2022*</u>	<u>Rainwater Catchment Systems Installers</u>	<u>H 102.6.1</u>
<u>ASSE/ARCSEA/IAPMO/ANSI</u> <u>21120-2022*</u>	<u>Rainwater Catchment Systems Designers</u>	<u>H 102.6.2</u>
<u>ASSE/ARCSEA/IAPMO/ANSI</u> <u>21130-2022*</u>	<u>Inspectors of Rainwater and Stormwater Catchment Systems</u>	<u>H 102.6.3</u>

(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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

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:

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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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:

102

Code Number:

2023 WE-Stand

Section Number:

A 101.7, A 102.0 - A 102.4, A 104.2 - A 104.2.3, Table A 104.2.1, Table A 104.2.3

SUBMITTER:

Shuo-Jan Teng

Organization Name:

Self

Organization Representation:**RECOMMENDATION:**

Revise text

Proposed Text :**A 102.0 Design Requirements.**

A 102.1 General. Potable rainwater catchment systems shall be designed in accordance with Section A 102.2 through Section A 102.4.

~~A 101.7~~ **A 102.2 Minimum Water Quality Requirements.** The minimum water quality ~~for~~ at the point of use (POU) of a potable rainwater catchment systems 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 ~~or shall meet the applicable water quality requirements as determined by the Authority Having Jurisdiction for private wells~~ and Table A 102.2 for private potable water systems, or Section A 102.2.1 for potable water systems serving public use occupancies.

~~TABLE A 104.2.1~~ **A 102.2**
MINIMUM WATER QUALITY

TOTAL COLIFORM <u>PARAMETER</u>	NON-DETECTABLE <u>ACCEPTABLE RANGE</u>
Escherichia coli (fecal coliform)	Non-detectable
Turbidity	<0.3 NTU

~~A 104.2.2~~ **A 102.2.1 Public Use Occupancies.** The testing procedures and minimum water quality for at the point of use (POU) of a potable rainwater water catchment system for serving public use occupancies ~~at the point of use and testing procedures~~ shall comply with the Environmental Protection Agency (EPA) Safe Drinking Water Act for a public water systems.

A 102.3 Validation. Upon initial system startup, the water quality at the point(s) of use shall be verified for compliance with Section A 102.2.

A 102.4 Testing. Harvested rainwater shall be tested for total coliform and turbidity not less than once every 3 months. Where the harvested rainwater tests positive for total coliform, the rainwater shall be tested for Escherichia coli (fecal coliform). Where Escherichia coli (fecal coliform) is detected, the potable rainwater catchment system shall be cleaned and retested for compliance with Table A 102.2.

~~A 104.2~~ **Minimum Water Quality.** Upon initial system startup, the quality of the water for the intended applications shall be verified at the point(s) of use, as determined by the Authority Having Jurisdiction in accordance with Section A 104.2.1 and Section A 104.2.2. Water quality maintenance shall be according to Section A 104.2.3.

A 104.2.1 Private Potable Water System. In the absence of water quality requirements determined by the Authority Having Jurisdiction, the minimum water quality for a private potable water system at the point of use shall comply with Table A 104.2.1.

A 104.2.3 Maintenance. Normal system maintenance shall require system testing for total coliform. If a total coliform test is positive, the system shall be tested for Escherichia coli (fecal coliform). Total coliform and turbidity shall be tested every 3 months in accordance with Table A 104.2.3. Upon failure of the fecal coliform test, systems shall be re-commissioned involving cleaning, and retesting in accordance with Section A 104.2.

**TABLE A 104.2.3
MINIMUM SYSTEM MAINTENANCE REQUIREMENTS**

TOTAL COLIFORM	NON-DETECTABLE
Escherichia coli (fecal coliform)	Non-detectable
Turbidity	<0.3 NTU

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 102.2 (Minimum Water Quality Requirements): The language now dictates that water quality needs to meet the minimum requirements specified by the Authority Having Jurisdiction for potable water or private wells. Then, it addresses minimum water quality requirements for public versus private systems where the AHJ is silent. For private systems, compliance with ARCSA/ASPE/ANSI 63 and Table A 102.2 is required. For public systems, compliance with the EPA Safe Drinking Act is required, as dictated by Section A 102.2.1 (Public Use Occupancies). Furthermore, the minimum water quality must be tested at the POU to protect health and safety.

