# Department of Housing and Community Development

# California Building Standards Commission

# Department of Water Resources

# 2022 California Plumbing Code

# Workshop Discussion Items

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# Nonwater Urinal with Drain Cleansing Action – new term for “hybrid urinal.”

1. **Issue: No problems with usage of new term instead of “urinal, hybrid?**”
2. **2021 UPC definition**
Nonwater Urinal with Drain Cleansing Action. A nonwater urinal that conveys waste into the drainage system without the use of water for flushing and automatically performs a drain-cleansing action after a predetermined amount of time.
3. **2019 CPC definition**

Urinal, Hybrid. A urinal that conveys waste into the drainage system without the use of water for flushing and automatically performs a drain-cleansing action after a predetermined amount of time.

1. **Sections impacted**
* 2021 UPC Section 412. 1.2
* 2019 CPC Section 412.1.3.1 [BSC-CG]
* Table 610.3 Water Supply Fixture Units (WSFU) and Minimum Fixture Branch Pipe Sizes (model code) (not called “nonwater”). No change in fixture units or pipe size from hybrid urinals.
* Table 702.1 Drainage Fixture Unit Values (DFU) (model code). No change in trap size or fixture unit values from hybrid urinals.
1. **Background**

Per IAPMO Proposal #109: Updated from “hybrid urinal” to correspond with new terminology added to the ASME A112.19. 19-2016.

# Table 707.2 Cleanout Materials for Drain, Waste, and Vent (new in 2021 UPC)

**Issue:** Identifies use of ABS and PVC for cleanout materials. HCD proposes an amendment limiting use of ABS and PVC materials to not more than two stories of residential accommodation similar to amendment in Section 701.2.

1. a. **Gray Water Diverter Valve provisions and requirements in 2021 UPC**
	1. **Issue:** Gray water-specific diverter valves were not recognized since the 2013 CPC because there was no commercially available valve identified as a “approved gray water diverter valve.” Gray water diverter valves should not have to be a special gray water diverter valve, and should allow listed ball valves or other valves to be used to divert gray water to sewer or irrigation/other use.
	2. **2021 UPC definition.**Gray Water Diverter Valve. A valve that directs gray water to the sanitary drainage system or a subsurface irrigation system.
	3. **CPC Sections impacted** which reference a generic “diverter valve” instead of “gray water diverter valve.”
* 1503.1 (A) General (Gray Water Systems) [BSC-CG, HCD]
* 1503.2.1 Exception Surge Capacity (System Requirements) [BSC-CG, HCD]
* 1503.2.2 Diversion (System Requirements) [BSC-CG, HCD]. See model code changes.
* 1503.8 Exception Procedure for Estimating Gray Water Discharge [BSC-CG, HCD]
	1. **Background**Per IAPMO Proposal #171: Many diverter valves used in gray water systems are not intended for the application – pool and spa diverter valves are commonly used. These valves have ridges, pockets, 90-degree changes in direction and other aspects that promote the capture of solids in the valve body. This can foul and compromise the health and safety of the public. The proposal clarifies which diverter valves are safe and approved for this use.
1. b. **Rainwater Diverter Valve provisions and requirements in 2021 UPC**
2. **Issue:** 2021 UPC includes specific requirements for rainwater diverter valves.
3. Impacted sections: 2021 UPC 1503.2.4 Rainwater Diversion Valves
4. **Background:** IAPMO Proposal # 172 Per Technical Committee original proposal rejected, but standard for larger diverter valves adopted.
5. System Design for Alternate Water Source and Nonpotable Rainwater Catchment **Systems**
6. **Issue:** 2021 UPC requires a licensed plumbing contractor or a registered design professional to design alternate water source systems or nonpotable rainwater catchment systems. 2019 CPC provides less restrictive requirements for the person designing the systems. This is especially true for the rainwater systems. A California licensed plumbing contractor should be able to design alternate water systems.
7. **2021 UPC definitions**

Registered Design Professional. An individual who is registered or licensed by the laws of the state to perform such design work in the jurisdiction.

