

“TINY HOMES” GPD; SORA INQUIRY”

QUESTION? *Has anyone run into the question of what the daily gpd would be from a "tiny home"? From my research, these are homes that are a maximum of 400 sq.ft., with most being between 150 - 300 sq.ft. Most remain on wheels, however some have the wheels removed and placed on jacks. It seems to be a trend that is picking up steam across the country for those that lean toward the "green" side of things, or see them as an opportunity to live more affordably. We have a county that is proposing to allow for a "tiny home" development and wants us to vary from our regulation that requires a minimum OWTS to be designed for 300 gpd (2 bedrooms). Any experience or data on this issue? From what I have read, it's probable that we will all run into this sometime in the future. {sent to sora.listserve 12/30/2016}*

Arkansas: My county is seeing this as well. We size by the number of bedrooms and do not deviate from that sizing. Most of what we see has been 1BR units which we size for 150GPD. We are also seeing a lot of interest in composting toilets and recycled gray water systems in an effort to either be “green” or to live “off the grid”.

Alaska: We haven’t collected the data, but our professional judgment is that it is reasonable to allow for a reduced flow. We accept reduced flow designs sealed by a P.E

Idaho: We haven’t had this issue pop up in Idaho. The only thing I see different in the tiny home may be the size of dishwashers or washing machines in terms of water using amenities. If you’ve ever seen Tiny Home Nation many of the wheeled homes they build still have full sized tubs/showers, sinks, etc. The majority don’t operate off of a small potable water tank either. I would think living in a tiny home really wouldn’t reduce the volume of water used to live on a daily basis that is discharged down the drain other than maybe that of the larger appliances I already mentioned. Idaho also only sizes on bedrooms, 150 GPD for the first + 50 GPD/bedroom thereafter, so we’re already 33% smaller than you in terms of flow at two bedrooms. Another alternative if they remain on wheels might be to size them based on your allowances for RVs.

California: Do they have a kitchen, toilet, bathing, and/or laundry? If so, eco-minded people aside, why would the flows be any lower than flows from a “normal-sized” home?

Virginia: Virginia does not have any specific policy or reg. that would be specific to tiny homes, but our regulations do allow us to consider one bedroom homes which would be 150 gpd. An engineer could propose an alternate flow, lower flow, but to date, we’ve not had any proposals that I’m aware of.

Minnesota: Minnesota’s code presents a couple of alternatives for this kind of situation. Our building classification system considers square footage and water using appliance counts to permit a system as small as 180 gpd. Our “other establishment” flow table permits a daily design flow for “permanent mobile homes” of 225 gpd. There are additional design flow reductions in place for clustered systems with more than 10 connections, which provides a 55% reduction in design flow beyond the 10 largest sources.

South Dakota: In South Dakota the minimum sizing for individual home is a three bedroom system, 360 gallon/day. We will grant a variance to size for a two bedroom (240 gal) provided it is actually a one bedroom home. If you connected two or more to one septic system we would rate them as mobile homes at 240 gallons/unit.

New Mexico: We have also started to see inquiries in New Mexico and have one tiny house subdivision in the works. Local Planning and Zoning is open to the idea in our area and is working with the property owner to make it happen. We have not yet granted any permits but have had good conversations about the issues, as we try to prepare for this national trend. These tiny houses are being built with a large variability in waste water handling methods. Some are hard plumbed like a site built home and some have holding tanks like RV’s. This variability makes it a little more challenging to design for developments in which the occupants may change, along with their particular version of the tiny house. Some variations have composting toilets of various kinds. We have folks imply that the use of composting toilets should reduce their design flow. We have also had people make the argument that this makes the waste stream stronger due to less dilution. We would appreciate any ideas or processes that other agencies are using to address these issues. We have discussed treating a tiny home with holding tanks similar to the way we treat RV’s. That is, RV’s are considered to have higher strength waste (for many reasons), and must meet a primary treatment standard prior to discharge to a conventional drain field. This requires sampling for verification. In some cases, this also may mean pre-treatment and/or advanced treatment to meet the primary treatment standard. This clashes with the goal of keeping it inexpensive and is a show stopper for most of those hoping to reduce their reliability on expensive infrastructure. We have discussed treating the tiny houses with hard plumbing just like any other house. This would be a system sized for at least one bedroom or the minimum sized system NM allows, which is 150 gpd. It is another conversation, but we have generally agreed that most data shows that RV’s may have significantly higher strength waste and may not be effectively treated with conventional treatment.

