# P152-09/10, Part I
## 202 (New), 301.3, Chapter 13 (New), Appendix C

***Proposed Change as Submitted***

**Proponent:** Guy Tomberlin of Fairfax County, Virginia, Virginia Plumbing and Mechanical Inspectors, Virginia Building and Code Officials and ICC Region 7.

**PART I – IPC**

**1. Add definition as follows:**

**GRAY WATER.** Waste discharged from lavatories, bathtubs, showers, clothes washers and laundry trays.

**2. Revise as follows:**

**301.3 Connections to drainage system.** ~~All~~ Plumbing fixtures, drains, appurtenances and appliances used to receive or discharge liquid wastes or sewage shall be directly connected to the sanitary drainage system of the building or premises, in accordance with the requirements of this code. This section shall not be construed to prevent indirect waste systems required by Chapter 8.

**Exception:** Bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to discharge to the sanitary drainage system where such fixtures discharge to an approved gray water system for flushing of water closets and urinals or for subsurface landscape irrigation.

**3. Delete Appendix C in its entirety without substitution**

*(Renumber subsequent appendices)*

**4. Add new chapter and text as follows:**

**Chapter 13**
**Gray Water Recycling Systems**

**SECTION 1301**
**GENERAL**

**1301.1 Scope.** The provisions of Chapter 13 shall govern the materials, design, construction and installation of gray water systems for flushing of water closets and urinals and for subsurface landscape irrigation. See Figures 1301.1(1) and 1301.1(2).

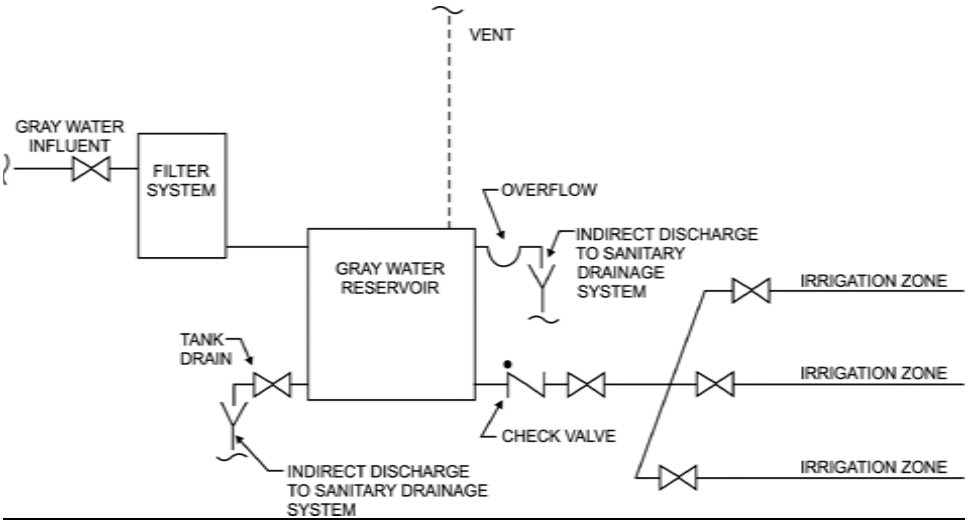


**FIGURE 1301.1 (1)**
**GRAY WATER RECYCLING SYSTEM FOR SUBSURFACE LANDSCAPE IRRIGATION**

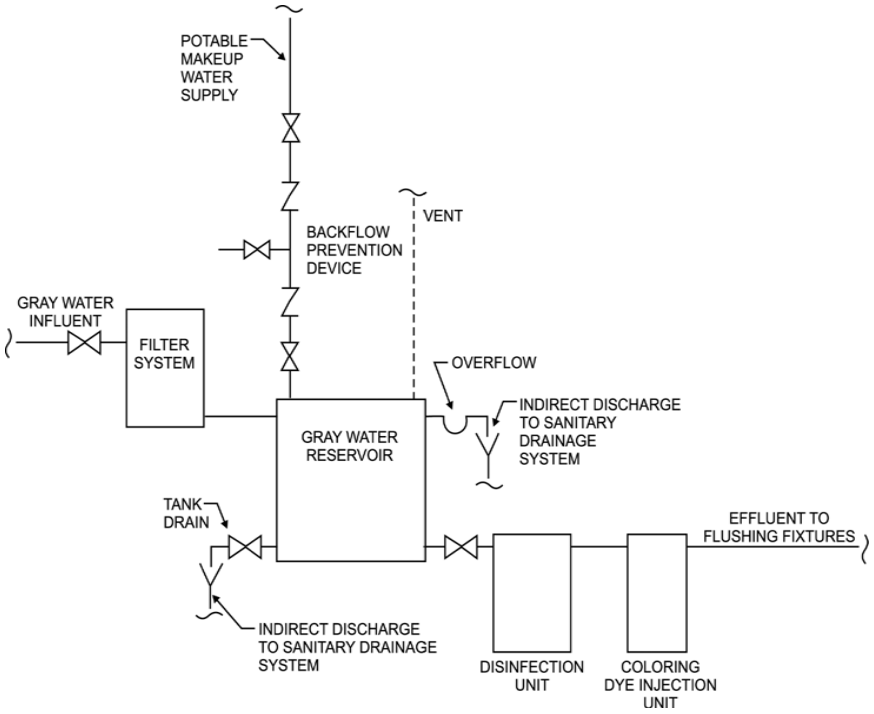


**FIGURE 1301.1(2)**
**GRAY WATER RECYCLING SYSTEM FOR FLUSHING WATER CLOSETS AND URINALS**

**1301.2 Installation.** In addition to the provisions of Section 1301, systems for flushing of water closets and urinals shall comply with Section 1302 and systems for subsurface landscape irrigation shall comply with Section 1303. Except as provided for in this chapter, all systems shall comply with the provisions of the other chapters of this code.

