

Plan Symbols

Electrical plans, blueprints, specifications, and wiring diagrams are required whenever directions must be communicated to other personnel. It is assumed an installer is familiar with installation procedures. Therefore, an abbreviated system of symbols is used to communicate directions with a minimum of confusion. Standard symbols have been adopted and are used universally. Manufacturers use standard symbols when supplying wiring diagrams with equipment.

Architectural Symbols: Standard architectural symbols have been developed to help communicate construction details to the various contractors with a minimum of confusion. A key will be provided to indicate the type of building construction. *Figure 380.1* is a typical key to indicate the type of construction. It is necessary to know the type of wall, ceiling, and floor construction in order to plan the installation of the wiring. Plans with this type of detail are usually not available unless they have been prepared by an architect.

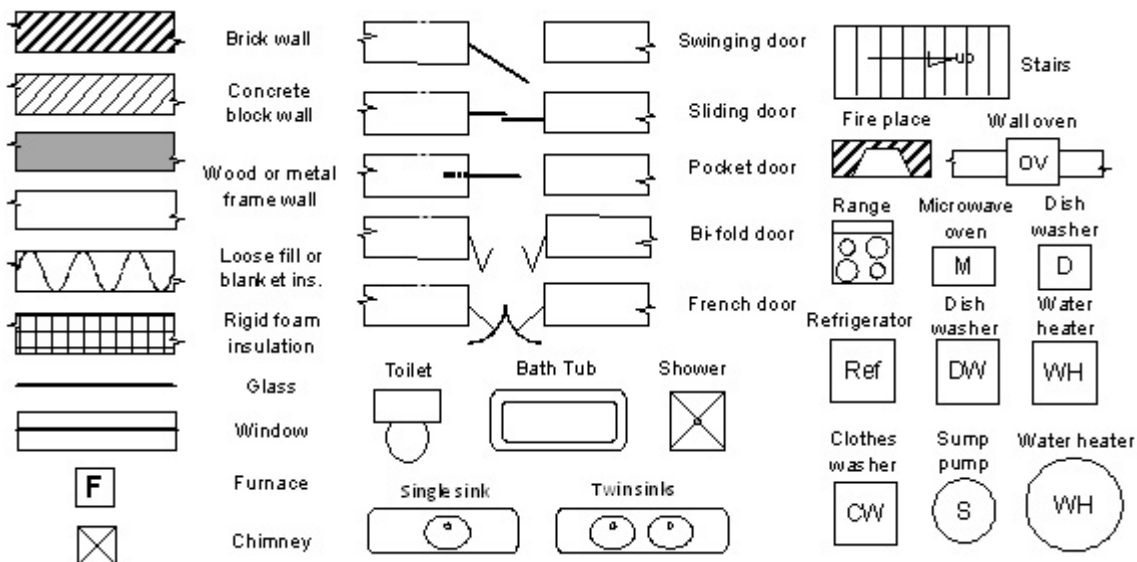


Figure 380.1 Typical plan symbols to indicate the type of construction and some of the appliances and fixtures to be installed.

Electrical Symbols: Electrical construction plans or blueprints use standard electrical symbols to represent lighting luminaires, receptacle outlets, switches, and similar equipment and materials. The symbols with frequent applications are shown in *Figure 380.1*. The plan may contain a minimum amount of detail showing only the type and location of electrical fixtures and outlets. The circuits and wiring may not be shown. Notes may be added to a plan to provide more detailed information on luminaires and other outlets.

The wires may be drawn on a plan as shown in *Figure 380.2*. This type of plan indicates which outlets are on each circuit. The path the circuit follows is also shown. The actual installation is left up to the installer. If the wiring is cable in open cavity walls and ceilings the installer determines the most appropriate route from one outlet to the next. If the building is of masonry construction the wiring will be in conduit. Conduit may be placed in the floor and walls from outlet to outlet.

