



City of York  
101 S. George St  
York, PA 17405  
(717) 849-2329

Qdot Engineering, LLC  
116 E Gas Ave  
York, PA 17401  
(717) 744-8315



## Commonly Missed Residential Electrical Requirements

The following is a list of commonly missed or misunderstood code items. It is not intended to be a complete list of everything that is required in a residential unit. It is the responsibility of whoever is performing the work to know what the applicable codes and requirements are.

Any new work must conform to all code requirements applicable to the scope of the work. Any modified circuits are considered new. When existing houses are being rewired new circuits and receptacles will likely have to be installed to meet distance requirements. Living units that are split into two or more units are required to meet all code requirements regardless of existing conditions.

### **Kitchens (210.52):**

1. Provide at least two dedicated circuits in the kitchen for countertop appliances. Countertop receptacles must be GFCI. Receptacles in rooms associated to the kitchen are permitted to be connected to these circuits. However, lighting, disposal, dishwasher, and exhaust fan are not permitted to be connected to small appliance circuits.
2. Every section of countertop at least 12 inches wide requires a receptacle. The maximum spacing between receptacles is 4 feet.
3. Kitchen Islands and Peninsulas require at least one receptacle.
4. Receptacles are not required behind sinks and stoves.

### **Bathrooms (210.11):**

1. The bathroom receptacle circuit shall not serve any other receptacles. Bathroom lighting is permitted to be connected to this circuit.

### **Miscellaneous:**

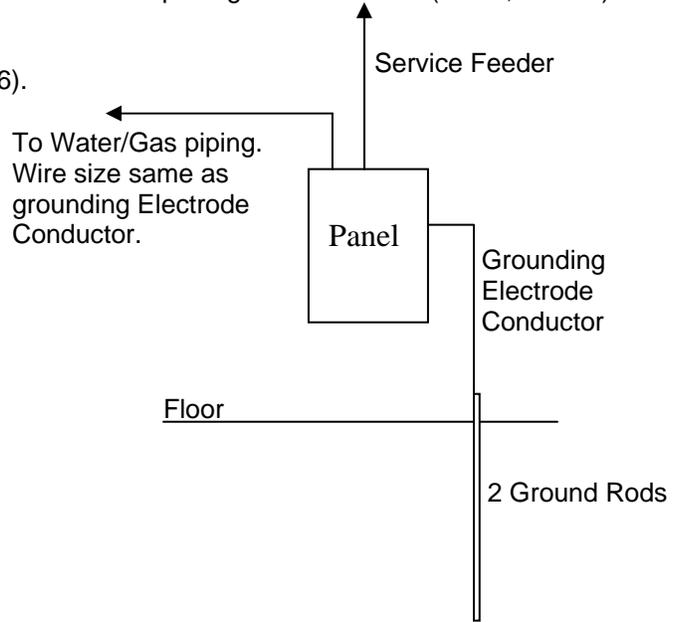
1. Ground level living units require exterior receptacles at the front and rear doors (210.52.E).
2. Receptacles in bedrooms, living rooms, dining rooms, recreation rooms, and related rooms must be spaced no more than 12 feet apart along the wall.
3. Provide AFCI breakers for all circuits serving any receptacles in family rooms, dining rooms, living rooms, bedrooms, hallways, and similar rooms (210.12). As a general rule, the NEC requires every receptacle that is not in a Kitchen, Bathroom, or Laundry room to be on an AFCI breaker.
4. Bedrooms must have a hardwired light or a switched receptacle. The receptacle must not be adjacent to the bedroom door.



## Residential Electrical Service Requirements

The following criteria applies to Single Family Dwellings with a 100 amp or 200 amp service.

1. Show Load Sheet to Inspector.
2. The service disconnecting means shall be installed at a readily accessible location (230.70). If all panels are not located in the same area, provide a main disconnect/breaker before meter box or individual disconnects/breakers after the meter box.
3. Drip loop shall be minimum 10' above surface and 3' from openings and windows. (230.9, 230.24)
4. Two driven ground rods inside or outside the house, or proof of 25 Ohms resistance (250.56).
5. All metal piping (gas and water) bonded to ground.
6. Bonding jumper across water meter.
7. Each breaker serves only one circuit.
8. No open holes in cover plates.
9. Only one wire in each main lug.
10. Service entrance cable not deteriorated.
11. Service entrance cable properly secured to building.
12. Able to close meter box with no holes.



Electrical Inspections required:

- Electrical Final, include Load Sheet



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## Load Sheet

This worksheet can be used to determine the required size of an electrical panel for an existing dwelling with 120/240 volt, three wire, single phase services (based on the 2008 National Electrical Code). This worksheet is provided as a courtesy and is not intended to mandate how electrical calculations must be done. Any load sheet that complies with NEC requirements may be used. If this Load Sheet does not apply correctly to the building, an appropriate Load Sheet must be used.

1. Lighting and Receptacles	=	_____ <u>6000</u> watts
2. Two 20 amp small appliance circuits: 1500 watts each	=	_____ <u>3000</u> watts
3. Laundry circuit, 1500 watts	=	_____ <u>1500</u> watts
	Total Watts =	_____ <u>10500</u> watts
First 3000 watts at 100% demand factor		- 3000 watts
Remainder at 30%	=	_____ <u>7500</u> watts
		X .3
	=	_____ <u>2250</u> watts
		+ 3000 watts
4. Lighting and Receptacle load after demand factor	=	_____ <u>5250</u> watts
5. Heating/Cooling: 5000 watts	=	_____ <u>5000</u> watts
6. Electric stove if present: 5000 watts	=	_____ watts
7. Electric clothes dryer if present: 5000 watts	=	_____ watts
8. Other dedicated circuits: 1500 watts each	=	_____ watts
9. Other Loads:	=	_____ watts
	=	_____ watts
	=	_____ watts
10.Total Load	Total items 4-9 =	_____ watts

If the Total Load is less than 24,000 watts a 100 amp service is required.  
 If the Total Load is greater than or equal to 24,000 watts a 200 amp service is required.

	100 Amp	200 Amp
Service Feeder Wire Size	#4 AWG copper #2 AWG aluminum	2/0 AWG copper 4/0 AWG aluminum
Grounding Electrode Conductor Size	#6 AWG copper #4 AWG aluminium	#6 AWG copper #4 AWG aluminium