

Dear All,

At the last annual meeting, I was nominated to assist in providing some information on septic systems to the Taconic membership. This was based on a discussion at the meeting regarding the harm a failed system can impose on the lake water quality and in my case, the danger of a system prone to failure next to my drilled well. These antiquated systems pose the single largest danger to the lake water quality and safety.

How does a septic system work?

<https://safesepticsystems.org/know-your-system>

This link which was sent previously has really excellent diagrams of how septic systems work and the types of systems which are available. It is important to remember, each county has their own set of rules so a system design which may be acceptable in another county may not be acceptable in Rensselaer county.

How do you get started?

The steps to installing an approved septic system in Rensselaer county are:

1. Hire a New York Professionally Licensed Engineer (PE). The PE and a representative from the Rensselaer county health department in Troy will visit to inspect your site. Please note, a survey map of the property is required and should be available. If you do not have a survey, a surveyor needs to be hired to create a detailed map of the property indicating the property lines, road and shoreline location, and any structures on the property. The septic system design will use the survey to precisely locate all the various parts of the septic system design. They will conduct a perk test (it is your responsibility to dig the hole or have someone available to do this). This involves digging a hole about 2ft deep and pouring a specific amount of water in the hole and timing how long it takes to drain. This determines if the soil is adequate to install a system directly into the ground or if outside fill will need to be brought in. For your reference, the fill is not just any dirt, it must be specific blend of gravel, soil, etc and must be approved by the health department.
2. The PE will design a septic system specific to the property and its unique situation.
3. The septic design is submitted to the health department for approval (or modifications if needed).
4. Once an approved design is complete, actual construction can begin. The homeowner can do the work themselves or hire a contractor. The PE will have recommendations for local contractors.
5. The system is installed (septic tank, pump tank if needed, distribution box, laterals, etc). None of the system is covered up, however, until inspected.
6. The PE and representative from the health department inspect all parts of the installed system and compare it to the design drawings.
7. Once approved, the system can be covered up and completed.
8. The health department will keep a record of the system design on file.

If you would like to review the septic system design handbook that Rensselaer county uses, it is available at the following link:

[https://www.health.ny.gov/environmental/water/drinking/wastewater\\_treatment\\_systems/docs/design\\_handbook.pdf](https://www.health.ny.gov/environmental/water/drinking/wastewater_treatment_systems/docs/design_handbook.pdf)

You will find a number of helpful drawings and guidelines towards the end of the book. It shows typical system designs as well as separation distances (distance from the septic system to the property line, distance to the lake, distance to a well, etc).

Suggestion: When the engineer is designing the system, ask them to also locate the possible location of a well, even if you don't have or want a well at this time. The design will tell you where you can place a well in the future should you decide you need year-round water.

A health department contact is: **Derrick Gardner, P.E.**

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Approximately what does it cost?

- The cost for the Professional Engineer and his design effort run in the range of \$2500.
- If you do not have a survey, a survey will be about \$1000
- The Rensselaer county permit fee is about \$200. (see attached permit)
- The cost of a system can range from \$10,000 for a simple system with just a septic tank and fields that can be installed in existing soil to \$50,000 for systems that require pump tanks, blasting into bedrock, and mound systems for the fields. The soil at Taconic typically does not allow the system to be installed in existing soil. Also, the homes are typically lower than the fields, so almost all systems will require a pumped design. The result is that the costs will typically fall someplace in the middle of this range.

Do you have a list of recommended engineers?

- The PE can be from anywhere in New York State, however, it is highly recommended that someone local is used who has experience with the Rensselaer county health department and knows the local soil conditions and contractors.
- A list of engineers recommended by Rensselaer county is attached for your reference.
- I spoke with Matt Sausville of Civil Professional Services LLC, [civilprofessionalservices@gmail.com](mailto:civilprofessionalservices@gmail.com), 518-366-4778. He is an RPI NY licensed civil engineer who grew up in Grafton on shaver pond road. He knows the area extremely well and has designed a number of systems. He also has a very good relationship with the folks at the

Rensselaer Health Department. He also conducts dye tests. He is a very nice person and very willing to share information.

What is a dye test?

A dye test is conducted to determine if a system is actually in a failure mode. It consists of pouring about a cup of non-toxic dye down the house drain followed by a measured amount of water, typically about 200-300 gallons. Then the area around the system is inspected to determine if the dye is leaking up through the ground, into the lake, into a neighboring well, or drainage ditches. If this is observed, then the system is failing. The cost to have this done is about \$200. Matt Sausville of Civil Professional Services LLC can conduct this test. It is recommended each camp with a non-approved system have this test done twice per year, once in the beginning of the summer season and once towards the end of the season after the system has been under use. A dye test should, however, not be a substitute for upgrading to an approved system. Ideally, systems should not be used until they fail. At this point they really are an imminent health hazard.

In conclusion, any number of factors can influence the water quality of the lake, some of which could be outside of our control. However, septic systems are within our control and worth the cost to bring up to code so everyone can safely enjoy the lake. As it true with many systems, it is only as strong as the weakest link and takes only one failed system to put the entire lake and its community at risk. Two initial recommendations I suggest are that if a property changes ownership, the system must be brought up to code as a condition of transfer. I also recommend non approved systems be dye tested which is a simple low-cost method to determine if a system has failed.

Please let me know if you have any questions.  
Thank you.

Regards,  
Chris