1. **CPC sections impacted**

1501.2 System design for alternate water source systems

1601.2 System design for rainwater catchment systems

1. **Background**
* The 2013 CPC included California amendments to provide similar requirements to Chapter 16A in the prior code. Provisions from Section 501.2 of the 2012 Green Plumbing and Mechanical Code Supplement (similar to Section 1603A.1.3 of the 2010 CPC). The intent was not to be more restrictive than Chapter 16A of the 2010 CPC.
* Per IAPMO Proposal #164 (1501.2): Amended by technical committee to clarify intent as to who the water source system should be designed by.
* Per IAPMO Proposal #176 (1601.2): Amended by technical committee to remove “person who demonstrates competency” as a licensed plumbing contractor or professional is required.

# Recycled Water *Supply* Systems in Buildings

* 1. **1505.1 General
	Issue:** DWR is considering amendments to this section to add clarifying language to specify that recycled water irrigation systems which connect to the recycled water supply systems that are within or a part of a building are required to follow the provisions of section 1505.
	2. **1505.1.1 Allowed Uses
	Issue:** DWR is considering restoring the 2021 Uniform Plumbing Code language including “aboveground and subsurface irrigation” and possibly amending further so that applications under DWR authority for landscape irrigation (i.e. recycled water goes into building then back outside for outdoor irrigation) is appropriately addressed.
	3. **1505.4 Connections to Potable or Reclaimed Recycled Water *Supply* Systems
	Issue:** DWR is considering amendments to this section to add an exception to allow the use of a swivel or changeover device to supply potable water to a dual-plumbed system during an interruption in recycled water service in accordance with Assembly Bill 1180 (Statutes of 2019) and State Water Resources Control Board requirements.
	4. **1505.13.2 Cross-Connection Inspection and Testing
	Issue:** DWR is considering adding a requirement that the inspection and testing be performed by a certified cross-connection control specialist and pointing to language specifying certification requirements to be adopted by the State Water Resources Control Board in accordance with Assembly Bill 1180 (Statutes of 2019).
1. **Adoption of 2021 UPC sections not printed in 2019 CPC**

 **Issue:** These sections were not printed in the 2019. Should they be adopted and printed in the 2022 CPC?

A. CPC nonpotable rainwater catchment sections impacted

1601.8 Material Compatibility. 1601.11.1 General.

1601.9 System Controls. 1601.11.2 Underground Tank.

1601.10 Separation Requirements. 1601.12 Sizing.

1601.11 Abandonment

1. Revision of Section 1602.4 Connections to Potable or Reclaimed (Recycled) Water **Systems**.

**Issue:** Possible revision to match similar provisions for alternate nonpotable water source systems. BSC, HCD, and DWR are considering amendments to this section consistent with similar provisions for other alternate nonpotable water systems.

1. **New Appendices added in 2021 UPC**

 **Issue:** Appendices are not mandatory unless specifically adopted by a state agency. HCD currently adopts Appendix I which only included installation standards for PEX (crosslinked polyethylene).

 **Adopted in 2019 CPC**:

* IAPMO IS 31-2014e2 Installation Standard for PEX Tubing Systems for Hot- and Cold Water Distribution

**New appendices in the 2021 UPC:**

* IAPMO IS 26-2019e2 Trenchless Insertion of Polyethylene (PE) Pipe for Sewer Laterals
* IAPMO IS 33-2019e1 Thrust Blocking for Rubber Gasketed and Solvent Cement Joints
* TCNA Handbook-2018 For Ceramic, Glass, and Stone Tile Installation

**2021 UPC and/or 2019 CPC Text for Reference**

# Hybrid Urinals (2019 CPC term) and Nonwater Urinals with Drain Cleansing Action (2021 UPC term)

**2021 UPC Definition for Nonwater Urinal with Drain Cleansing Action.** A nonwater urinal that conveys waste into the drainage system without the use of water for flushing and automatically performs a drain-cleansing action after a predetermined amount of time.

**2019 CPC Definition for Urinal, Hybrid.** A urinal that conveys waste into the drainage system without the use of water for flushing and automatically performs a drain-cleansing action after a predetermined amount of time.

**2019 CALGreen Definition:**

URINAL, HYBRID. A urinal that conveys waste into the drainage system without the use of water for flushing and automatically performs a drain-cleansing action after a predetermined amount of time.

**2021 UPC 412.1.2 Nonwater Urinals with Drain Cleansing Action.** Nonwater urinals with drain cleansing action shall comply with ASME A112.19.19 and shall be cleaned, maintained and installed in accordance with the manufacturer’s installation instructions.

