

Gray Water Recycling

Tucson, AZ

By Neha Bhatt and Michael Ryan

Water conservation is an important part of any sustainability vision, and it is all the more crucial in a place like Tucson, AZ. Potable water is water that is safe to drink. Gray water is non-toxic wastewater water from faucets, showers, bathtubs and clothes washers. Black water is contaminated water that must be treated coming from sources like dishwashers and kitchen and laundry sinks. To reduce the use of potable water, Tucson passed an ordinance in 2008 requiring all new single family and duplex residential constructions to separate gray water drainage pipes from black water drainage to allow the safe re-use of gray water in yard and garden irrigation.

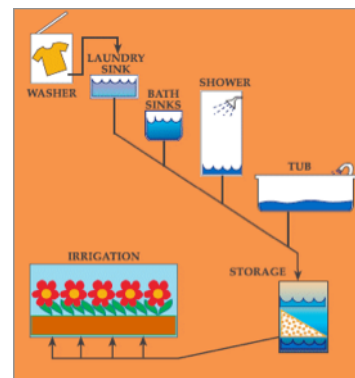


Image from
www.greenandhealthyusa.com

The ordinance aims to make it easier for homeowners to choose to install a gray water recycling system, which can substantially reduce the monthly water bill and save precious potable water. In a typical Tucson home, about one-third of household wastewater can be re-used for landscape plants and trees, according to city's Gray Water Information Guide. This is enough to take care of nearly half the property's landscape watering needs, and annually it can save 13,000 gallons of potable water per household.

Tucson also offers incentives directly to homeowners. Rebates for half the materials and installation costs (up to \$1,000) are available for retrofitting existing homes, as well as, connecting new homes to gray water irrigation systems. To qualify for the rebate, homeowners must attend a workshop to learn about gray water recycling. Since 2011, there have been 32 rebates given, including ten in 2014 resulting from 99 citizens attending six workshops. Irrigation systems range in cost from less than \$100 dollars for a single appliance or faucet retrofit to a few thousand dollars for a more complex whole house system, according to the City of Tucson.

Tucson's gray water ordinance:

<http://www.tucsonaz.gov/files/agdocs/20080923/sept23-08-527a.pdf>

Tucson's rebate program: <http://water.tucsonaz.gov/water/gray-water>

Tucson's public education video:

<https://www.youtube.com/watch?v=L64TitiMrw&list=PLQC0W-m5zhu05mu1dpgFIR7BwPg3PkWTS&index=7>

Tucson's Residential Gray Water Information Guide:

http://water.tucsonaz.gov/files/water/docs/GrayW_Info_Guide_6-11.pdf

ADOPTED BY THE
MAYOR AND COUNCIL

ORDINANCE NO. 10579

RELATING TO BUILDINGS, ELECTRICITY, PLUMBING AND MECHANICAL CODE;
CREATING THE "RESIDENTIAL GRAY WATER ORDINANCE" REQUIRING
INSTALLATION OF GRAY WATER "STUB-OUTS" IN RESIDENTIAL
CONSTRUCTION; REQUIRING THAT GRAY WATER SYSTEMS COMPLY
WITH APPLICABLE REGULATIONS; AMENDING TUCSON CODE CHAPTER
6, ARTICLE III DIVISION I BY AMENDING SECTION 6-38 AND ADDING
SECTION 2602.1.2, "GRAY WATER STUB-OUTS", AS A LOCAL AMENDMENT
TO THE INTERNATIONAL RESIDENTIAL CODE; AND DECLARING AN
EMERGENCY.

WHEREAS, the State of Arizona's Department of Environmental Quality
instituted a general permit for homeowners whose gray water systems meet
Best Management Practices; and

WHEREAS, gray water systems constructed and operated according to
these Best Management Practices provide a safe method of reducing water
demand; and

WHEREAS, gray water is a valuable resource as it makes "double use" of
water that otherwise goes down the drain. Gray water systems divert some
interior water from clothes washers, bathtubs, showers or bathroom sinks (but
not from a kitchen sink, dishwasher or toilet) for use in outdoor irrigation; and

WHEREAS, gray water systems — which recycle household water to a
spot where it can be used outdoors — can save a typical household 13,000
gallons of potable water per year; and

WHEREAS installation of stub-outs at the time of constructions greatly
facilitates the use of gray water in residences, and

WHEREAS, a desert community should do everything possible to
conserve water and promote efficient use of water resources.

BE IT ORDAINED BY THE MAYOR AND COUNCIL OF THE CITY OF TUCSON, ARIZONA, AS FOLLOWS:

SECTION 1. This ordinance shall be known and referred to as the “Residential Gray Water Ordinance.”

SECTION 2. The Tucson Code Chapter 6, Buildings, Electricity, Plumbing and Mechanical Code, Article III, Buildings, Division I, Building Code, Section 6-38, *Residential code adopted*, International Residential Code 2006 as adopted by Ordinance 10417 with amendments, is hereby amended by adopting a new section 2602.1.2 as set forth in Attachment A to this ordinance incorporated here as if fully set forth herein.

SECTION 3. The Director of Development Services is authorized to adopt appropriate rules, regulations and Development Standards necessary to implement the provisions of this ordinance.

SECTION 4. The provisions of this ordinance may be modified or waived when it can be satisfactorily demonstrated to the Building Official that compliance with these regulations is impractical due to construction or other physical constraints and an acceptable alternative method of compliance that allows gray water usage is proposed.

SECTION 5. The provisions of Sections 1 through 4 of this ordinance shall apply to construction built pursuant to permits issued after June 1, 2010.

SECTION 6. The various City officers and employees are authorized and directed to perform all acts necessary or desirable to give effect to this ordinance, including, but not limited to, providing an instructional pamphlet setting forth in plain language the requirements of this ordinance.

SECTION 7. If any of the provisions of this ordinance or the application thereof to any person or circumstance is invalid, the invalidity shall not affect other provisions or applications of this ordinance which may give effect without the invalid provision or circumstance, and to the end the provisions of this ordinance are severable.

SECTION 8. WHEREAS, it is necessary for the preservation of the peace, health and safety of the City of Tucson that this ordinance becomes immediately effective, an emergency is hereby declared to exist and this ordinance shall be effective immediately upon its passage and adoption.

PASSED, ADOPTED AND APPROVED BY the Mayor and Council of Tucson, Arizona, _____.

MAYOR

ATTEST:

CITY CLERK

APPROVED TO FORM:



CITY ATTORNEY

REVIEWED BY:



CITY MANAGER

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9/17/2008 10:16 AM

ATTACHMENT A to Ordinance 10579

2602.1.2 “Gray Water Applications”

1. All new single family and duplex residential dwelling units shall include either a separate multiple pipe outlet or a diverter valve, and outside “stub-out” installation on clothes washing machine hook-ups, to allow separate discharge of gray water for direct irrigation.
2. All new single family residential dwelling units shall include a building drain or drains for lavatories, showers, and bathtubs, segregated from drains for all other plumbing fixtures, and connected a minimum of three (3) feet from the limits of the foundation, to allow for future installation of a distributed gray water system.
3. All gray water systems shall be designed and operated according to the provisions of the applicable permit authorized by ADEQ under the Arizona Administrative Code, Title 18, Chapter 9.