Massachusetts: Here in Massachusetts, we have a minimum design flow for stand-alone homes of 3 bedrooms which may be overcome through a variance. We have not addressed the tiny homes situation and are unlikely to do so for awhile.

Mississippi: We actually have had some experience with these sorts of things. They have come to be known as “Katrina cottages” here, for obvious reasons. Although we haven’t seen any applications for them in a while, we would size them as single bedroom structures. Usually we would see them as rental units in a park setting more so than stand alone homes (exactly as it sounds like you have described). I suppose it could be sized for either a single bedroom or a single RV (whichever is higher for you guys). I would definitely try to get those things on cluster systems, if traditional underground systems aren’t an option. One of those won’t be able to keep an aerated treatment plant alive by itself.

Wisconsin: We would be looking at an estimated flow of 100 gpd/bedroom (2-people/bedroom) or a 150 gpd/bedroom design flow if laundry facilities are part of the “Tiny Home” design. If the “Tiny Homes” are rentals w/o laundry facilities we would look them like hotel, motel, tourist rooming houses at an estimated flow of 65 gpd/room or 97.5 gpd design flow. Of course, a separate individual site design would be entertained with good justification of actual estimated flows. The key is to educate the people not to short change themselves by going to small. Flows could vary with use and occupancy.

Ohio: We establish the daily design flow as 120 gallons per day per bedroom for sizing sewage treatment systems with a minimum design flow of 240 gpd/bedroom. Our rules do allow for a reduction in the daily design flow on a case by case basis due to the use of alternative toilets or other circumstances (I assume such as tiny homes). The justification of flow reduction must be documented, and if flows are reduced, the design must address increased waste strength due to the reduced flows. Here is the link to the design flow rule: <http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/rules/final/3701-20%20TO%20-29/3701-29/2015-0101/3701-29-11-N.pdf>

Rhode Island: I have been told that Permitting has not had to deal with the tiny house issue yet. Our Rules (available at: <http://www.dem.ri.gov/pubs/regs/regs/water/owts14.pdf>) provide the following:

Recreational vehicle park with water service: 100 GPD per site; Add for central dining facilities per seat 35 GPD

Recreational vehicle park without water service: 50 GPD per site; Add for central dining facilities per seat 35

Mobile home park/Manufactured home park: 230 GPD per site

Residential: [Minimum design flow for residential use is three hundred forty-five (345) gallons per day (three (3) bedrooms), unless otherwise permitted in accordance with Rule 21.2.5*.]

Single family residence per bedroom (2 persons per bedroom) 115 GPD

*21.2.5 The Director may permit the filing of a deed restriction by which an applicant may self-restrict the use of a residence to one less bedroom than may be determined in accordance with Table 21.2. In no case shall the deed restriction be for less than two bedrooms. The Director may consider the gross square footage of a residence as a factor against granting a bedroom restriction by deed.

North Carolina: The minimum design daily flow from each dwelling unit (one or two bedrooms) is 240 gallons per day and each additional bedroom above two bedrooms will increase the design flow by 120 gallons per day. Minimum building code requirements to provide toilet facilities (including a water closet, lavatory, and a bathtub or shower) and to have a kitchen area with a sink remain applicable. The topic of adjusting sizing requirements for systems for Tiny Houses is currently pending in NC. However, recent statutory changes in North Carolina allow for licensed professional engineers to provide engineered designs for systems serving dwelling units (which would include “Tiny” homes) with reduced flow rates based upon utilization of low-flow fixtures and low-flow technologies. Reference: Session Laws 2014-120, Section 53 and 2013-413, Section 34.

For more information, see: <http://ehs.ncpublichealth.com/docs/position/PositionStatementSL2014-120Section53LowFlowDesignFinal.pdf>

Wyoming: We would probably treat a “tiny home” similar to a trailer in a mobile home park. Our regulations require, 350 gpd (which includes water running in the winter to prevent freezing). In comparison with Colorado regs, a two bedroom house (150 gpd / bedroom) would be 300 gpd.

Washington: For flows of 0 – 3500 gpd, the minimum design flow is 240 gpd. Alternative design flows can be allowed in the 0-3500 category via the local health officer granting a waiver. These waivers are required to be “consistent with the standards in, and intent of” the regulations. (The State provides oversight of this waiver process.). A “normal size” reserve area would likely be required.

Pennsylvania: Regulations require that an on-lot sewage disposal system for a single family residence consisting of 3 bedrooms or less is sized for 400 gpd. There currently is no relief for lower flow figures for smaller sized homes or ones with fewer bedrooms such as “tiny homes”. We have not seen any planning proposals come through for any “tiny homes” as of yet.