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Electrical: Air Conditioning Safety Disconnect

Electrical work within the church is often done by do-it-yourself volunteers or staff who are unfamiliar with national and local electrical codes. The risk of electrical failures and fires increase significantly when work is performed by personnel who are not professionally qualified to perform electrical work. Take this recent loss for example:

An electrical arc fault occurred within the control panel of an air conditioning unit. The arc fault continued down the line causing extreme overload to the remainder of the incoming electrical service and distribution panel. A fire ensued causing all electrical equipment in the switch room to be destroyed and heavy smoke damage to the church building resulting in a $350,000 loss. Fire investigator found that the A/C unit was wired directly to the electrical service without the proper safety disconnect installed.

National and local electrical codes are developed to protect people and property. Code compliance will result in an electrical installation that is done correctly. Code requirements for air conditioning units require the installation of a safety disconnect between the condensing unit and the main electrical service feed. The safety disconnect must be within sight and readily accessible. This will allow shutting down power for maintenance operations and emergencies such as mechanical failure or electrical fires.



Image above shows an inadequate wiring set up for the central air conditioning units. Electrical is wired directly to the A/C condensing units, without a safety disconnect.



Image above shows the correct installation of an electrical safety disconnect switch.

This safety disconnect will have over-current protection in the form of a circuit breaker or fuse. In the loss described above, the installation of an electrical safety disconnect would not have prevented the arc fault within the A/C unit, but the over current device would have prevented the downline damage to the main electrical distribution panel and subsequent fire and smoke damage.

If your church does not have a safety disconnect installed for each air conditioning unit, a qualified electrician or licensed electrical contractor should be hired to complete this. This will ensure that the electrical work completed will meet current national and local electrical codes.





Over current protection—circuit breaker or fuse.

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