Section A 102.3 (Validation): This section replaces existing Section A 104.2 (Minimum Water Quality), which is being deleted. Based on the updates to Section A 102.2, unnecessary language and references are being excluded.

Section A 102.4 (Testing): This section replaces existing Section A 104.2.3 (Maintenance), which is being deleted. The updates are for improvement in code language and enforceability. Since existing Table A 104.2.1 (now Table A 102.2) and Table A 104.2.3 contain the same information, including both tables is unnecessary.

Committee Action:

Accept As Amended by the TC

Proposed Text :

A 102.0 Design Requirements.

A 102.1 General. Potable rainwater catchment systems shall be designed in accordance with Section A 102.2 through Section A 102.4.

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.

**TABLE A 102.2
MINIMUM WATER QUALITY**

PARAMETER	ACCEPTABLE RANGE
<u>Total Coliform</u>	<u>Non-detectable</u>
Escherichia coli (fecal coliform)	Non-detectable
Turbidity	<0.3 NTU

A 102.2.1 Public Use Occupancies. The testing procedures and minimum water quality at the point of use (POU) of a potable rainwater water catchment system serving public use occupancies shall comply with the Environmental Protection Agency (EPA) Safe Drinking Water Act for public water systems.

A 102.3 Validation. Upon initial system startup, the water quality at the point(s) of use shall be verified for compliance with Section A 102.2.

A 102.4 Testing. Harvested rainwater shall be tested for total coliform and turbidity not less than once every 3 months. Where the harvested rainwater tests positive for total coliform, the rainwater shall be tested for Escherichia coli (fecal coliform). Where Escherichia coli (fecal coliform) is detected, the potable rainwater catchment system shall be cleaned and retested for compliance with Table A 102.2.

Committee Statement:

In alignment with the testing requirements in Section A 102.4, which require total coliform to be non-detectable, Table A 102.2 is being amended to retain the parameter "total coliform."

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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** containing 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 104.4A 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 104.1A 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 104.1.1A 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 104.3A 103.6 Water Quality Devices and Equipment. (remaining text unchanged)

(renumber remaining subsections)

A 104.5A 103.7 Rainwater Storage Tanks. (remaining text unchanged)

(renumber remaining subsections)

A 104.6A 103.8 Pumps. (remaining text unchanged)

A 104.7A 103.9 Roof Drains. (remaining text unchanged)

A 104.8A 103.10 Freeze Protection. (remaining text unchanged)

A 104.9A 103.11 Roof Washer or Pre-Filtration System. (remaining text unchanged)

(renumber remaining subsections)

A 104.10A 103.12 Roof Gutters. (remaining text unchanged)

A 104.11A 103.13 Drains, Conductors, and Leaders. (remaining text unchanged)

A 104.12A 103.14 Size of Potable Water Piping. (remaining text unchanged)

A 101.5A 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 101.5.1A 104.2** through Section **A 101.5.3A 104.4**.

A 101.5.1A 104.2 Frequency. (remaining text unchanged)

A 101.5.2A 104.3 Maintenance Log. (remaining text unchanged)

A 101.5.3A 104.4 Maintenance Responsibility. (remaining text unchanged)

A 101.6A 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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:
104

Code Number:
2023 WE-Stand

Section Number:
Figure F 301.1(6), Figure F 301.1(7)

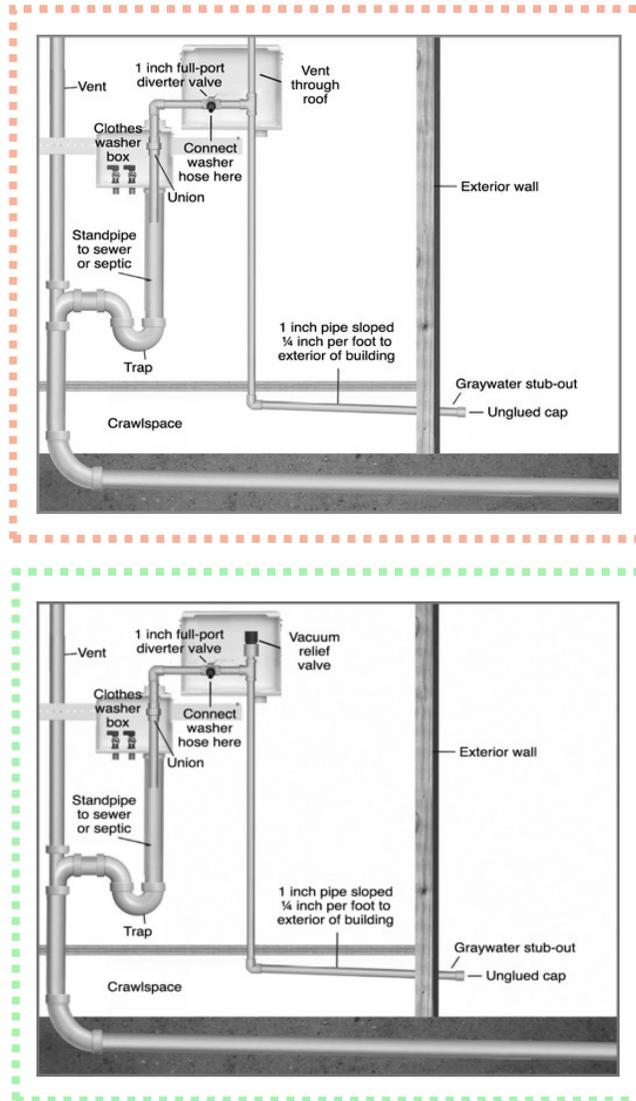
SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task
Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

