

GENERATORS: What You Really Need To Know

My name is Jon Buchak and I am a New Jersey state licensed electrical contractor (license #6605) for 29 years now, as well as a New Jersey state licensed electrical inspector, sub-code official, and construction official (license #8778). My company, Northern Valley Electric Co. Inc., has installed many generators over the years, and I would like to answer the most frequently asked questions by homeowners contemplating the purchase of a generator.

There are basically two types of residential generators: permanent and portable.

The portable generators weigh about 250 pounds (without fuel) and are mounted on wheels. They run on gasoline, and a decent generator should have a five to six gallon gas tank, allowing a run-time of up to eight hours before having to refuel it. The usual size of these generators is from 5 to 8 kilowatts, and can run several circuits within the home. An electrical transfer-switch panel is installed adjacent to the existing circuit breaker panel in the home, and a special outlet is (remotely) installed for the generator to be plugged-into. A heavy-duty rubber cord is used between the generator and the transfer switch outlet. The downside to this arrangement is that when there is a power outage, one must roll-out the generator from the garage or shed to the outside, start it up manually, and plug it in. Keep in mind that you may likely be doing all this during some very stormy weather! You will also have to refill it with gasoline periodically, which means that you will have to get that gasoline and likely have some stored in 5-gallon containers. I emphasize that you never run the generator inside your home, not even in the garage with the doors open! The benefits of the portable generator system is that it is a fraction of the cost of the permanent type of generator installation, and you do not have to get town zoning approval for its location.

The permanent installation requires the generator to be located outside of the house. It is fueled by a natural gas pipe which is run from your gas meter, to the generator. It will start and run automatically in the event of a power outage, even if you are not at home. Once utility power is restored, the generator will shut-off automatically. Once every week the generator will start-up at a pre-determined time and “exersize” itself for about fifteen minutes. These generators need periodic service and maintenance throughout the year. A typical twice-a-year maintenance contract may cost a few hundred dollars. The generators can be sized to run certain selected circuits in the home, or can be large enough to run the entire home. This installation requires electrical wiring which is usually far beyond the capabilities of the average homeowner.

If you are not able to tackle a job like this on your own home, you will need a NJ state licensed electrical contractor. What you DON’T need is a general contractor to oversee and orchestrate the job. This will most likely only make the job more costly, and you will have no control over the selection of the electrical contractor who is going to do the job.

An electrical contractor (of your choice) will size-up the generator for your specific needs. Popular sizes range from 12 kilowatts to 20 kilowatts. This will be able to run several circuits for: gas-fired furnace, sump-pumps, refrigerator, freezer, alarm system, phone and TV equipment, microwave oven, and various lighting and receptical circuits. One central air conditioning system can usually be powered as well. Electric wall ovens and electric cooktops would not be included in generator power.

The electrical contractor must evaluate the natural gas service coming into the home, to determine if there is adequate gas pressure to supply the generator. Generators usually require 7 inches to 11 inches of gas pressure to start and run. If your home is heated by a natural gas furnace, then your gas service must be sized large enough to run the furnace AND the generator at the same time. Adding the requirements of the hot water heater and gas cooking

appliances is necessary as well. Generators consume a lot of gas: about 200,000 to 300,000 BTU's . This is about the same as the furnace in an average home . The volume of the gas consumed at one time directly affects the gas pressure getting to the generator. Quite often, the gas meter will need to be upgraded to a larger meter to accommodate the added gas load consumption of the generator. PSE&G Co. does NOT do this for free, and I have seen this cost from several hundred dollars to a few thousand dollars. The utility company has a form to be filled-out called a "Gas Service Inquiry" or "GSI" for short. It will help determine if your existing incoming gas service is adequate to handle the added gas load of the generator. I have filed GSI's on behalf of potential customers, only to be told by PSE&G that there isn't even enough gas pressure in the street to meet the requirements for adding a generator! If that turns out to be the case, then you'd better really want a generator badly, because you'll be burying either a diesel fuel tank or a propane tank in your yard.... the suggestion of which, is usually the deal-breaker and another "no-sale".

I have seen, and even inspected generator installations that have no consideration of adequate gas supply for the generator. With inadequate pressure, the generator cannot run consecutively with the gas furnace; and sometimes the generator cannot even start! The gas piping from the gas meter to the generator must be sized correctly for its distance and the number of elbow bends in the run, to assure the required 7 to 11 inches of pressure need at the generator. Generally, the closer the generator is to the gas meter, the better (and cheaper) the gas piping job will be. Preferably, the gas piping calculations and installation should be done by a NJ state licensed plumbing contractor; which the electrical contractor should include within their estimate to you.

Most generators must be located at least 18 inches away from the house, and at least 5 feet away from any operable windows or vents. Also, each town has different zoning laws in respect to the placement for the generator on your property. Some towns will not even allow generators to be located on the side of your house at all, whatsoever! Pretty much all generators now come standard with a sound-attenuated enclosure, and will comply with all of the towns noise ordinances.

Purchasing the generator can be done thru the electrical contractor. It can be done online as well. A good website to view various generators is at NorthernTool.com. Also, Lowe's and Home Depot have them as well. I don't want to get into which brands are the best and which are the worst. Everyone has their favorites and each one has their strong points and weaknesses. And it changes almost year to year. The major brands out there are Onan, Winco, Generac, Kohler, and General Electric.

There is no way to accurately tell you prices for the installation of generators in this article. Each and every job is unique, and needs to be seen to give an accurate price. Anyone who advertises a price "starting at....." is only going to build-up on that number as soon as they walk in your door. **DON'T FALL FOR THE LOW-BALL!**

Purchasing a generator will increase the value of your home, prevent it from being flooded-out or frozen-up in the event of a power outage. And it can give you peace of mind. So the next time there is a power failure, maybe your house will be the only one on the block with the lights on at night.

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