**2019 CPC** ***412.1.3* Nonwater Urinals.** Nonwater urinals shall have a liquid barrier sealant to maintain a trap seal. Nonwater urinals shall permit the uninhibited flow of waste through the urinal to the sanitary drainage system. Nonwater urinals shall be cleaned and maintained in accordance with the manufacturer’s instructions after installation. Where nonwater urinals are installed, not less than one water supplied fixture rated at not less than 1 water supply fixture unit (WSFU) shall be installed upstream on the same drain line to facilitate drain line flow and rinsing. Where nonwater urinals are installed, they shall have a water distribution line rough-in to each individual urinal location to allow for the installation of an approved backflow prevention device in the event of a retrofit. *For additional information, see Health and Safety Code Section 17921.4.*

***2019 CPC 412.1.3.1 Urinal, Hybrid [BSC-CG].*** *Where approved, hybrid urinals shall be considered nonwater urinals in compliance with Chapter 5, Division A5.3 of the California Green Building Standards Code (CALGreen).*

# Approved Materials for Cleanouts.

**707.2 Approved.** Each cleanout fitting and each cleanout plug or cap shall be of an approved type. A list of approved standards for cleanouts are referenced in Table 707.2.

**TABLE 707.2**

**CLEANOUT MATERIALS FOR DRAIN, WASTE, AND VENT**

|  |  |
| --- | --- |
| **MATERIAL** | **STANDARD** |
| ABS 1 | ASTM D2661, CSA B79, IAPMO IGC 78, IAPMO IGC 224 |
| Cast Iron | ASME A112.36.2, ASTM A888, CISPI 301, CSA B79, IAPMO IGC 224 |
| Copper or Copper Alloy | ASME A112.36.2, CSA B79 |
| Ductile Iron | CSA B79 |
| Elastomers | CSA B79, IAPMO PS 90 |
| Polyethylene (PE) | CSA B79 |
| Polypropylene (PP) | CSA B79 |
| PVC 1 | ASTM D2665, CSA B79, IAPMO IGC 78, IAPMO IGC 224 |
| Polyvinylidene Fluoride (PVDF) | CSA B79 |
| Stainless Steel | CSA B79 |

***1. [HCD 1 & HCD 2]*** *ABS and PVC installations are limited to not more than two stories of areas of residential accommodation. (New California amendment.)*

# System Design for Alternate Water Source and Nonpotable Rainwater Catchment Systems

**2021 UPC 1501.2 System Design.** Alternate water source systems shall be designed in accordance with this chapter by a licensed plumbing contractor or a registered design professional. Components, piping, and fittings used in any alternate water source system shall be listed.

**Exceptions:**

1. A registered design professional is not required to design gray water systems having a maximum discharge capacity of 250 gallons per day (gal/d) (0.011 L/s) for single family and multi-family dwellings.
2. A registered design professional 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 (0.011 L/s).

**2019 CPC 1501.2 System Design.** Alternate water source systems shall be designed in accordance with this chapter by a registered design professional or licensed person who demonstrates competency to design the alternate water source system as required by the Authority Having Jurisdiction. Components, piping, and fittings used in an alternate water source system shall be listed.

 ***[BSC-CG & HCD 1]*** *Irrigation design plans shall meet the requirements of the California Code of Regulations, Title 23, Division 2, Chapter 2.7, Model Water Efficient Landscape Ordinance.*

**Exceptions:**

1. A registered design professional is not required to design gray water systems having a maximum discharge capacity of 250 gallons per day (gal/d) (0.011 L/s) for single family and multi-family dwellings.
2. A registered design professional 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 (0.011 L/s).

**Proposed changes to 2021 UPC text below? Delete “person who demonstrates competency? Keep licensed plumbing contractor?**

**1501.2 System Design.** Alternate water source systems shall be designed in accordance with this chapter by a licensed plumbing contractor or a registered design professional. Components, piping, and fittings used in any alternate water source system shall be listed.

 ***[BSC-CG & HCD 1]*** *Irrigation design plans shall meet the requirements of the California Code of Regulations, Title 23, Division 2, Chapter 2.7, Model Water Efficient Landscape Ordinance.*

**Exceptions:** (no change to model code Exceptions 1 and 2)

**2021 UPC 1601.2 System Design.** Rainwater catchment systems shall be designed in accordance with this chapter by a licensed plumbing contractor or registered design professional. Components, piping, and fittings used in a rainwater catchment system shall be listed.

