



## HOW TO SELECT PROPER ELECTRICAL BOXES

Electrical boxes play a major role in your wiring job as one is required for virtually every outlet, switch, light fixture, and wire splice you will be using. Some study on boxes before buying the materials or beginning the work may save you some money and frustration.

The most important thing to know about boxes is how many wires they will hold. We have drawn up a pictorial chart on the most popular metal and plastic boxes and invite you to ask for one (How To Sheet #12). It is called "*Popular Boxes - Their Uses & Wire Fill Capacities.*" You can also figure out how many wires are permitted in a box by first determining the cubic inches in the box and dividing that by 2 cubic inches when #14 wire is used, 2-1/4 cubic inches when using #12, and by 2-1/2 when #10 size wire is installed. This will tell you the number of individual wires that will be allowed in the box. HOWEVER . . . you must deduct one wire count for ALL the ground wires that enter the box and one more for each device that is mounted in the box. This means that a box that figures out large enough to hold 8 wires but is intended to hold a switch is legal only with 6 wires (3 cables of two wires or 2 cables with 3 wires) plus the ground wires and the switch. An additional wire count must be deducted if the box has internal clamps that hold the cables where they enter the box. Most metal boxes are equipped with these clamps while the nonmetallic (plastic) boxes are not. Light fixtures and the fixture lead wires do not count against the wire fill capacity of a box since the fixture canopy mounts over the box and provides additional room to the enclosed area.

The non-metallic boxes have become the most popular because of their low cost and quick, easy installation. Since grounding non-metallic boxes is not required and single-gang boxes do not require wire clamps, time is saved in installation and in making up these boxes.

Box depth becomes such an important factor when you reach the final stage of your wiring job; hooking up outlets, switches, thermostats, or hanging light fixtures, etc. that we recommend using the deeper easier-to-use boxes. Since the cost difference in using deeper boxes is only slightly more and because the electrical materials constitute only about 2% of your overall construction costs, we urge you to make your selection on the basis of what is easier to use.

Boxes are to be installed in such a way that the wiring in them is accessible at a later time. A good rule is to have all device and junction boxes open into the room.