



GOVERNMENT OF THE DISTRICT OF COLUMBIA
CONSTRUCTION CODES COORDINATING BOARD
c/o DCRA- 1100 4th Street SW, Washington, DC 20024

CODE CHANGE PROPOSAL FORM

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CODE: Plumbing Code SECTION NO. 1303 SUBCOMMITTEE AMENDMENT NO. PC-M-13-7-13

PROPOSING SUBCOMMITTEE: Mechanical TAG CHAIR: Lourenco PHONE: 202-966-0042 E-mail: al@lourenconsult.com

DATES OF PROPOSAL: 6/19/12 CCCB PRESENTATION: 6.28.12 CCCB APPROVAL: 7.3.12

CHECK ONE *Revise section to read as follows:* *Delete section and substitute the following:*
 Add new section to read as follows: *Delete section without substitution.*

TYPE ALL TEXT IN 12-POINT TIMES NEW ROMAN FONT
~~LINE THROUGH TEXT TO BE DELETED~~ (highlight text, under Format, click font and check strikethrough)
UNDERLINE TEXT TO BE ADDED
Use additional sheets of the form, if necessary.

See next page

Anticipated impact of code change on cost of construction (CHECK ONE)
 Increase *Decrease* *Negligible* *Unknown*

Per 1,000 SF single-family dwelling *to*
Per 1,000SF of commercial building *to*

JUSTIFICATION OF CHANGE:
Please reference one or more of the criteria required
 To address a critical life/safety, health, general welfare need.
 To address a specific District of Columbia policy or statute
 For consistency with federal, or with reference to the Metro DC area (MD, VA) codes
 Address a unique character issue in the District of Columbia
 Correction of errors and omissions
 Other (explain)

The purpose of this amendment is to not allow the use of untreated gray water for irrigation purposes, to address environmental and public health concerns.
To preclude a potential detrimental effect on the quality of subsurface water by preventing the release of wastewater into the subsurface.
To preclude the potentially detrimental effect on public health of releasing wastewater into the subsurface, with the potential to resurface and expose the public to this untreated water.
Companion change to amendment PC-M-13-1-13.

CHAPTER 13 GRAY WATER RECYCLING SYSTEMS

Strike Section 1303 of the International Plumbing Code in its entirety without substitution.

~~SECTION 1303 SUBSURFACE LANDSCAPE IRRIGATION SYSTEMS~~

~~**1303.1 Collection reservoir.** Reservoirs shall be sized to limit the retention time of gray water to a maximum of 24 hours.~~

~~**1303.1.1 Identification.** The reservoir shall be identified as containing nonpotable water.~~

~~**1303.2 Valves required.** A check valve and a full-open valve located on the discharge side of the check valve shall be installed on the effluent pipe of the collection reservoir.~~

~~**1303.3 Makeup water.** Makeup water shall not be required for subsurface landscape irrigation systems. Where makeup water is provided, the installation shall be in accordance with Section 1302.3.~~

~~**1303.4 Disinfection.** Disinfection shall not be required for gray water used for subsurface landscape irrigation systems.~~

~~**1303.5 Coloring.** Gray water used for subsurface landscape irrigation systems shall not be required to be dyed.~~

~~**1303.6 Estimating gray water discharge.** The system shall be sized in accordance with the gallons-per-day-per-occupant number based on the type of fixtures connected to the gray water system. The discharge shall be calculated by the following equation:~~

$$C = A \times B \qquad \text{---(Equation 13-1)}$$

Where:

~~A = Number of occupants:~~

~~Residential— Number of occupants shall be determined by the actual number of occupants, but not less than two occupants for one bedroom and one occupant for each additional bedroom.~~

~~Commercial— Number of occupants shall be determined by the *International Building Code* [®].~~

~~*B* = Estimated flow demands for each occupant:~~

~~Residential— 25 gallons per day (94.6 lpd) per occupant for showers, bathtubs and lavatories and 15 gallons per day (56.7 lpd) per occupant for clothes washers or laundry trays.~~

~~Commercial— Based on type of fixture or water use records minus the discharge of fixtures other than those discharging gray water.~~