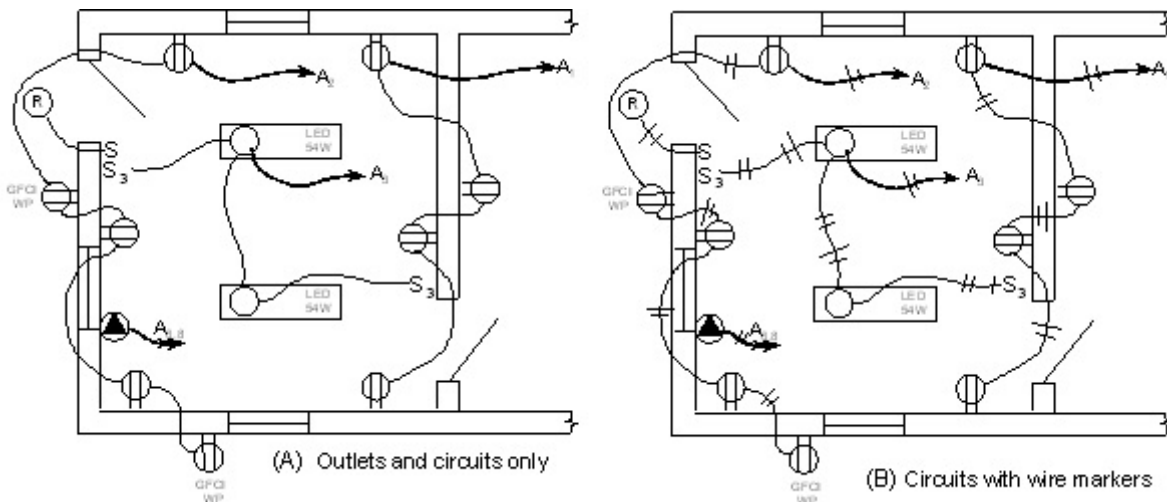


Figure 380.2 This is a typical plan of a portion of a building with the layout of receptacles, luminaires, and other fixtures. The diagram on the right has markings on the lines representing wires between devices indicating the number of circuit wires on each run.

Different methods of specifying how wiring is to be run in a building are shown in *Figure 380.3*. The number and type of wires are indicated with cross marks on the wires. This is one of several wire coding systems. A long cross mark is sometimes used to indicate a neutral wire, while short lines indicate ungrounded wires. An arrow indicates that a circuit wire returns to an electrical panel. A letter indicates the panel and the number indicates the circuit breaker location in the panel.

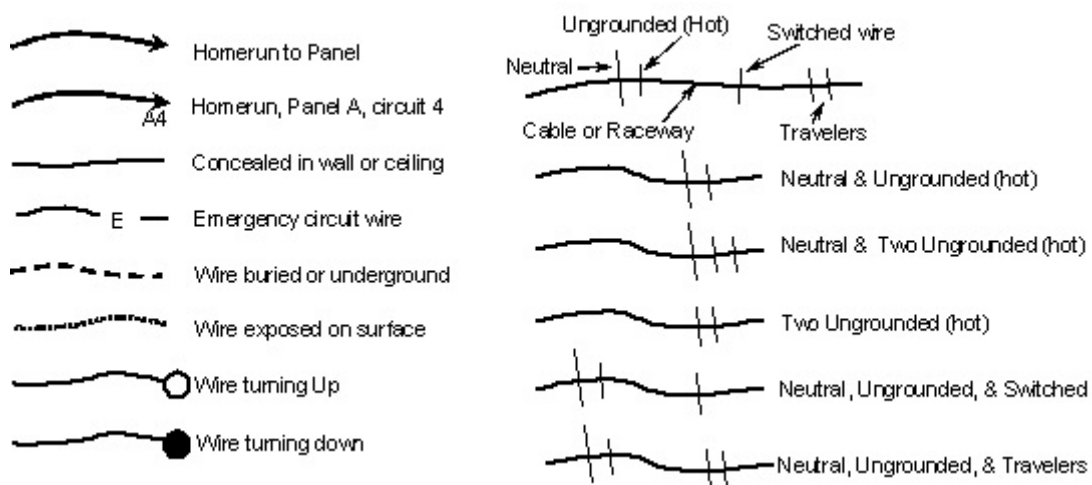


Figure 380.3 The symbols indicates runs of wires between outlets and on the right the number of wires for each run.

Figure 380.4 is a typical example of a drawing known as a one-line diagram. A one-line diagram is an overall description of the service, panelboards and basic components of the electrical system in a building. The various symbols show the type of electrical supply, voltages, fuse and circuit breaker ratings and wire sizes and types of conductors. When applying for an electrical permit a diagram of this type is usually required to give an overview of the basic electrical system. An electrician must be capable of understanding such plans and diagrams.

