

## Sample - Inspection Checklist – Electrical Boxes and Disconnects


Disclaimer: The specific needs, practices, form of government and other operational procedures of your governmental entity may impact whether this example is appropriate for your use. PennPRIME recommends that you review the final product before using it, and adapt it as necessary.

DATE: _____ INSPECTORS: _____	OK	NOT OK	NA	CORRECTIVE ACTION	Date Done/ Initials
All electrical enclosures are appropriate for the environment that they are exposed to.					
Electrical boxes, breaker panels, and electrical disconnects are in good repair and without obvious physical damage.					
All unused openings in the top, sides, and bottom of electrical boxes, breaker panels, electrical disconnects, pull boxes, and junction boxes are closed or sealed.					
All breaker spaces in breaker boxes that are not being used are effectively covered.					
All pull boxes and junction boxes have their covers securely in place.					
All circuit breakers and electrical disconnects are labeled with the equipment or branch circuit that they control.					
All rigid conduit is in good repair and securely attached to the building structure and to the boxes that they enter.					
All wires either end or are connected inside of a closed electrical box.					
There is clear and easy access to all breaker panels and electrical disconnects, and there is proper clearances around these fixtures.*					
All breaker panels and electrical disconnects are well lit.					
Fuses in three-phase fused disconnects are all replaced at the same time with appropriately sized fuses.					

## Electrical Boxes and Disconnects Guidance

One of the more hazardous types of equipment in any facility is the electrical system. When installed and maintained properly, however, these risks can be minimized. Any work on a facility's electrical system should be done to the current NEC standards, and by a qualified electrician, whether it's the addition or installation of new equipment, or construction and/or rebuilding of an existing facility. Electrical enclosures should be in good condition, and be appropriate for the environment in which they will be used. Enclosures that are located outside or in wet areas require special seals and coating to prevent the enclosures from degrading. Electrical disconnects and breaker panels need to have enough lighting so employees operating or working on them can clearly see the equipment and labels. The ends of all wires and all wire connections need to be contained within closed boxes; there should be no loose wires or wire nuts visible.

To understand the requirements better, it's helpful to know some of the terminology that is used to describe various parts of electrical systems, and some of their requirements. The term "electrical box" is a generic term that can be used to describe any of a number of enclosures that have electrical wires, circuit breakers, and/or electrical disconnects. When discussing specific equipment, it is better to use a more specific term to describe the type of electrical box.

	<p><b>Pull Box</b> - A pull box is typically a small box with a removable cover that connects two or more pieces of rigid conduit. Pull boxes are used to make it easier to pull wires through a long length of conduit, or to pull wires through a 90° turn in the conduit. After installation, these boxes should have the covers secured at all times.</p>
	<p><b>Junction Box</b> - A junction box is typically a box with a removable cover that is used when connecting multiple sets of wires together. Wires are attached together by twisting the ends of the wire together and then using an appropriately sized wire nut to secure them from disconnecting. After installation, these boxes should have the covers secured at all times. Any unused openings on the top, bottom, or sides of the junction box need to be covered or sealed.</p>
	<p><b>Electrical Disconnect</b> - An electrical disconnect is basically a large switch, and is used for equipment that uses higher current. The cover on the disconnect needs to be closed when energized or when operated. Disconnects need to be easily accessible, and have 36" of clearance in front of the disconnect, and 30" to either side of the disconnect at all times. Any unused openings on the top, bottom, or sides of the disconnect box need to be covered or sealed.</p>
	<p><b>Fused Electrical Disconnect</b> (pictured without fuses) - A fused disconnect box is an electrical disconnect that also contains fuses. The fuses act as a safety device that will "blow" or internally disconnect if too much current flows through them. In a three-phase electrical system there are three fuses, one for each of the phases or "legs". Usually, only one of the fuses will blow at a time. When this happens, the other two fuses might also be affected. Therefore it's a good practice to replace all three fuses at the same time when one of them blows. The cover on the disconnect needs to be closed when energized or when operated. Disconnects need to be easily accessible, and have 36" of clearance in front of the disconnect, and 30" to either side of the disconnect at all times. Any unused openings on the top, bottom, or sides of the box need to be covered or sealed.</p>
	<p><b>Breaker Panel</b> - A breaker panel is an electrical box that contains one or more circuit breakers. These circuit breakers act as protection for separate pieces of equipment or branches of the electrical system. The breaker panel should have a list, or "schedule" that indicates what each circuit breaker controls. There should be no open spaces on the face of the breaker panel. Any unused spaces in the panel should either have the original space cover intact, or if a previously installed breaker is removed, the space needs to be covered with breaker slot cover. Breaker panels need to be easily accessible, and have 36" of clearance in front of the panel, and 30" to either side of the panel at all times. Any unused openings on the top, bottom, or sides of the breaker panel also need to be covered or sealed.</p>