~~*C* = Estimated gray water discharge based on the total number of occupants.~~

~~**1303.7 Percolation tests.** The permeability of the soil in the proposed absorption system shall be determined by percolation tests or permeability evaluation.~~

~~————— **1303.7.1 Percolation tests and procedures.** At least three percolation tests in each system area shall be conducted. The holes shall be spaced uniformly in relation to the bottom depth of the proposed absorption system. More percolation tests shall be made where necessary, depending on system design.~~

~~————— **1303.7.1.1 Percolation test hole.** The test hole shall be dug or bored. The test hole shall have vertical sides and a horizontal dimension of 4 inches to 8 inches (102 mm to 203 mm). The bottom and sides of the hole shall be scratched with a sharp-pointed instrument to expose the natural soil. All loose material shall be removed from the hole and the bottom shall be covered with 2 inches (51 mm) of gravel or coarse sand.~~

~~————— **1303.7.1.2 Test procedure, sandy soils.** The hole shall be filled with clear water to a minimum of 12 inches (305 mm) above the bottom of the hole for tests in sandy soils. The time for this amount of water to seep away shall be determined, and this procedure shall be repeated if the water from the second filling of the hole seeps away in 10 minutes or less. The test shall proceed as follows: Water shall be added to a point not more than 6 inches (152 mm) above the gravel or coarse sand. Thereupon, from a fixed reference point, water levels shall be measured at 10-minute intervals for a period of 1 hour. Where 6 inches (152 mm) of water seeps away in less than 10 minutes, a shorter interval between measurements shall be used, but in no case shall the water depth exceed 6 inches (152 mm). Where 6 inches (152 mm) of water seeps away in less than 2 minutes, the test shall be stopped and a rate of less than 3 minutes per inch (7.2 s/mm) shall be reported. The final water level drop shall be used to calculate the percolation rate. Soils not meeting the above requirements shall be tested in accordance with Section 1303.7.1.3.~~

~~————— **1303.7.1.3 Test procedure, other soils.** The hole shall be filled with clear water, and a minimum water depth of 12 inches (305 mm) shall be maintained above the bottom of the hole for a 4-hour period by refilling whenever necessary or by~~

use of an automatic siphon. Water remaining in the hole after 4 hours shall not be removed. Thereafter, the soil shall be allowed to swell not less than 16 hours or more than 30 hours. Immediately after the soil swelling period, the measurements for determining the percolation rate shall be made as follows: any soil sloughed into the hole shall be removed and the water level shall be adjusted to 6 inches (152 mm) above the gravel or coarse sand. Thereupon, from a fixed reference point, the water level shall be measured at 30-minute intervals for a period of 4 hours, unless two successive water level drops do not vary by more than 1/16 inch (1.59 mm). At least three water level drops shall be observed and recorded. The hole shall be filled with clear water to a point not more than 6 inches (152 mm) above the gravel or coarse sand whenever it becomes nearly empty. Adjustments of the water level shall not be made during the three measurement periods except to the limits of the last measured water level drop. When the first 6 inches (152 mm) of water seeps away in less than 30 minutes, the time interval between measurements shall be 10 minutes and the test run for 1 hour. The water depth shall not exceed 5 inches (127 mm) at any time during the measurement period. The drop that occurs during the final measurement period shall be used in calculating the percolation rate.

————— **1303.7.1.4 Mechanical test equipment.** Mechanical percolation test equipment shall be of an approved type.

————— **1303.7.2 Permeability evaluation.** Soil shall be evaluated for estimated percolation based on structure and texture in accordance with accepted soil evaluation practices. Borings shall be made in accordance with Section 1303.7.1 for evaluating the soil.

1303.8 Subsurface landscape irrigation site location. The surface grade of all soil absorption systems shall be located at a point lower than the surface grade of any water well or reservoir on the same or adjoining lot. Where this is not possible, the site shall be located so surface water drainage from the site is not directed toward a well or reservoir. The soil absorption system shall be located with a minimum horizontal distance between various elements as indicated in Table 1303.8. Private sewage disposal systems in compacted areas, such as parking lots and driveways, are prohibited. Surface water shall be diverted away from any soil absorption site on the same or neighboring lots.