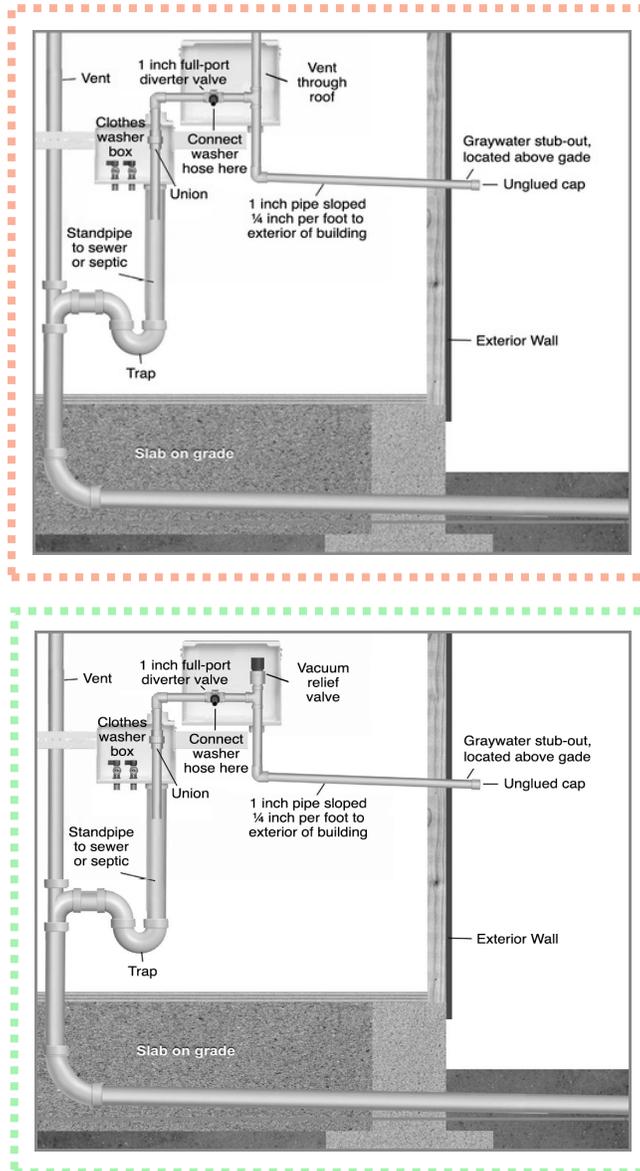


For SI units: 1 inch = 25 mm, 1 inch per foot = 83.333 mm/m

*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:

17

NEGATIVE:

9

ABSTAIN:

0

NOT RETURNED:

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, Smith

Item #:
105

Code Number:
2023 WE-Stand

Section Number:
Figure F 301.1(6), Figure F 301.1(7)