**1301.3 Materials.** Above-ground drain, waste and vent piping for gray water systems shall conform to one of the standards listed in Table 702.1. Gray water underground building drainage and vent pipe shall conform to one of the standards listed in Table 702.2.

**1301.4 Tests.** Drain, waste and vent piping for gray water systems shall be tested in accordance with Section 312.

**1301.5 Inspections.** Gray water systems shall be inspected in accordance with Section 107.

**1301.6 Potable water connections.** Only connections in accordance with Section 1302.3 shall be made between a gray water recycling system and a potable water system.

**1301.7 Waste water connections.** Gray water recycling systems shall receive only the waste discharge of bathtubs, showers, lavatories, clothes washers or laundry trays.

**1301.8 Collection reservoir.** Gray water shall be collected in an approved reservoir constructed of durable, nonabsorbent and corrosion-resistant materials. The reservoir shall be a closed and gas-tight vessel. Access openings shall be provided to allow inspection and cleaning of the reservoir interior.

**1301.9 Filtration.** Gray water entering the reservoir shall pass through an approved filter such as a media, sand or diatomaceous earth filter.

**1301.9.1 Required valve.** A full-open valve shall be installed downstream of the last fixture connection to the gray water discharge pipe before entering the required filter.

**1301.10 Overflow.** The collection reservoir shall be equipped with an overflow pipe having the same or larger diameter as the influent pipe for the gray water. The overflow pipe shall be trapped and shall be indirectly connected to the sanitary drainage system.

**1301.11 Drain.** A drain shall be located at the lowest point of the collection reservoir and shall be indirectly connected to the sanitary drainage system. The drain shall be the same diameter as the overflow pipe required in Section 1301.10.

**1301.12 Vent required.** The reservoir shall be provided with a vent sized in accordance with Chapter 9 and based on the diameter of the reservoir influent pipe.

## SECTION 13 02
## SYSTEMS FOR FLUSHING WATER CLOSETS AND URINALS

**1302.1 Collection reservoir.** The holding capacity of the reservoir shall be a minimum of twice the volume of water required to meet the daily flushing requirements of the fixtures supplied with gray water, but not less than 50 gallons (189 L). The reservoir shall be sized to limit the retention time of gray water to a maximum of 72 hours.

**1302.2 Disinfection.** Gray water shall be disinfected by an approved method that employs one or more disinfectants such as chlorine, iodine or ozone that are recommended for use with the pipes, fittings and equipment by the manufacturer of the pipes, fittings and equipment.

**1302.3 Makeup water.** Potable water shall be supplied as a source of makeup water for the gray water system. The potable water supply shall be protected against backflow in accordance with Section 608. There shall be a full-open valve located on the makeup water supply line to the collection reservoir.

**1302.4 Coloring.** The gray water shall be dyed blue or green with a food grade vegetable dye before such water is supplied to the fixtures.

**1302.5 Materials.** Distribution piping shall conform to one of the standards listed in Table 605.4.

**1302.6 Identification.** Distribution piping and reservoirs shall be identified as containing nonpotable water. Piping identification shall be in accordance with Section 608.8.

## 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 or 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:

$C = A \times B$

*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 (152mm) 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 (305mm) 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 property. 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 |
| Property 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 $L/m^2$.

**1303.9.2 Seepage trench excavations.** Seepage trench excavations shall be a minimum of 1 foot (304 mm) to a maximum of 5 feet (1524 mm) wide. Trench excavations shall be spaced a minimum of 2 feet (610 mm) apart. The soil absorption area of a seepage trench shall be computed by using the bottom of the trench area (width) multiplied by the length of pipe. Individual seepage trenches shall be a maximum of 100 feet (30 480 mm) in developed length.

**1303.9.3 Seepage bed excavations.** Seepage bed excavations shall be a minimum of 5 feet (1524 mm) wide 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 a maximum of 5 feet (1524mm) and a minimum of 3 feet (914 mm) apart, and a maximum of 3 feet (914mm) and a minimum of 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.** A minimum of 6 inches of aggregate ranging in size from $^1/_2$ to $2^1/_2$ inches (12.7 mm to 64 mm) shall be laid into the trench below the distribution piping elevation. The aggregate shall be evenly distributed a minimum of 2 inches (51 mm) over the top of the distribution pipe. The aggregate shall be covered with approved synthetic materials or 9 inches (229mm) of uncompacted marsh hay or straw. Building paper shall not be used to cover the aggregate. A minimum of 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 (76mm) in diameter. Materials shall comply with Table 1303.10. The top of the distribution pipe shall be not less than 8 inches (203mm) below the original surface. The slope of the distribution pipes shall be a minimum of 2 inches (51 mm) andamaximumof4inches (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.

*(Renumber subsequent chapters and sections)*

**Reason:** The purpose of this proposal is to bring the gray water recycling systems information in the appendix of the code out of obscurity so the technology can be implemented. The use of gray water as an alternative water source is becoming highly desirable and popular due to the water huge water savings and the shortage of potable water supplies in some areas of the country. This new chapter will promote the reuse of gray water for subsurface irrigation use and the flushing of water closets and urinals. Utilizing the provisions contained within this new chapter will advance the LEED point system for the owners benefit. The unfortunate reality is where provisions are located within an Appendix they are typically subject to adoption at the local level. Moving the current provisions to be included in the body of the code will eliminate the undesirable situation where a locality my not promote this “Green” concept based on the fact that is not code, only an Appendix.

