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How to Permit Your Composting Toilet in Arizona

Disclaimer: This document is in development and is meant to assist in navigating the permitting process for composting toilets. This is not a comprehensive guide and will not guarantee permitting success. We welcome your feedback/additions as you go through the permit process so we can continue to update and improve this document.

This is for an Alternative Onsite Wastewater Treatment Facility as a Type 4 General Aquifer Protection Permit under the Arizona Administrative Code (AAC) R18-9-A301 process.

1. Review the listing of Proprietary Products for Arizona which has approved composting toilets and reference designs: http://static.azdeq.gov/pub/list_prop_products.pdf which is linked to from here: http://legacy.azdeq.gov/environ/water/engineering/product.html

2. Do you live in one of these counties? Apache, Cochise, Coconino, Gila, Greenlee, La Paz, Maricopa, Mohave, Navajo, Pima, Pinal, Yavapai, or Yuma (Info: http://legacy.azdeq.gov/environ/water/permits/download/appsub.pdf)

    a. If Yes, then you will be submitting your permit application to your respective County office.
    b. If No, then you will submit to ADEQ's Southern Regional Office, ATTN: Engineering Review Desk, 400 West Congress St, Ste 433, Tucson, AZ 85701

3. Will this be part of a new home construction?
    a. Yes…
        i. If you are required to connect to the sewer, then you may need to request a waiver for a sewer connection under AAC R18-9-A309 and provide a letter of explanation. Your supporting information will be the composting toilet and site plan information. The reasons should list "desire maximum water efficiency" and mention other items like a "commitment to sustainability", etc. NOTE: This process is currently going through what may be the first time for a homeowner within City of Tucson through Pima County. Outcome – TBD…
        ii. If you will be planning a septic or alternative system for your home then you must include plans for separate treatment/disposal of all the fixtures (bathroom sinks/showers, kitchen sinks, laundry, etc). Please note, that if you will be permitting your composting toilet you may be able to have a legal, permitted kitchen greywater system too (see Rainwater Harvesting for Drylands, Volume 2)
    b. No, I am already connected to a sewer system or have a septic system. If you have a sewer or septic connection, then you may need to request a waiver for a sewer connection under AAC R18-9-A309. Your supporting information will be the composting toilet and site plan information. The reasons should list "desire maximum water efficiency" and mention other items like a "commitment to sustainability", etc.

4. To Obtain a Construction Authorization for an Alternative Onsite Wastewater Treatment Facility then prepare and submit the following information to your respective agency. This list is based

on Pima County's submittal requirement checklist as part of the Notice of Intent (NOI) to Discharge Alternative:

a. Site Suitability Determination Checklist
    i. Much of the requested information can be included on your site plan
    ii. For the site evaluation here is our Living Lab representative info that may be helpful to you to provide in the NOI site investigation report:
        1. Soil info (see https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx)
            a. Type: Cave Series
            b. Soil texture: Gravelly loamy sand
            c. Field percolation rate estimated at 2" per hour
            d. No surface limiting conditions identified
            e. No subsurface petrocalcic or restrictive layer found in vicinity of proposed urine leaching area
        2. Climate: Per the NOAA Normals Data Access website (https://www.ncdc.noaa.gov/cdo-web/datatools/normals) the average wintertime temperature of the 4 coldest months is 55.35°F for Tucson at the UofA station. Monthly average temperature normals for Tucson are as listed in the following table.

Monthly average temperature	
MONTH	AVG TMP (°F)
01	53.1
02	55.9
03	61.0
04	67.6
05	76.4
06	84.8
07	87.9
08	86.4
09	82.4
10	71.6
11	60.1
12	52.3

b. Site Plan. Include. They may ask for a grading plan to be included.
c. Design Report.
    i. Site Assumptions:
        1. Proposed compost toilet is 1 of 3 toilets for site use
        2. peak use would be 20 WHC students + 14 FT office staff at office all day
        3. assume peak daily use (for urine output) of 34 adults / 3 locations = 12 adults (assume full day) for sizing
        4. 1 adult produces 0.4gal/day of urine
        5. assume soil SARa to be ultra conservative at 0.23 gal/sf/day
    ii. Design flow for each wastewater source (sinks, showers, etc) – LLLC Example:
        1. Urine Diversion Infiltration chamber size:
            a. 12 adults x 0.4 gal/day = 4.8 gal/day
            b. 4.8gal/day / 0.23gal/sf/day = 20.87 sf
            c. QUICK 4 Infiltrator (3'x5'x16") has an infiltration capacity = (1.43x2.6'x5')+(2x.96'x5') = 28.19 sf (based on County reference materials for how to calculate infiltration area)
            d. RESULT: 1 x16" Quick4 High Capacity infiltrator has sufficient capacity for peak flow
        2. Hand Sink greywater Estimated Daily Volume:
            a. 1.2 gpm. faucet x 30 sec per use x 20 uses per day = 12 gallons
d. Materials List. Reference the design and indicate where it may deviate.
e. Construction quality drawings. If choosing a barrel or chamber system see reference design schematics and include them in submittal.
f. Operation and Maintenance Plan. If choosing a barrel or chamber system see reference design Operation and Maintenance section and include in submittal.

i. *Example*: Operation and Maintenance: As per the Reference Design (ADEQ File # 20160215; LTF #64722) for the Masonry Chamber Composting Toilet System.

g. Request For a Waiver
   i. This is for the one acre or sewer connection requirement.
   ii. Simply check the box next to "Installation of septic system where sewer is within 200 feet."

h. Narrative Description of Project.
   i. Provide something to the effect of: *The masonry chamber composting toilet (ADEQ file # 20160215; LTF #64722) will accept only human waste, toilet paper, and a carbonaceous cover material (e.g. sawdust). The composting process once the final deposit is made will span a minimum of 4 months. Composted material will only be used on-site. Urine will be diverted from the composting chamber to a leaching chamber as shown in the plans. Design flow will be under 3000 gpd. The composting toilet is for an office setting which enables the 2 chambers to be sufficient for average use. In addition, other toilets are available on site. Peak daily urine discharge is estimated at X adults x 0.4 gal/day = XX gal/day.*

i. If it is a non-residential setting then WMG needs to provide a "Manufacturer's Design Review Report" to ensure it is adequately designed for expected use.

j. Submit payment for the permit. In Pima County a permit for a composting toilet is $500 + $25 waiver (if applicable)

k. Once submitted then a case review # is generated and payment information is provided.

5. The county then reviews and if approves provides a "Construction Authorization for an Alternative On-site Wastewater Treatment Facility"

6. Following construction then you will need to contact the County 48hrs prior to final inspection for inspection verification of the system by a licensed engineer (an architect may be able to sign off with prior approval by County official). Then the engineer can sign off on a "Certificate of Completion" which must be submitted before using the system.
   a. An affidavit needs to be included that you have received the Operation and Maintenance plan and a 1-year service warranty. An example follows:
      i. *On behalf of Watershed Management Group, I have received the Operation and Maintenance plan and certification of a 1-year service warranty for the Masonry Chamber Composting Toilet constructed at WMG's Living Lab and Learning Center*

7. The County then reviews and provides a "Discharge Authorization".

8. Congrats! You may now poop happily knowing you are within your legal right to do so in an approved system!