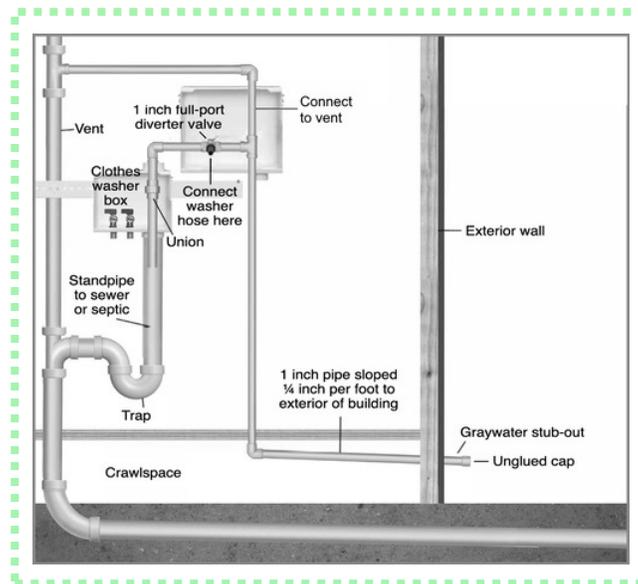
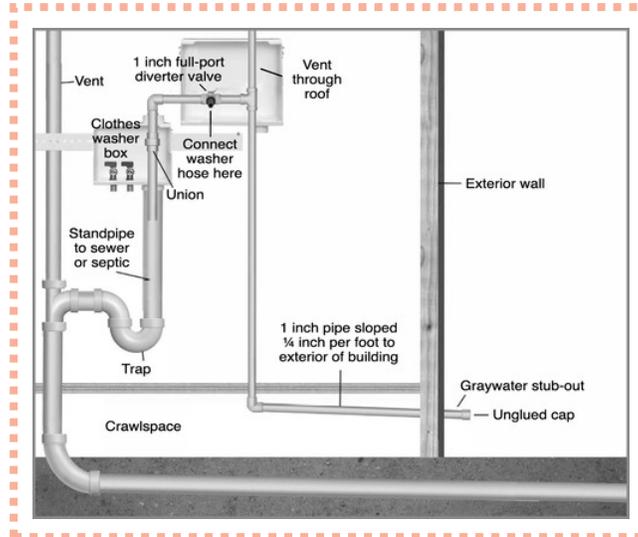
SUBMITTER:
Pat Lando

Organization Name:
WEStand Gray Water Systems Task
Group, Chair

Organization Representation:

RECOMMENDATION:
Revise text

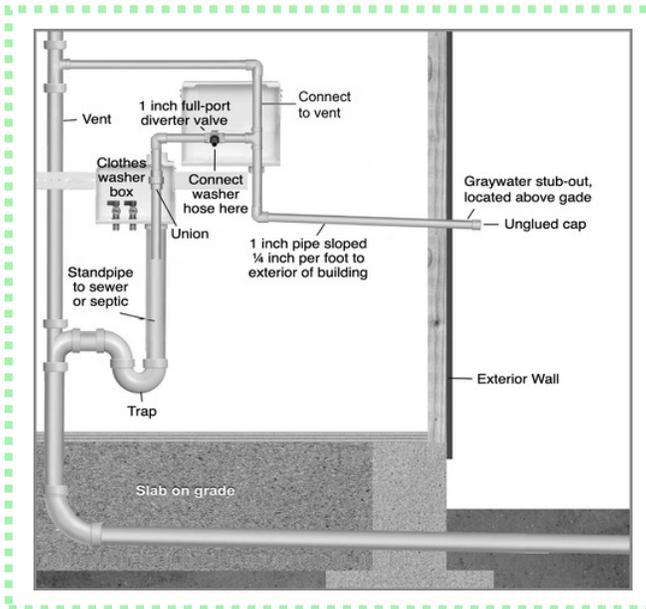
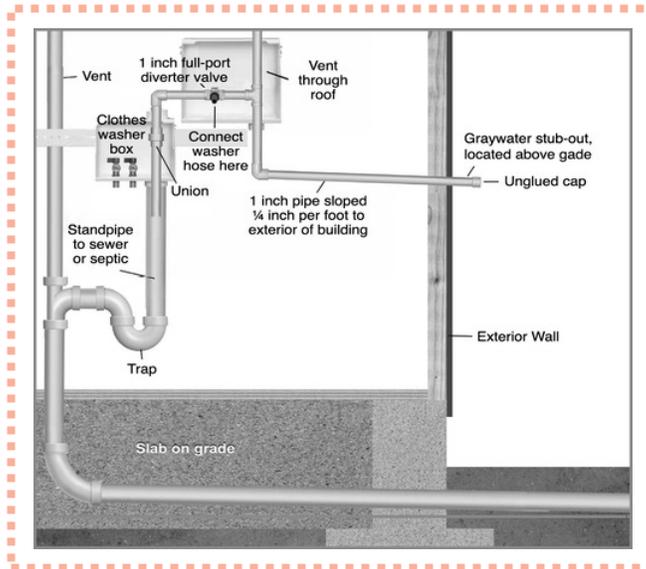
Proposed Text :



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 show a relief vent connection to either an existing or newly installed plumbing vent that already extends through the roof. This design approach is a common and proven practice. It offers designers the option to tie into a shared or individual vent that is already intended for roof termination.

