Two Electrical Safety Issues You Can Easily Fix

In the course of my career I have been in hundreds of facilities where I have learned most workplaces have one or both of the problems addressed here. Circuit breakers not correctly labeled and gapping holes in circuit breaker panel boards that expose the conductors within. Both problems are caused by careless contractors or maintenance staff as they add and remove equipment as years pass. An easy walk around survey can tell you if your facility has one of the dangerous and costly hazards.

Missing Circuit Breaker
Unused openings are created when a circuit breaker has been removed. This might happen when a particular piece of equipment is no longer in use or has been moved to another location in the plant. The area vacated by the circuit breaker has to be covered and made safe.

OSHA
This problem is addressed by OSHA and can result in fines. 1910.303(b)(7)(i)
"Unused openings in boxes, raceways, auxiliary gutters, cabinets, equipment cases, or housings shall be effectively closed to afford protection substantially equivalent to the wall of the equipment."

Visual Inspection
It is easy for a safety manager not trained in the electrical field to spot some of these problems. A walk around survey of electrical panels, probably best done with one of your electrical maintenance staff, should do the trick. Open the hinged door on circuit breaker panel boards, this will expose only the face of the circuit breakers, and observe if there are any breakers missing.

Filler Plates
When a circuit breaker is removed from a breaker panelboard it leaves an unused opening. Every manufacturer of panelboards makes what is called a filler plate to cover this hole. These filler plates are important; without them workers are exposed to live conductors anytime the door is opened. Depending on what kind of panelboard it is and what type of breaker the hole left could be large enough to stick your hand in.

Wrong Solution
Over the years I have been witness to some very imaginative methods of covering these holes that have included electrical tape, duct tape, cardboard and combinations of each. None of these are remotely acceptable. You need an appropriate, inexpensive, filler plate specifically made for that panel.

Knock Outs
Look for other unused openings on the sides, top and bottom of all electrical panels as well. Sometime unused round holes, called knockouts, are not covered. You can also purchase what are known as knock out plugs or knock out seals to easily cover these holes. Again, duct tape is not the answer.

Keep Panels Clean
Another reason you need to cover unused openings is that it keeps the interior of the electrical equipment from being exposed to the dirt, dust and other contaminates you may have at your facility. Allowing the interior of a circuit breaker panel to become dirty could cause additional safety issues.

Bad Labeling
OSHA requires an overcurrent protective device, such as a circuit breaker, to *"be legibly marked to indicate its purpose."* That means if the breaker in question protects the lights on the west side of the warehouse, it should be marked accordingly. If it has no label how would we turn off power to those lights. If the breaker is labeled, "West Ware House Lights", but actually protects the parking lot lights, that's a problem too. This would not turn-up on a simple walk around survey. This problem would not become evident until one day you try to turn off the power for the lights on the west side of the warehouse and it gets dark in the parking lot. So, no label is bad and mislabeling is also bad and harder to find.

OSHA
This OSHA requirement doesn't just cover breakers in panel boards but also all overcurrent devices and disconnects. It reads, *"Each service, feeder, and branch circuit, at its disconnecting means or overcurrent device, shall be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident."* It is also required by multiple NFPA documents.

Verification
Every maintenance person hates mislabeled breakers. It makes their job harder and in some cases more dangerous. A mislabeled breaker could cause someone to turn off a circuit that is not the one they are working on. Of course, a proper Lockout\Tagout procedure should protect them because one of the steps of lockout/tagout and I would argue the most important step, is verification of isolation. You don't just turn something off, you are required to use a voltmeter and prove it is off. Unfortunately this step is sometimes skipped; with deadly results.

Arc Flash Risk Assessment
Another important reason for making sure your labeling is correct is if you plan to perform an arc flash risk assessment at your facility. If your panels are not labeled correctly it will increase the time it takes to complete the assessment and increase the cost. Additionally, bad labels will make your arc risk assessment less reliable.

Conclusion
Both of these issues expose your employees and contractor employees to unnecessary electrical hazards. Both issues can be identified with a little effort and help from your maintenance staff. Finally, both hazards can be resolved very easily and with little cost. I encourage you to take the steps to survey your facility, and if you find these exposures get them corrected as soon as possible.