**Cost Impact:** The code change proposal will not increase the cost of construction.

ICCFILENAME: TOMBERLIN-P5-Chapter 13 NEW

## *Public Hearing Results*

**PART I- IPC**
**Committee Action:** **Disapproved**

**Committee Reason:** Proposal lowers the safety within the building. Makes building owners wastewater purveyors. No standards exist for graywater quality. No approvals exist for equipment needed for graywater processing.

**Assembly Action:** **None**

## *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted.**

*Public Comment 1:*

**Guy Tomberlin, Fairfax County, representing VA Plumbing and Mechanical Inspectors Association, VA Building and Code Officials Association and ICC Region VII, requests Approval as Submitted.**

**Commenter’s Reason:** I want to first point out two very important facts related to this proposal. The first is this is the exact language taken from the current appendices of these two codes. This language was updated recently to incorporate mandatory, enforceable and easy to implement

regulations to take advantage of the "green" technology that has been utilized successfully for century's. The second is, the only 3 places that gray/recycled water is permitted to be used is for flushing water closets and urinals, and for lawn irrigation.

The testimony in opposition to this proposal was focused on 3 points: 1. The use of gray water to flush water closets could increase unsafe bacteria levels in a toilet tank and further this proposal did not require any type mandatory sampling of the water quality. Current code does not require bacteria level testing in water closet tanks and I would suggest after many years of continued use the water quality in the average toilet tank is not suitable for human consumption and nor should it be used as such. But the fact is this proposal does require colored dye be added to the gray water prior to its use. This was done for a very good reason, to make it absolutely clear that no one should attempt to consume the water. 2. Other provisions need to be added to these regulations. The current appendices are not 100% all inclusive and do not cover all the possible applications but they are a perfect groundwork that this technology can be built upon. There were approximately 2,200 code changes submitted to the International codes this cycle, I would submit that there will always be room for improvement to any code. 3. The Green Code is going to address this topic. That is correct, however the Green Code is currently in draft form and its widespread adoption is not confirmed just yet. These provisions are ready to implement today and have already been used in many applications successfully.

The truth is if we wait and do not adopt this environmentally friendly "green" technology now the industry will pass us by. Industry will continue to improve on the various applications associated with this technology and code modifications will continue to be the status quo, leaving it up to the code official to determine when and where these systems should be allowed. Many areas across the country suffer from drought and potable water shortages right now, this proposal only make sense. We have come full circle with water use and rediscovered its value. This is a huge step in the right direction to help preserve the environment for generations to come.

*Public Comment 2:*

**Judson Collins, JULYCO, representing himself, requests Approval as Submitted.**

**Commenter's Reason:** The committee said there are other ways to handle gray water as a reason for disapproval. Granted there are other ways but no one is bringing any of them forward. This language already exists in the appendix of the code. However, since the majority of jurisdictions do not adopt an appendix, it is seldom used. Moving these requirements into the code does not make them mandatory. If someone wants to install a gray water system, these methods have been successfully used in areas of water conservation. If someone wants to use methods other than these, they always have the option of alternative materials, methods and equipment in Section 105.2.

Final Action: AS AM AMPC____ D

# P152-09/10, Part II

## IRC R202 (New), P2601.2, Section P3009 (New), Appendix O

***Proposed Change as Submitted***

**Proponent:** Guy Tomberlin of Fairfax County, Virginia, Virginia Plumbing and Mechanical Inspectors, Virginia Building and Code Officials and ICC Region 7.

**PART II - IRC**

**1. Add definition as follows:**

**GRAY WATER.** Waste discharged from lavatories, bathtubs, showers, clothes washers and laundry trays.

**2. Revise as follows:**

**P2601.2 Connections to drainage system.** Plumbing fixtures, drains, appurtenances and appliances used to receive or discharge liquid wastes or sewage shall be directly connected to the sanitary drainage system of the building or premises, in accordance with the requirements of this code. This section shall not be construed to prevent indirect waste systems.

**Exception:** Bathtubs, showers, lavatories, clothes washers and laundry trays shall not be required to discharge to the sanitary drainage system where such fixtures discharge to an approved gray water system for flushing of water closets and urinals or for subsurface landscape irrigation.

**3. Delete Appendix O in its entirety without substitution**

*(Renumber subsequent appendices)*

**4. Add new section and text as follows:**

## SECTION P3009
## GRAY WATER RECYCLING SYSTEMS

**P3009.1 Scope.** The provisions of Section P3009 shall govern the materials, design, construction and installation of gray water systems for flushing of water closets and urinals and for subsurface landscape irrigation. See Figures P3009.1(1) and P3009.1(2).