Committee Action:

Reject

Committee Statement:

There are concerns regarding potential conflicts with previous committee actions related to the required separation between gray water piping and the plumbing drainage system. Additionally, this installation appears to be an extension of the washing machine hose, which does not require venting. The committee requests that all figures in Appendix F (Gray Water Ready Plumbing) be reviewed by a task group to determine whether removal or modification is necessary.

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

EXPLANATION OF AFFIRMATIVE:

ALLEN: I agree that we need a task group to reach agreement on the images and improve them. However, I do not agree with leaving the image as is, as noted in my previous comments on Item #104.

OSANN: I support the committee's statement that all figures should be reviewed by a task group for potential modification.

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

Item #:
107

Code Number:
2023 WE-Stand

Section Number:
Appendix H, Table 1401.1

SUBMITTER:
Ilan Aberman

Organization Name:
WEStand Water Treatment Devices
and Systems Task Group

Organization Representation:

RECOMMENDATION:

Add new text

Proposed Text :

APPENDIX H
POTABLE WATER TREATMENT

H 101.0 General.

H 101.1 Applicability. The provisions of this appendix shall apply to water treatment devices and systems for potable water applications.

H 102.0 Drinking Water Treatment Units.

H 102.1 General. Drinking water treatment units shall comply with the applicable referenced standards in Table H 102.1.

H 102.2 Reverse Osmosis Water Treatment. Point-of-use reverse osmosis drinking water treatment units shall comply with CSA B483.1 or NSF/ANSI 58. Drinking water treatment units shall comply with CSA B483.1, NSF/ANSI 42, NSF/ANSI 44, NSF/ANSI 53, or NSF/ANSI 62. Commercial and food service water treatment equipment shall comply with ASSE 1087.

H 102.3 Alkaline Water Treatment. Alkaline water treatment devices shall comply with IAPMO IGC 322.

H 102.4 Scale Reduction Devices. Scale reduction devices shall comply with IAPMO/ANSI Z601.

TABLE H 102.1
DRINKING WATER TREATMENT UNITS

APPLICATION	RESIDENTIAL		COMMERCIAL
	POINT OF USE	POINT OF ENTRY	
Aesthetic Contaminant Reduction (filters)	NSF/ANSI 42 or CSA B483.1	NSF/ANSI 42 or CSA B483.1	ASSE 1087 and NSF/ANSI 42*
Health Related Contaminant Reduction (filters)	NSF/ANSI 53 or CSA B483.1	NSF/ANSI 53 or CSA B483.1	ASSE 1087 and NSF/ANSI 53*
Water Softener	:	≤ 1¼ inch inlet NSF/ANSI 44 or CSA B483.1 > 1¼ inch inlet ASSE 1087	ASSE 1087
Ultraviolet Water Treatment	NSF/ANSI 55 or CSA B483.1	NSF/ANSI 55 or CSA B483.1	ASSE 1087
Reverse Osmosis	NSF/ANSI 58 or CSA B483.1	NSF/ANSI/CAN 61	ASSE 1087

<u>Distillation</u>	<u>NSF/ANSI 62 or CSA B483.1</u>	<u>NSF/ANSI 62 or CSA B483.1</u>	<u>ASSE 1087</u>
<u>Legionella Reduction and Treatment Devices</u>	<u>ASSE LEC 2011</u>	<u>ASSE LEC 2011</u>	<u>ASSE LEC 2011</u>

* Required for commercial modular systems only.