**Exceptions:**

1. A person registered or licensed to perform plumbing design work is not required to design rainwater catchment systems used for irrigation with a maximum storage capacity of 360 gallons (1363 L).
2. A person registered or licensed to perform plumbing design work is not required to design rainwater catchment systems for single family dwellings where outlets, piping, and system components are located on the exterior of the building.

**2019 CPC 1601.2 System Design.** Rainwater catchment systems shall be designed in accordance with this chapter by a person registered or licensed to perform plumbing design work or who demonstrates competency to design the rainwater catchment system as required by the Authority Having Jurisdiction. Components, piping, and fittings used in a rainwater catchment system shall be listed.

***[HCD 1]*** *Irrigation design plans shall meet the requirements of the California Code of Regulations, Title 23, Division 2, Chapter 2.7, Model Water Efficient Landscape Ordinance.*

**Exceptions:**

1. A person registered or licensed to perform plumbing design work is not required to design rainwater catchment systems used for irrigation with a maximum storage capacity of 360 gallons (1363 L).
2. A person registered or licensed to perform plumbing design work is not required to design rainwater catchment systems for single family dwellings where outlets, piping, and system components are located on the exterior of the building.

**Proposed changes to 2021 UPC text below? Delete “person who demonstrates competency? Keep licensed plumbing contractor?**

**1601.2 System Design.** Rainwater catchment systems shall be designed in accordance with this chapter by a licensed plumbing contractor or registered design professional. Components, piping, and fittings used in a rainwater catchment system shall be listed.

***[HCD 1]*** *Irrigation design plans shall meet the requirements of the California Code of Regulations, Title 23, Division 2, Chapter 2.7, Model Water Efficient Landscape Ordinance.*

**Exceptions:** (no change to model code Exceptions 1 and 2)

# Gray Water Diverter Valve provisions and requirements in 2021 UPC

**2021 UPC 1503.2.2 Diversion.** The gray water system shall connect to the sanitary drainage system downstream of fixture traps and vent connections through a gray water diverter valve. The gray water diverter valve shall comply with IAPMO PS 59 and be installed in an accessible location and clearly indicate the direction of flow.

**2021 UPC Table 1701.1 Referenced Standards**

IAPMO PS 59 2016a Wastewater Diverter Valves and Diversion Systems

**2019 CPC 1503.0 Gray Water Systems *[BSC-CG].*** *Gray water systems shall be verified in accordance with the California Green Building Standards Code (CALGreen), Chapter 5, Division 5.3.*

**2019 CPC 1503.1 General.** The provisions of this section shall apply to the construction, alteration, and repair of gray water systems. *A city, county, or city and county or other local government may adopt, after a public hearing and enactment of an ordinance or resolution, building standards that are more restrictive than the gray water building standards adopted in this code. For additional information, see Health and Safety Code Section 18941.7.*

* + 1. *All gray water systems shall be designed with a diverter valve to allow the user to direct the flow to the building sewer and either the irrigation field or disposal field, whichever is used. The means of changing the direction flow of the gray water shall be clearly labeled and readily accessible to the user.*
		2. – (I) (no change to existing California amendment)

**1503.2.1 Surge Capacity.** Gray water systems shall be designed to have the capacity to accommodate peak flow rates and distribute the total amount of estimated gray water on a daily basis to a subsurface irrigation field, subsoil irrigation field, *disposal 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 1503.8.1 or Section 1503.8.2.

***Exception:*** *It is not the intent of this section to require that all gray water must be handled by an irrigation field or disposal field. It is acceptable for excess gray water to be diverted to the building sewer through a diverter valve or overflow drain as permitted in this chapter.*

**2019 CPC 1503.2.2 Diversion.** The gray water system shall connect to the sanitary drainage system downstream of fixture traps and vent connections through an approved diverter valve. The diverter valve shall be installed in *a readily* accessible location and clearly indicate the direction of flow.

***Exception: [HCD 1]*** *A clothes washer system in compliance with Section 1503.1.1.*

**2019 CPC 1503.8 Procedure for Estimating Gray Water Discharge.** Gray water systems shall be designed to distribute the total amount of estimated gray water on a daily basis. The water discharge for gray water systems shall be determined in accordance with Section 1503.8.1 or Section 1503.8.2.