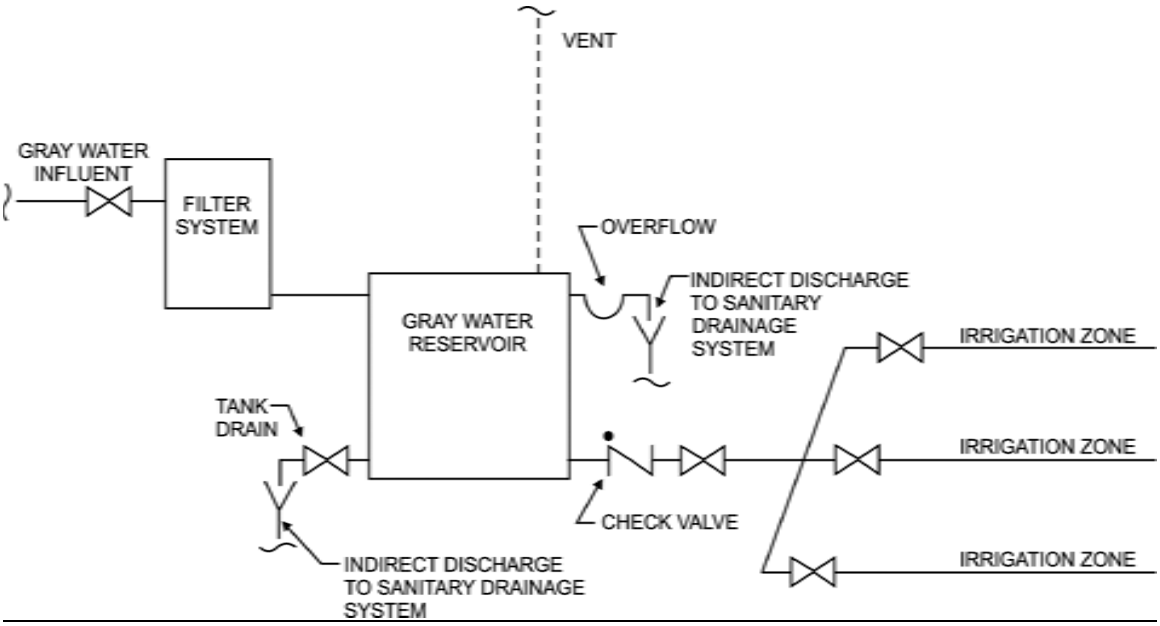


**FIGURE P3009.1(1)**
**GRAY WATER RECYCLING SYSTEM FOR SUBSURFACE LANDSCAPE IRRIGATION**

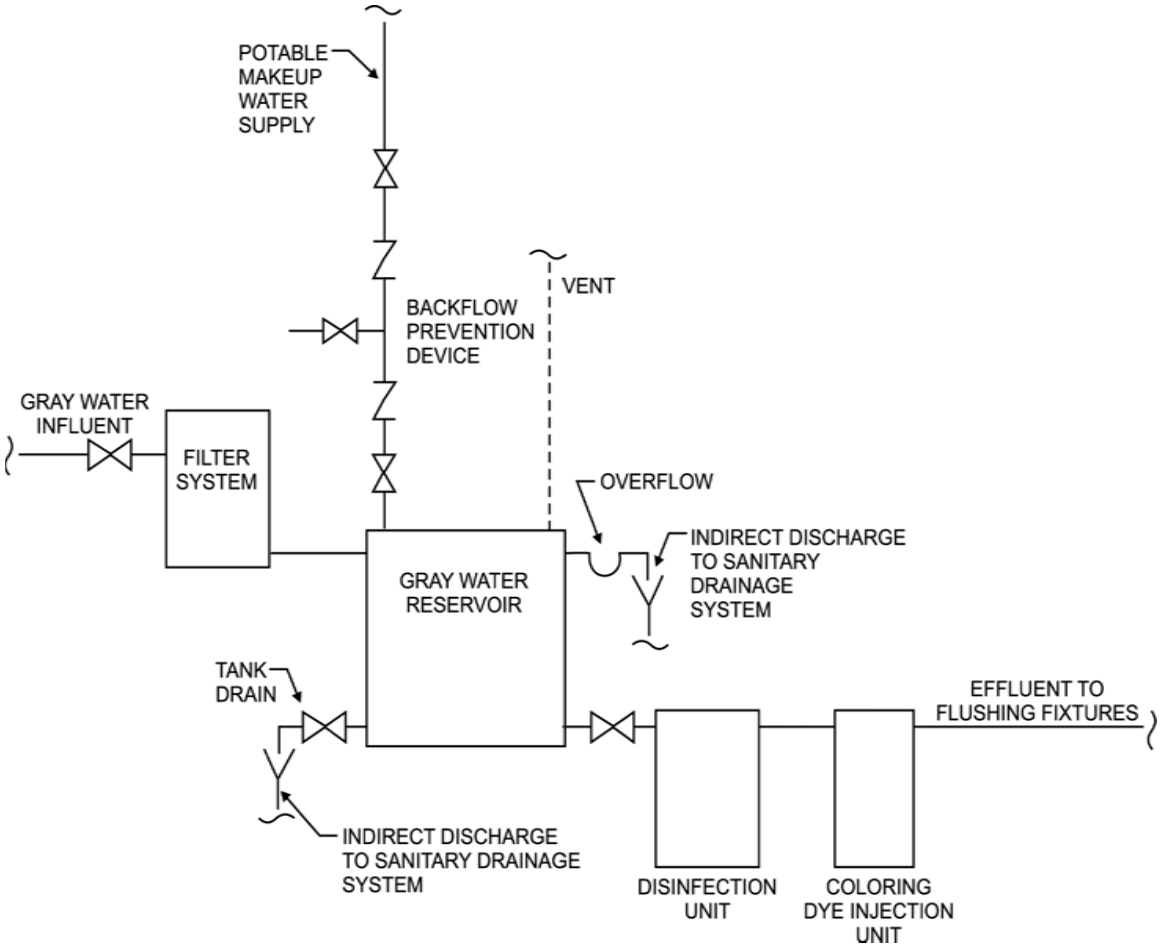


**FIGURE P3009.1(2)**
**GRAY WATER RECYCLING SYSTEM FOR FLUSHING WATER CLOSETS AND URINALS**

**P3009.2 Installation.** In addition to the provisions of Section P3009, systems for flushing of water closets and urinals shall comply with Section P3009.13 and systems for subsurface landscape irrigation shall comply with Section P3009.14. Except as provided for in Section P3009, all systems shall comply with the provisions of the other sections of this code.

