

What's the Risk?

Double Tapping Electrical Circuits



THE ISSUE

“Double tapping” occurs when two electrical conductors (load wires) are connected to one terminal screw on a single circuit breaker or fuse holder designed for one. Double tapping is a common issue found when additional circuits are added to a building (or structure) where there are no available unused breakers or fuse holders. This generally occurs when untrained individuals, instead of qualified electricians, add additional circuits.



WHAT'S THE RISK?

Most circuit breaker or fuse holder terminal screws are not designed to accommodate more than one conductor. When double tapping occurs, the result is a poor connection on both conductors which can cause arcing, and increased resistance that produces heat, which could lead to fire. The risk is greater when the two conductors are not of equal size. For example, when a 12-gauge conductor and a 14-gauge conductor are double tapped on the same circuit breaker or fuse holder terminal screw. The image below demonstrates this issue.

In addition, double tapping circuits in a fuse panel may cause the fuse to blow (fail). To combat this problem untrained individuals will often over fuse the circuit. Over fusing occurs when a higher rated fuse is used on a circuit that is not rated for that amount of current (e.g replacing a 15 amp fuse with a 20 amp fuse) to compensate for the extra load on the circuit. An overloaded circuit can overheat the conductors which may result in fire.



WHAT CAN BE DONE?

The best way to address this problem is to install an additional circuit breaker into the electrical panel if there is space and terminate the conductor accordingly. If the electrical panel is full and this is not possible, a circuit breaker specifically designed to hold two conductors may be used.

In a situation where a fuse panel is being used and there is not an unused fuse holder, there are two options,

- Upgrade the electrical system to an appropriately-sized circuit breaker panel
- Have an electrician install a small subpanel (often referred to as pony panel) off the main fuse panel and wire the system according to the electrical code. Provincial rules may vary regarding the installation of sub panels.

Double Tapping Example