***Exception:*** *It is not the intent of this section to require that all gray water must be handled by an irrigation field or disposal field. It is acceptable for excess gray water to be diverted to the building sewer through a diverter valve or overflow drain as permitted in this chapter.*

# Rainwater Diverter Valve provisions and requirements in 2021 UPC

**2021 UPC 1503.2.4 Rainwater Diversion Valves.** Rainwater diversion valves ranging from 6 inches (150 mm) to 12 inches (300 mm) in diameter shall comply with IAPMO IGC 352. Valves shall be accessible and include a filter located upstream of the valve when required.

**2021 UPC Table 1701.1 Referenced Standards**

IAPMO IGC 352-2018 Diverter Valves for Diversion of Rainwater or Storm Water for Use in Alternate Nonpotable Water Source Systems

# Scope of 2022 CPC for Recycled Water Used for Irrigation.

# (“aboveground and subsurface irrigation” were removed in 9/1/20 errata)

**2019 CPC 1505.0 Recycled Water Supply Systems in Buildings.**

**1505.1 General.** The provisions of *Section 1505.0 through Section 1505.15 shall apply to safely plumb buildings with both potable and recycled water supply systems. Unless otherwise specified in this code, the general provisions applying to alternate water systems pursuant to Section 1501.0 through Section 1501.10 and Section 1502.4 through Section 1502.6 shall apply to recycled water supply systems. The provisions in this section encompass the installation, construction, alteration, and repair of recycled water supply systems that are within or a part of a building and receive reclaimed (recycled) water provided by a water/wastewater utility. When dealing with recycled water supply systems, the Authority Having Jurisdiction and Enforcing Agency may include the recycled water purveyor or potable water purveyor in accordance with their respective statutory authority and responsibility as provided on their respective permits for supplying water.*

***1505.1.1 Allowed Uses.*** *Allowed uses shall include 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 as generally allowed in the California Code of Regulations, Title 22, Division 4, Chapter 3 and specifically allowed in the permit for the facility producing or supplying the reclaimed (recycled) water issued by the State Water Resources Control Board or Regional Water Quality Control Board.*

# Adoption of 2021 UPC sections. Similar 2018 UPC sections not printed in 2019 CPC

**1601.8 Material Compatibility.** Rainwater catchment systems shall be constructed of materials that are compatible with the type of pipe and fitting materials, water treatment, and water conditions in the system.

**1601.9 System Controls.** Controls for pumps, valves, and other devices that contain mercury that come in contact with rainwater supply shall not be permitted.

**1601.10 Separation Requirements**. Underground rainwater catchment service piping shall be separated from the building sewer in accordance with Section 609.2. Treated nonpotable water pipes 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 meet this requirement, the minimum separation shall be increased to 60 inches (1524 mm). The potable water piping shall be installed at an elevation above the treated nonpotable water piping.

**1601.11 Abandonment.** Rainwater catchment systems that are no longer in use, or fail to be maintained in accordance with Section 1601.5, shall be abandoned. Abandonment shall

comply with Section 1601.11.1 and Section 1601.11.2.

**1601.11.1 General.** An abandoned system or part thereof covered under the scope of this chapter shall be disconnected from remaining systems, drained, plugged, and capped in an approved manner.

**1601.11.2 Underground Tank.** An underground water storage tank that has been abandoned or otherwise discontinued from use in a system covered under the scope of this chapter shall be completely drained and filled with earth, sand, gravel, concrete, or other approved material or removed in a manner satisfactory to the Authority Having Jurisdiction.

**1601.12 Sizing.** Unless otherwise provided for in this chapter, rainwater catchment piping shall be sized in accordance with Chapter 6 for sizing potable water piping.

# Rainwater catchment system text changes for consistency

**2019 CPC 1602.4 Connections to Potable or Reclaimed (Recycled) Water Systems.** Rainwater catchment systems shall have no direct connection to a potable water supply or alternate water source system. Potable or reclaimed (recycled) water is permitted to be used as makeup water for a rainwater catchment system provided the potable or reclaimed (recycled) water supply connection is protected by an air gap or reduced-pressure principle backflow preventer in accordance with this code.