**P3009.3 Materials.** Above-ground drain, waste and vent piping for gray water systems shall conform to one of the standards listed in Table P3002.1(1). Gray water underground building drainage and vent pipe shall conform to one of the standards listed in Table P3002.1(2).

**P3009.4 Tests.** Drain, waste and vent piping for gray water systems shall be tested in accordance with Section P2503.

**P3009.5 Inspections.** Gray water systems shall be inspected in accordance with Section P2503.

**P3009.6 Potable water connections.** Only connections in accordance with Section 3009.13.1 shall be made between a gray water recycling system and a potable water system.

**P3009.7 Waste water connections.** Gray water recycling systems shall receive only the waste discharge of bathtubs, showers, lavatories, clothes washers or laundry trays.

**P3009.8 Collection reservoir.** Gray water shall be collected in an approved reservoir constructed of durable, nonabsorbent and corrosion-resistant materials. The reservoir shall be a closed and gas-tight vessel. Access openings shall be provided to allow inspection and cleaning of the reservoir interior.

**P3009.9 Filtration.** Gray water entering the reservoir shall pass through an approved filter such as a media, sand or diatomaceous earth filter.

**P3009.9.1 Required valve.** A full-open valve shall be installed downstream of the last fixture connection to the gray water discharge pipe before entering the required filter.

**P3009.10 Overflow.** The collection reservoir shall be equipped with an overflow pipe having the same or larger diameter as the influent pipe for the gray water. The overflow pipe shall be trapped and shall be indirectly connected to the sanitary drainage system.

**P3009.11 Drain.** A drain shall be located at the lowest point of the collection reservoir and shall be indirectly connected to the sanitary drainage system. The drain shall be the same diameter as the overflow pipe required in Section P3009.10.

**P3009.12 Vent required.** The reservoir shall be provided with a vent sized in accordance with Chapter 31 and based on the diameter of the reservoir influent pipe.

**P3009.13 Flushing water systems.** Systems for flushing water closets and urinals shall comply with Sections P3009.13.1 through P3009.13.6

**P3009.13.1 Collection reservoir.** The holding capacity of the reservoir shall be a minimum of twice the volume of water required to meet the daily flushing requirements of the fixtures supplied with gray water, but not less than 50 gallons (189 L). The reservoir shall be sized to limit the retention time of gray water to a maximum of 72 hours.

**P3009.13.2 Disinfection.** Gray water shall be disinfected by an approved method that employs one or more disinfectants such as chlorine, iodine or ozone that are recommended for use with the pipes, fittings and equipment by the manufacturer of the pipes, fittings and equipment.

**P3009.13.3 Makeup water.** Potable water shall be supplied as a source of makeup water for the gray water system. The potable water supply shall be protected against backflow in accordance with Section P2902. There shall be a full-open valve located on the makeup water supply line to the collection reservoir.

**P3009.13.4 Coloring.** The gray water shall be dyed blue or green with a food grade vegetable dye before such water is supplied to the fixtures.

**P3009.13.5 Materials.** Distribution piping shall conform to one of the standards listed in Table P2905.4.

**P3009.13.6 Identification.** Distribution piping and reservoirs shall be identified as containing nonpotable water. Piping identification shall be in accordance with Section P2901.1.

**P3009.14 Landscape irrigation systems.** Subsurface landscape irrigation systems shall comply with Sections P3009.14.1 through P3009.14.11

**P3009.14.1 Collection reservoir.** Reservoirs shall be sized to limit the retention time of gray water to a maximum of 24 hours.

**P3009.14.1.1 Identification.** The reservoir shall be identified as containing nonpotable water.

**P3009.14.2 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.

**P3009.14.3 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 3009.13.3.

**P3009.14.4 Disinfection.** Disinfection shall not be required for gray water used or subsurface landscape irrigation systems.

**P3009.14.5 Coloring.** Gray water used for subsurface landscape irrigation systems shall not be required to be dyed.

**P3009.14.6 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 x B*

*A* = Number of occupants:
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.

*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.

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

**P3009.14.7 Percolation tests.** The permeability of the soil in the proposed absorption system shall be determined by percolation tests or permeability evaluation.

**P3009.14.7.1 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.

**P3009.14.7.1.1 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.

**P3009.14.7.1.2 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 (152mm) 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 3009.14.7.1.3.

**P3009.14.7.1.3 Test procedure, other soils.** The hole shall be filled with clear water, and a minimum water depth of 12 inches (305mm) 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.

**P3009.14.7.1.4 Mechanical test equipment.** Mechanical percolation test equipment shall be of an approved type.

**P3009.14.7.2 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 P3009.14.7.1 for evaluating the soil.

**P3009.14.8 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 property. 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 P3009.14.8. 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 P3009.14.8**
**LOCATION OF GRAY WATER SYSTEM**

| ELEMENT | MINIMUM HORIZONTAL DISTANCE | |
|---|---|---|
| | HOLDING TANK (feet) | IRRIGATION DISPOSAL FIELD (feet) |
| Buildings | 5 | 2 |
| Property 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.

**P3009.14.9 Installation.** Absorption systems shall be installed in accordance with Sections P3009.14.9.1 through P3009.14.9.5 to provide landscape irrigation without surfacing of gray water.

**P3009.14.9.1 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 P3009.14.9.1.

**TABLE P3009.14.9.1**
**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/$m^2$.

**P3009.14.9.2 Seepage trench excavations.** Seepage trench excavations shall be a minimum of 1 foot (304 mm) to a maximum of 5 feet (1524 mm) wide. Trench excavations shall be spaced a minimum of 2 feet (610 mm) apart. The soil absorption area of a seepage trench shall be computed by using the bottom of the trench area (width) multiplied by the length of pipe. Individual seepage trenches shall be a maximum of 100 feet (30 480 mm) in developed length.