**TABLE 1303.8
LOCATION OF GRAY WATER SYSTEM**

ELEMENT	MINIMUM HORIZONTAL DISTANCE	
	HOLDING TANK (feet)	IRRIGATION DISPOSAL FIELD (feet)
Buildings	5	2
Lot line adjoining private property	5	5
Water wells	50	100
Streams and lakes	50	50
Seepage pits	5	5
Septic tanks	0	5
Water service	5	5
Public water main	10	10

For SI: 1 foot = 304.8 mm.

1303.9 Installation. Absorption systems shall be installed in accordance with Sections 1303.9.1 through 1303.9.5 to provide landscape irrigation without surfacing of gray water.

~~1303.9.1 Absorption area.~~ The total absorption area required shall be computed from the estimated daily gray water discharge and the design-loading rate based on the percolation rate for the site. The required absorption area equals the estimated gray water discharge divided by the design-loading rate from Table 1303.9.1.

**TABLE 1303.9.1
DESIGN LOADING RATE**

PERCOLATION RATE (minutes per inch)	DESIGN LOADING FACTOR (gallons per square foot per day)
0 to less than 10	1.2
10 to less than 30	0.8
30 to less than 45	0.72
45 to 60	0.4

For SI: 1 minute per inch = min/25.4 mm,

1 gallon per square foot = 40.7 L/m²

~~1303.9.2 Seepage trench excavations.~~ Seepage trench excavations shall be not less than 1 foot (304 mm) in width and not greater than 5 feet (1524 mm) in width. Trench excavations shall be spaced not less than 2 feet (610 mm) apart. The soil absorption area of a seepage trench shall be computer by using the bottom of the trench area (width) multiplied by the length of pipe. Individual seepage trenches shall be not greater than 100 feet (30 480 mm) in developed length.

~~1303.9.3 Seepage bed excavations.~~ Seepage bed excavations shall be not less than 5 feet (1524 mm) in width and have more than one distribution pipe. The absorption area of a seepage bed shall be computed by using the bottom of the trench area. Distribution piping in a seepage bed shall be uniformly spaced not greater than 5 feet (1524 mm) and not less than 3 feet (914 mm) apart, and greater than 3 feet (914 mm) and not less than 1 foot (305 mm) from the sidewall or headwall.

~~1303.9.4 Excavation and construction.~~ The bottom of a trench or bed excavation shall be level. Seepage trenches or beds shall not be excavated where the soil is so wet that such material rolled between the hands forms a soil wire. All smeared or compacted soil surfaces in the sidewalls or bottom of seepage trench or bed excavations shall be scarified to the depth of smearing or compaction and the loose material removed. Where rain falls on an open excavation, the soil shall be left until sufficiently dry so a soil wire will not form when soil from the excavation bottom is rolled between the hands. The bottom area shall then be scarified and loose material removed.

~~1303.9.5 Aggregate and backfill.~~ Not less than 6 inches in depth of aggregate ranging in size from ½ to 2½ inches (12.7 mm to 64 mm) shall be laid into the trench below the distribution piping elevation. The aggregate shall be evenly distributed not less than 2 inches (51 mm) in depth over the top of the distribution pipe. The aggregate shall

be covered with approved synthetic materials or 9 inches (229 mm) of uncompacted marsh hay or straw. Building paper shall not be used to cover the aggregate. Not less than 9 inches (229 mm) of soil backfill shall be provided above the covering.

1303.10 Distribution piping. Distribution piping shall be not less than 3 inches (76 mm) in diameter. Materials shall comply with Table 1303.10. The top of the distribution pipe shall be not less than 8 inches (203 mm) below the original surface. The slope of the distribution pipes shall be not less than 2 inches (51 mm) and not greater than 4 inches (102 mm) per 100 feet (30 480 mm).

**TABLE 1303.10
DISTRIBUTION PIPE**

MATERIAL	STANDARD
Polyethylene (PE) plastic pipe	ASTM F 405
Polyvinyl chloride (PVC) plastic pipe	ASTM D 2729
Polyvinyl chloride (PVC) plastic pipe with a 3.5 inch O.D. and solid cellular core or composite wall.	ASTM F 1488

1303.11 Joints. Joints in distribution pipe shall be made in accordance with Section 705 of this code.