Eaton Corporation
1000 Cherrington Parkway
Moon Township, PA. 15108
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What to do if an AFCI Breaker Trips:

When any circuit breaker trips it is good practice to locate the source of the fault and correct the fault before resetting the breaker. Obvious signs of overloads (too many loads on the same circuit microwave, toaster, range and lights for example) or short circuits such as damaged wires, blackened receptacles, etc. need to be addressed prior to attempting to reset the breaker. The person that is doing the investigation of the circuit should make a concerted attempt to ascertain what preceded the tripping event. To do this, they should first determine what loads are connected to the circuit, which loads were on at the time of the trip, calculating the connected load to see if the cause was an overload. The next step would be to trace the circuit and thoroughly check all connections for damaged insulation burned receptacles and any other evidence of a short circuit.

The next step would be to verify that the breaker is operating properly. To do this, the contractor should disconnect the load and neutral wires from the breaker, leaving the pigtail connected to the neutral bar. With all loads disconnected, the technician should attempt to reset the breaker. If the breaker does not reset, there is a malfunction in the breaker, and it should be replaced. If the breaker holds when reset, there is a problem on the circuit. The breaker should be turned off, the line and neutral conductors should be reconnected, and the technician should continue to troubleshoot the circuit.

Since AFCI breakers contain both GFI and AFCI sensing circuitry, the technician should next search for possible unintended current paths to ground, shared neutrals or parallel arcing faults by opening all devices and junction boxes and looking for grounded neutrals, neutrals from different circuits that have been tied together, or carbonized conductors indicating electrical arcing. The neutral on the AFCI circuit must be isolated from all other grounded conductors and from all grounding conductors. Additionally, all electrical connections should be examined for damage due to heating from loose electrical connections. If any of the above conditions are found, the technician should correct the problem before proceeding.

After the circuit has been carefully examined, and all causes of overloads, short circuits, ground faults and loose connections have been corrected, all loads should be disconnected from the circuit, and a qualified technician that will be monitoring the results may reset the breaker. If the breaker trips, the technician should go to step 1 below. If the breaker holds, the technician should go to step 2 below.

1. If the breaker trips, the circuit should be checked for arcing faults behind the wall. To do this, the last segment of the circuit should be disconnected from the circuit, and another attempt should be made to reset. If the breaker trips, the next to last section should be disconnected and an attempt should be made to reset. This process should be continued until the breaker no longer trips. The last segment disconnected is the segment with the fault, and the wire in that segment should be replaced. The circuit should then be completely reconnected and the integrity should be verified by resetting the breaker and assuring that it holds.

2. If the breaker remains closed, the technician should again trace the circuit to look for any continuing evidence of overcurrents. At this point, the loads that have been removed should be connected and reenergized one at a time to make an attempt to see if one of the loads causes the breaker to trip. If a load causes the breaker to trip, the load should be disconnected and examined for arc faults and ground faults. If none of the loads cause the breaker to trip, previous efforts to tighten loose connections and remove ground paths have likely cleared the fault.