TABLE 1401.1
REFERENCED STANDARDS

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
<u>ASSE 1087-2022*</u>	<u>Commercial and Food Service Water Treatment Equipment Utilizing Drinking Water</u>	<u>H 102.2, Table H 102.1</u>
<u>ASSE LEC 2011-2022</u>	<u>Legionella Reduction and Treatment Devices</u>	<u>Table H 102.1</u>
<u>CSA B483.1-2021*</u>	<u>Drinking Water Treatment Systems</u>	<u>H 102.2, Table H 102.1</u>
<u>IAPMO IGC 322-2021</u>	<u>Alkaline Water – Drinking Water Treatment Units</u>	<u>H 102.3</u>
<u>IAPMO/ANSI Z601-2018 (R2023)*</u>	<u>Scale Reduction Devices</u>	<u>H 102.4</u>
<u>NSF/ANSI 42-2023*</u>	<u>Drinking Water Treatment Units - Aesthetic Effects</u>	<u>H 102.2, Table H 102.1</u>
<u>NSF/ANSI 62-2023*</u>	<u>Drinking Water Distillation Systems</u>	<u>Table H 102.1</u>

(portions of table not shown remain unchanged)

Note: The ASSE, CSA, and 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 WEStand includes numerous provisions on water reuse, recycling, harvesting, and conservation, but it does not address the management or treatment of potable water after it has been sourced. This appendix fills that gap by outlining potable water treatment practices and directing end users to the appropriate source standards for their intended applications.

Committee Action:

Reject

Committee Statement:

Drinking water treatment units are already addressed in the plumbing code, and such provisions are currently undergoing substantial revisions. Including similar provisions in the WEStand at this time may result in conflicts. Additionally, the standards referenced in this appendix are already cited elsewhere in the WEStand, making the appendix redundant. Instead, users should be directed to the existing provisions within the WEStand or to the plumbing code.

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

0

NOT RETURNED:

4

VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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Item #:

108

Code Number:

2023 WE-Stand

Section Number:

Table 1401.1

SUBMITTER:

Gregory Ceton

Organization Name:

PHTA

Organization Representation:**RECOMMENDATION:**

Revise text

Proposed Text :

**TABLE 1401.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
<u>ANSI/APSP/ICC</u> 14-2019*	Portable Electric Spa Energy Efficiency	418.3.1
<u>ANSI/PHTA/ICC</u> 15-2021*	Residential Swimming Pool and Spa Energy Efficiency	418.5

(portions of table not shown remain unchanged)

Note: ANSI/APSP/ICC 14 and ANSI/PHTA/ICC 15 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 APSP and PHTA 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, Smith

Item #:
109

Code Number:
2023 WE-Stand

Section Number:
Table 1401.1

SUBMITTER:
Heather Kinkade

Organization Name:
ARCSA International

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

**TABLE 1401.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
ARCSA/ASPE/ ANSI 78- 2015 2023*	Stormwater Harvesting System Design for Direct End-Use Applications	1002.1.1

(portions of table not shown remain unchanged)

Note: ARCSA/ASPE/ANSI 78 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 ARCSA 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, Smith

Item #:
110

Code Number:
2023 WE-Stand

Section Number:
Table 1401.1

SUBMITTER:
Emily Toto

Organization Name:
ASHRAE

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

**TABLE 1401.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
ANSI/ASHRAE/IES 90.1- 2019 2022*	Energy Standard for <u>Sites and</u> Buildings Except Low-Rise Residential Buildings	1204.5, Table 1205.2

(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:

The above revision reflects the latest update to the ASHRAE 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, Smith

Item #:

111

Code Number:

2023 WE-Stand

Section Number:

Table 1401.1

SUBMITTER:

Steven Rossi

Organization Name:

ASME

Organization Representation:**RECOMMENDATION:**

Revise text

Proposed Text :

**TABLE 1401.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
ASME A112.14.6-2010 (R2019) (R2024)*	FOG (Fats, Oils, and Greases) Disposal Systems	407.4.1
ASME A112.18.1/CSA B125.1- 2018 2024*	Plumbing Supply Fittings	402.5.1, 402.5.2, 402.6
ASME A112.19.2/CSA B45.1- 2018 2024*	Ceramic Plumbing Fixtures	402.2.1, 402.2.2, 402.3

(portions of table not shown remain unchanged)

Note: The ASME 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 ASME 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, Smith

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, Smith

Item #:
113

Code Number:
2023 WE-Stand

Section Number:
Table 1401.1

SUBMITTER:
Frank McConnell

Organization Name:
ASTM

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

**TABLE 1401.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
ASTM F2831-2019 (R2024)*	Standard Practice for Internal Non Structural Epoxy Barrier Coating Material Used in Rehabilitation of Metallic Pressurized Piping Systems	302.2

(portions of table not shown remain unchanged)

Note: ASTM F2831 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 ASTM 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, Smith