**P3009.14.9.3 Seepage bed excavations.** Seepage bed excavations shall be a minimum of 5 feet (1524 mm) wide 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 a maximum of 5 feet (1524mm) and a minimum of 3 feet (914 mm) apart, and a maximum of 3 feet (914mm) and a minimum of 1 foot (305 mm) from the sidewall or headwall.

**P3009.14.9.4 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.

**P3009.14.9.5 Aggregate and backfill.** A minimum of 6 inches of aggregate ranging in size from $^1/_2$ to $2^1/_2$ inches (12.7 mm to 64 mm) shall be laid into the trench below the distribution piping elevation. The aggregate shall be evenly distributed a minimum of 2 inches (51 mm) over the top of the distribution pipe. The aggregate shall be covered with approved synthetic materials or 9 inches (229mm) of uncompacted marsh hay or straw. Building paper shall not be used to cover the aggregate. A minimum of 9 inches (229 mm) of soil backfill shall be provided above the covering.

**P3009.14.10 Distribution piping.** Distribution piping shall be not less than 3 inches (76mm) in diameter. Materials shall comply with Table P3009.14.10. The top of the distribution pipe shall be not less than 8 inches (203mm) below the original surface. The slope of the distribution pipes shall be a minimum of 2 inches (51 mm) andamaximumof4inches (102 mm) per 100 feet (30 480 mm).

**TABLE P3009.14.10**
**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 |

**P3009.14.11 Joints.** Joints in distribution pipe shall be made in accordance with Section P3003.

*(Renumber subsequent chapters and sections)*

**Reason:** The purpose of this proposal is to bring the gray water recycling systems information in the appendix of the code out of obscurity so the technology can be implemented. The use of gray water as an alternative water source is becoming highly desirable and popular due to the water huge water savings and the shortage of potable water supplies in some areas of the country. This new chapter will promote the reuse of gray water for subsurface irrigation use and the flushing of water closets and urinals. Utilizing the provisions contained within this new chapter will advance the LEED point system for the owners benefit. The unfortunate reality is where provisions are located within an Appendix they are typically subject to adoption at the local level. Moving the current provisions to be included in the body of the code will eliminate the undesirable situation where a locality my not promote this “Green” concept based on the fact that is not code, only an Appendix.

**Cost Impact:** The code change proposal will not increase the cost of construction.

ICCFILENAME: TOMBERLIN-P5-Chapter 13 NEW

## *Public Hearing Results*

**PART II- IRC-P**
**Committee Action:** **Disapproved**

**Committee Reason:** Proposed language is too restrictive as to the method that must be used. There are other ways to successfully process gray water.

**Assembly Action:** **None**

## *Individual Consideration Agenda*

**This items is on the agenda for individual consideration because public comments were submitted.**

*Public Comment 1:*

**Guy Tomberlin, Fairfax County, representing VA Plumbing and Mechanical Inspectors Association, VA Building and Code Officials Association and ICC Region VII, requests Approval as Submitted.**

**Commenter’s Reason:** See P152-09/10, Part I

*Public Comment 2:*

**Judson Collins, JULYCO, representing self, requests Approval as Submitted.**

**Commenter's Reason:** See P152-09/10, Part I

Final Action: AS AM AMPC____ D

# P156-09/10, Part I
**312.3**

***NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA, PART II IS REPRODUCED FOR INFORMATION PURPOSES ONLY FOLLOWING ALL OF PART I***

## ***Proposed Change as Submitted***

**Proponent:** Judson Collins, JULYCO, representing himself.

**PART I - IPC**

**Revise as follows:**

**312.3 Drainage and vent air test.** Plastic piping shall not be tested using air. An air test shall be made by forcing air into the system until there is a uniform gauge pressure of 5 psi (34.5 kPa) or sufficient to balance a 10-inch (254 mm) column of mercury. This pressure shall be held for a test period of at least 15 minutes. Any adjustments to the test pressure required because of changes in ambient temperatures or the seating of gaskets shall be made prior to the beginning of the test period.

**Reason:**
**PART I-** Section 312.1 does not allow air to be used for testing any plastic piping plumbing system. Section 312.5 repeats the prohibition for water system testing. Section 312.3 does not. This proposal will identify the prohibition in Section 312.3.

**Cost Impact:** None

COLLINS-P7-312.3

## ***Public Hearing Results***

**PART I- IPC**
**Committee Action:** **Approved as Submitted**

**Committee Reason:** Proposed language is already in Section 312.1 but needs to be in this section to reinforce this important safety requirement.

**Assembly Action:** **None**

## ***Individual Consideration Agenda***

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Don Surrena, CBO, representing National Association of Home Builders (NAHB), requests Disapproval.**

**Commenter's Reason**: This prohibition for air testing plastic pipe is already in the IPC two subsections before the proposed change, in section 312.1. It states: "All plumbing system piping shall be tested with either water or, for piping systems other than plastic, by air." There is no need to repeat code requirements for a particular product. If this is permitted where does it end? How many other products will need to be explained again within the code and how many times? Is it always necessary to go to the lowest denominator to give instructions? How will the code user learn how the code works or where different parts of the code are relative to the topic being looked at? Will each section need to have any and all cross references shown? How much redundant information is needed to be put into the code?

