

(Effective 01/10/2019)

Acceptable installation Methods and Equipment for Temporary Power Connections

With the increasing number of storms there has been an increase in people looking for alternative means to provide temporary power for their homes or possibly a small business. The following provides guidance on these approved methods.

Where there is a requirement to provide power for several things in your home there are two well known methods that exist: A simplified explanation of these options is as follows:

- a) The installation of an approved transfer switch and essential load panel that is either separate or part of the transfer switch; or the transfer switch may feed the entire existing panel board and is then fed manually or automatically from a portable or fixed generator when normal power goes out, or
- b) The installation of a properly approved meter mounted transfer switch typically known as Generlink that attaches to your meter base and allows you to connect your portable generator to it and feed directly to your existing panel.

The above installations are required to be installed by a certified construction electrician and to be done under a wiring permit and inspected. The above option a) may be used for a more fixed type generator installation rather than a portable one but can accommodate a portable generator if installed with an outdoor receptacle for connection to your generator.

NSPI Electrical Inspection Bulletin B-28-900 should be reviewed when using option a) above which provides useful information that covers both fixed and portable generator usage and provides information on bonding and grounding, transfer switches and acceptable wiring methods.

Particular attention should be made to the type of generator being used i.e. "Neutral Bonded to Frame" or "Neutral Floating" which is typically identified on the generator and is important in noting as the type of transfer switch and associated wiring methods are determined by the type of generator supplying power.

The above options are somewhat more complicated but there are other acceptable installations that may be used to meet your requirements when only one or a few electrical items are required to operate during a temporary power outage. They are as follows:

One option is:

- i) The use of an approved "portable generator through wall kit" typically sold at your local hardware store that consists of an outdoor receptacle c/w weatherproof enclosure that directly feeds a multi outlet power strip installed on the inside of your house.

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This is a simple to install, convenient and safe way to use your portable generator for backup power during a power outage. It routes power from your portable generator, **which is located outdoors**, via the outdoor receptacle mounted on a chosen wall location to a multi-outlet power strip located inside your house, where cord connected electrical items such as lamps, TVs, refrigerator, microwave, computers, sump pump and more can be powered with clean, dry extension cords from the power strip. Ensure to match your generator load output and cord configuration to properly supply your anticipated electrical loads and the ampacity rating of the wall kit and to match the kits receptacle type.

This type of installation when it is not permanently connected to any wiring in your house it can be installed by a competent person without a permit. This type of installation is for temporary cord connections of emergency power only.

Another option is:

- ii) The use of a single approved transfer switch typically associated with the use of a portable generator for emergency power during a temporary power outage. This device is either mounted next to the panel or next to the device that requires emergency power. When the normal power goes out you provide emergency power from your generator, **which is located outdoors**, via an extension cord that plugs into the transfer switch and typically there is a manual switch that you turn on to transfer your load to the generator.

This transfer switch could be fed from option i) or from an extension cord brought in from your generator outside. Always ensure your extension cords are properly sized, in good condition and installed in a manner so it is not subject to damage.

This type of installation could be used to feed specific loads within your facility and if properly sized can supply emergency power to devices such as the furnace, water heater or water pump or controller which are devices that are not plug connected. This single type transfer switch is used to only feed one specific item, but more than one device can be installed.

This type of installation must be installed by a certified construction electrician and where only one device is installed no permit is required but it must comply with the following restrictions.

Cannot be attached to a branch circuit that exceeds 15 A to 30 A, 120 V or 15 A to 50 A, 240 V and is not in a location referred to in Section 18 or 20 of the Canadian Electrical Code. This type of device is hard wired to your house wiring but fed from a temporary cord connection for emergency power.

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General Notes:

1. Always follow the manufacturer's instructions for proper installation and use of your equipment and in the absence of such instructions use this bulletin as a minimum guide.
2. To ensure your safety use construction electricians and obtain permits where indicated above.
3. Don't run a portable generator anywhere in your house, attached garage or porch, always operate your generator outside of the house and keep it at least 1m from the side of your house and any windows or air intakes. For fixed generators or generators above 7 kW increase the 1 m clearance per the manufacturer's instructions. Always let the engine cool before you refill. Do not operate your generator on a combustible surface such as your wooden deck or patio.
4. You can use extension cords from your portable generator to power any device with a plug, but anything that's directly connected to your home's wiring, including essentials like your well pump, furnace and electric water heater, requires a transfer switch.
5. A generator typically lists two capacity ratings. The first is "rated" or "continuous" watts. That's the maximum power the generator will put out on an extended basis. It is this rating you should use to match or exceed when compared to the calculated load of equipment you want to feed. The higher "maximum" or "starting" rating refers to how much extra power the generator can put out for a few seconds when an electric motor - like the one in your fridge or furnace starts up.
6. Computers, TVs and many modern appliances contain sensitive electronics that can be damaged by the "dirty" power produced by less expensive generators. Inverter-type generators provide the cleanest power.
7. Using undersized cords presents a fire hazard and can damage motors as well as stress your generator so use the cord manufacturer's guides when choosing your extension cords.
8. Never back-feed power into your home's wiring system with a "dual male-ended" extension cord or any other means as it can possibly energize the overhead lines outside and cause injury to the utility line crew.
9. There are many ways to provide temporary power to your home and the above identified options are recommended and considered acceptable and safe when installed and used properly. **Alternative Approved Methods** should be reviewed with your local electrical inspector and/or a construction electrician especially when you are considering using alternative energy sources such as solar, wind turbines or energy storage systems (battery banks) either separately, together or with a generator.