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, Smith

Item #:
115

Code Number:
2023 WE-Stand

Section Number:
Table 1401.1

SUBMITTER:
Nikki Kidd

Organization Name:
CSA

Organization Representation:

RECOMMENDATION:
Revise text

Proposed Text :

**TABLE 1401.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
CSA/ ASC B651- 2018 2023	Accessible Design for the Built Environment	402.6.1
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 Btu per Hour, Circulating and Instantaneous	Table 1205.2

(portions of table not shown remain unchanged)

Note: The CSA 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 CSA 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, Smith

Item #:

116

Code Number:

2023 WE-Stand

Section Number:

Table 1401.1

SUBMITTER:

Andrew Todd

Organization Name:

Self

Organization Representation:**RECOMMENDATION:**

Revise text

Proposed Text :

**TABLE 1401.1
REFERENCED STANDARDS**

STANDARD NUMBER	STANDARD TITLE	REFERENCED SECTION
Energy Star- 2022 2023 (version 3.0)	Program Requirements for Commercial Ovens	407.3
Energy Star-2023 (version 7.0)	Program Requirements for Residential Dishwashers	403.1
Energy Star-2021 (version 3.0)	Program Requirements for Commercial Dishwashers	403.1
Energy Star-2021 (version 8.1)	Program Requirements for Clothes Washers	403.2, Table 502.2.1
Energy Star-2017 (version 3.0)	Program Requirements for Automatic Commercial Ice Makers	407.1

(portions of table not shown remain unchanged)

(shown for information purposes only)

403.0 Appliances.

403.1 Dishwashers. Residential and commercial dishwashers shall be in accordance with the Energy Star program requirements.

403.2 Clothes Washers. Residential clothes washers shall be in accordance with the Energy Star program requirements. Commercial clothes washers shall be in accordance with Energy Star program requirements, where such requirements exist.

407.0 Commercial Food Service.

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.

407.3 Combination Ovens. Combination ovens shall not use water in the convection mode except when utilizing a moisture nozzle for food products in the oven. In accordance with the Energy Star program requirements, the water consumption rate shall not exceed 0.4 gallons (1.5 L) per pan when in convection mode and shall not exceed 0.5 gallons (1.9 L) per pan when in steamer mode. The pan capacity shall be in accordance with ASTM F1495.

TABLE 502.1.1
MAXIMUM DESIGN FLOW RATE FOR PLUMBING FIXTURES, FIXTURE FITTINGS, AND APPLIANCES

Notes:

¹ Clothes washers and dishwashers shall have an Energy Star label.

² Including whirlpools and similar fixtures.

(only relevant portion of table shown)

Note: The Energy Star program requirements 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:

Table 1401.1 is being updated to include the Energy Star program requirements that are referenced throughout the WESstand.

Links to each document are provided below for your review:

- [ENERGY STAR Program Requirements for Commercial Ovens](#)
- [ENERGY STAR Program Requirements for Residential Dishwashers](#)
- [ENERGY STAR Program Requirements for Commercial Dishwashers](#)
- [ENERGY STAR Program Requirements for Clothes Washers](#)
- [ENERGY STAR Program Requirements for Automatic Commercial Ice Makers](#)

Committee Action:

Accept As Submitted

TOTAL ELIGIBLE TO VOTE:

29

AFFIRMATIVE:

25

NEGATIVE:

0

ABSTAIN:

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VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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 Specifications 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:

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AFFIRMATIVE:

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Crawford, Granger, Mann, Smith

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 2019 <u>Z1324-2022*</u>	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 <u>2023</u>	<u>Industry Standard for</u> Recirculating Shower Systems	402.9
IAPMO/ ANSI/CAN PS 119 <u>Z1119-2012a</u> ^{e3} <u>2024*</u>	Water-Powered <u>Backup</u> Sump Pumps	414.1
IAPMO/ANSI USHGC 1- 2021 <u>2024*</u>	Uniform Solar, Hydronics and Geothermal Code <u>(The Renewable Energy Code)</u>	101.7.5
IAPMO/ANSI USPSHTC 1- 2021 <u>2024*</u>	Uniform Swimming Pool, Spa, and Hot Tub Code	101.7.6
CSA B45.5- <u>2022</u> /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.

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VOTES NOT RETURNED:

Crawford, Granger, Mann, Smith

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Item #:

119

Code Number:

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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.

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NEGATIVE:

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