Final Action: AS AM AMPC____ D

***NOTE: PART II REPRODUCED FOR INFORMATIONAL PURPOSES ONLY – SEE ABOVE***

***P156-09/10- PART II- IRC***

**P2503.5.1 Rough plumbing.** DWV systems shall be tested on completion of the rough piping installation by water or air with no evidence of leakage. Either test shall be applied to the drainage system in its entirety or in sections after rough piping has been installed, as follows:

1. Water test. Each section shall be filled with water to a point not less than 10 feet (3048 mm) above the highest fitting connection in that section, or to the highest point in the completed system. Water shall be held in the section under test for a period of 15 minutes. The system shall prove leak free by visual inspection.
2. Air test. Plastic piping shall not be tested using air. The portion under test shall be maintained at a gauge pressure of 5 pounds per square inch (psi) (34kPa) or 10 inches of mercury column (34 kPa). This pressure shall be held without introduction of additional air for a period of 15 minutes.

**Reason: PART II-** The IRC should reflect the same concern for safety during testing as does the IPC.

**Cost Impact:** None

**PART II- IRC-P**
**Committee Action:** **Disapproved**

**Committee Reason:** No concrete data provided on failures and injuries. If air testing of plastic piping is performed properly, it is safe.

**Assembly Action:** **None**

# P158-09/10, Part I
## 504.7.3 (New)

## *Proposed Change as Submitted*

**Proponent:** Douglas Sabbag, Resource Conservation Technologies, Inc.

**PART I – IPC**

**Revise as follows:**

**504.8 Leak detector required.** Upon water heater installation, an alarm device shall be installed in the drain pan. The alarm shall sense when the water level in the drain pan exceeds ½ inch in depth and shall produce an audible alert.

**Reason:** Water Heaters are generally considered a maintenance-free appliance, but they are also one of the single most damaging appliances in the home. Because water heaters are continually under pressure, even small pressurized leaks can quickly flood and devastate a home. Whether at home or at work, these flooding events can go undetected for hours or even days.

It is a common occurrence that water heaters leak, especially near the end of their standard or expected life cycle. Leaking water heaters are usually found months or years after their initial installation with their associated damages. One common cause of leaking is when the first two to three courses of galvanized threads begin to deteriorate since water is in contact with the copper and galvanized piping. This corrosion at the connections into the water heater, eventually lead to leaks.

A slow leak can cause a water heater to rust and the surrounding floors and walls to decay. The price tag from such damage can be significant: water heater failures cost an average of more than $4,444 per incident. (http://www.disastersafety.org/text.asp?id=water_heaters)

Besides the frequently extensive damages to the surrounding building materials caused from the leaking water, there is also a very substantial loss of water occurring nationally and internationally from leaking hot water tanks. In just one county in Florida, i.e., Manatee County, it is estimated that there are currently 1,282 leaking water heaters, with a conservative water loss, (at one drop per second), of 2,700 gallons per year, per leaking water heater, or a total of 3,461,400 gallons of wasted water per year. At the ¼ GPM of loss rate, which given the pressurized water condition is frequently the case, the same number of leaking water heaters: (1,282) cause 572,351 gallons of lost water in one day; which extends to 208,908,229 gallons in a year.

On a national level, it is estimated that there are 957,788 leaking hot water heaters. At the ¼ GPM rate of leakage, that equals 156,058,166,261 gallons wasted in a year. One hundred and fifty six BILLION GALLONS of WASTED WATER.

The associated energy which was required to provide that wasted potable water is likewise, extensive.

**Cost Impact:** A simple to install audible alarm costs under $30.

ICCFILENAME: SABBAAG-P1-504.7.3 NEW

## *Public Hearing Results*

**PART I- IPC**
**Committee Action:** **Disapproved**

**Committee Reason:** Adding an alarm to a pan would appear to be redundant. The required pan provides sufficient safety for the application.

**Assembly Action:** **None**

## *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Daniel Fish, representing Fish Construction, requests Approval as Modified by this public comment.**

**Modify the proposal as follows:**

**504.8 Leak detection ~~detector required~~.** Upon installation of a water heater ~~installation~~, an alarm device shall be installed ~~in the drain pan~~ in the pan's waste pipe. The alarm shall sense when ~~the water level in the drain pan exceeds ½ inch in depth~~ water is drained through the pan's waste pipe and shall produce an audible alert, utilize a phone or wireless notification system, or both.

**Commenter's Reason:** Alarm and/or notification systems should be installed below the drainline in order to get the earliest notification when a leak is present. Relying on the drainline if iffy at best. Most of the time they are clogged or plugged. Even when it does work, large amounts of water could be lost before most building owners would notice. Early notification can save thousands of dollars in repairs and is a very simple step. Phone and/or wireless is a plus, especially for unattended buildings, where someone would not be present to hear the alarm. I feel any alarm system would benefit the building industry. Early detection would mean money savings, property protection, and energy savings.

Final Action: AS AM AMPC____ D

# P158-09/10, Part II
## IRC P2801.5.3 (New)

## *Proposed Change as Submitted*

**Proponent:** Douglas Sabbag, Resource Conservation Technologies, Inc.

**PART II – IRC**

**Revise as follows:**

**P2801.5.3 Leak detector required.** Upon water heater installation, an alarm device shall be installed in the drain pan. The alarm shall sense when the water level in the drain pan exceeds ½ inch in depth and shall produce an audible alert.

**Reason:** Water Heaters are generally considered a maintenance-free appliance, but they are also one of the single most damaging appliances in the home. Because water heaters are continually under pressure, even small pressurized leaks can quickly flood and devastate a home. Whether at home or at work, these flooding events can go undetected for hours or even days.

It is a common occurrence that water heaters leak, especially near the end of their standard or expected life cycle. Leaking water heaters are usually found months or years after their initial installation with their associated damages. One common cause of leaking is when the first two to three courses of galvanized threads begin to deteriorate since water is in contact with the copper and galvanized piping. This corrosion at the connections into the water heater, eventually lead to leaks.