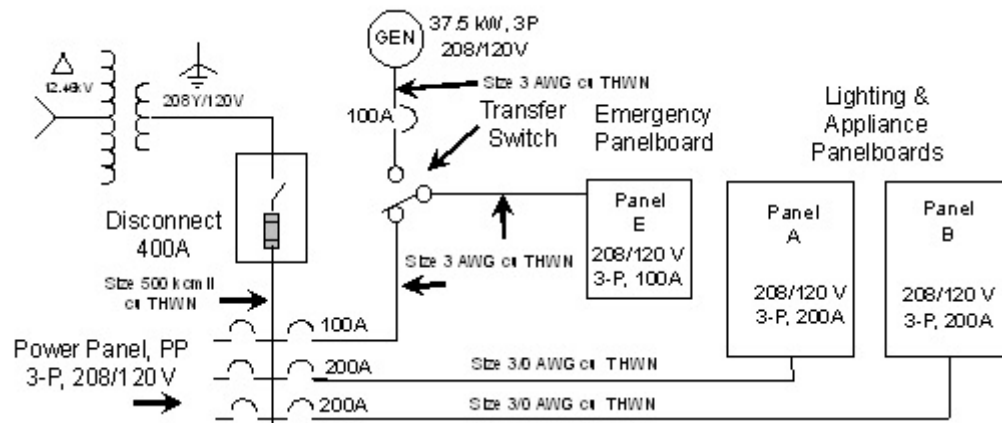


Figure 380.4 is a typical one-line diagram to give an overall view of the service, distribution panels and other components and how they are to be connected to each other.

Figure 380.5 is a description of the symbols that are used in the previous diagram. For example to identify a motor controller or know the difference of a circuit breaker from a fuse.

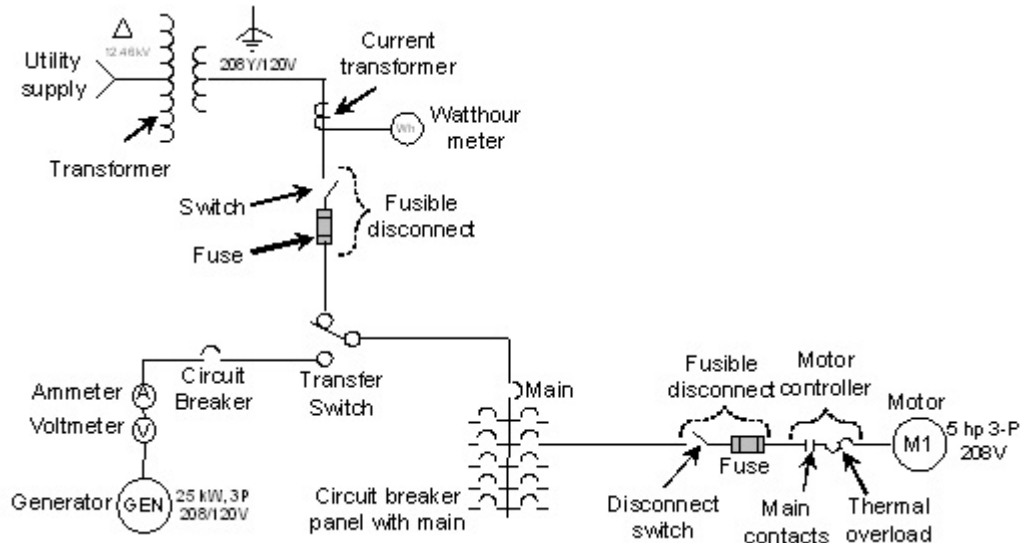


Figure 380.5 These are common symbols that are found on what is known as a riser diagram. It is important to be able to identify these types of symbols.

This page contains several sets of diagrams used to indicate types of switches, receptacles and common diagrams for many types of components used on a set of plans. The electrician installing devices must be able to identify the correct type of switch or receptacle. An electrician will often be working with persons from other trades to make sure devices are installed in the correct location and openings must be the correct height and size.

S	Single-pole switch		Single receptacle
S₂	Double-pole switch		Duplex receptacle
S₃	Three-way switch		Split duplex receptacle
S₄	Four-way switch		GFCI receptacle
S_D	Dimmer or Door switch		Weatherproof receptacle
S_T	Timer switch		Isolated ground receptacle
S_O	Occupancy sensor switch		Range receptacle
S_K	Key opened switch		Special purpose receptacle
S_P	Pilot switch		Floor receptacle
S_V	Speed control switch		
S_{Wp}	Weather-proof switch		

		Lighting outlet, ceiling or wall
		Recessed lighting outlet
		Pull switch lighting outlet
		Occupancy sensor outlet
		Photoelectric sensor outlet
		Exit light
		Exhaust fan
		Paddle fan
		Infrared heat lamp