A slow leak can cause a water heater to rust and the surrounding floors and walls to decay. The price tag from such damage can be significant: water heater failures cost an average of more than $4,444 per incident. (http://www.disastersafety.org/text.asp?id=water_heaters)

Besides the frequently extensive damages to the surrounding building materials caused from the leaking water, there is also a very substantial loss of water occurring nationally and internationally from leaking hot water tanks. In just one county in Florida, i.e., Manatee County, it is estimated that there are currently 1,282 leaking water heaters, with a conservative water loss, (at one drop per second), of 2,700 gallons per year, per leaking water heater, or a total of 3,461,400 gallons of wasted water per year. At the ¼ GPM of loss rate, which given the pressurized water condition is frequently the case, the same number of leaking water heaters: (1,282) cause 572,351 gallons of lost water in one day; which extends to 208,908,229 gallons in a year.

On a national level, it is estimated that there are 957,788 leaking hot water heaters. At the ¼ GPM rate of leakage, that equals 156,058,166,261 gallons wasted in a year. One hundred and fifty six BILLION GALLONS of WASTED WATER.

The associated energy which was required to provide that wasted potable water is likewise, extensive.

**Cost Impact:** A simple to install audible alarm costs under $30.

ICCFILENAME: SABBAAG-P1-504.7.3 NEW

## *Public Hearing Results*

**PART II- IRC-P**
**Committee Action:** **Disapproved**

**Committee Reason:** No standard or specification for what this alarm unit is and if it alarms, it will only be useful if someone is present to actually hear it.

**Assembly Action:** **None**

## *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Dan Fish, representing Fish Construction, requests Approval as Modified by this public comment.**

**Modify the proposal as follows:**

**Part II - IRC**

**P2801.5.3 Leak detection ~~detector required~~.** Upon installation of a water heater ~~installation~~, an alarm device shall be installed ~~in the drain pan~~ in the pan's waste pipe. The alarm shall sense when ~~the water level in the drain pan exceeds ½ inch in depth~~ water is drained through the waste pipe and shall produce an audible alert, utilize a phone or wireless notification system, or both.

**Commenter's Reason:** See P158-09/10, Part I

Final Action: AS AM AMPC____ D

# P159-09/10, Part I
**904.5**

## *Proposed Change as Submitted*

**Proponent:** Guy McMann, Jefferson County Colorado, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**904.5 Location of vent terminal**. An open vent terminal from a drainage system shall not be located directly beneath any door, openable window, or other air intake opening of the building or of an adjacent building, and any such vent terminal shall not be within 10 feet (3048 mm) horizontally of such an opening unless it is at least ~~2 feet (610 mm)~~ 3 feet (914 mm) above the top of such opening.

**Reason:** This dimension is inconsistent with many of the other code books such as IMC-401.4 #3; IRC-G2427.6.6 and G2427.8 #1; IFGC-503.6.7; IFGC-618.5 and IFGC-503.8 #1. This 3-foot dimension has been around for years and was also found in the legacy codes. It's very important that the entire family of codes is consistent. It's important that sources of contamination don't make their way into building openings and 3 feet will best accomplish this.

**Cost Impact:** The code change proposal will not increase the cost of construction.

ICCFILENAME: MCMANN-P1-904.5

## *Public Hearing Results*

**PART I- IPC**
**Committee Action:** **Disapproved**

**Committee Reason:** No need to make this code consistent with IMC or IFGC. If odor is an issue, just make vent pipe taller.

**Assembly Action:** **None**

## ***Individual Consideration Agenda***

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Guy McMann, Jefferson County, Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO), requests Approval as Submitted.**

**Commenter's Reason:** This is consistent with the approval of RM-10 which recognizes that plumbing vents are a contaminant source, and needs to be 3 feet above air intakes. 8 other code sections say the same thing. It is imperative that there be consistency in the code as it relates to this subject matter.

Final Action: AS AM AMPC____ D

# P159-09/10, Part II
**IRC P3103.5**

## ***Proposed Change as Submitted***

**Proponent:** Guy McMann, Jefferson County Colorado, representing the Colorado Association of Plumbing and Mechanical Officials (CAPMO)

**Revise as follows:**

**P3103.5 Location of vent terminal**. An open vent terminal from a drainage system shall not be located less than 4 feet (1219 mm) directly beneath any door, openable window, or other air intake opening of the building or of an adjacent building, nor shall any such vent terminal be within 10 feet (3048 mm) horizontally of such an opening unless it is at least ~~2 feet (610 mm)~~ 3 feet (914 mm) above the top of such opening

**Reason:** This dimension is inconsistent with many of the other code books such as IMC-401.4 #3; IRC-G2427.6.6 and G2427.8 #1; IFGC-503.6.7; IFGC-618.5 and IFGC-503.8 #1. This 3-foot dimension has been around for years and was also found in the legacy codes. It's very important that the entire family of codes is consistent. It's important that sources of contamination don't make their way into building openings and 3 feet will best accomplish this.

**Cost Impact:** The code change proposal will not increase the cost of construction.

ICCFILENAME: MCMANN-P1-904.5

## ***Public Hearing Results***

**PART II- IRC**
**Committee Action:** **Disapproved**

**Committee Reason:** No technical justification for the change.

**Assembly Action:** **None**

## ***Individual Consideration Agenda***

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Guy McMann, Jefferson County, Colorado, representing Colorado Association of Plumbing and Mechanical Officials (CAPMO), requests Approval as Submitted.**

**Commenter's Reason:** See P159-09/10, Part I

Final Action: AS AM AMPC____ D