



## FIRE ALARM SYSTEMS WIRING METHODS

CITY OF LACONIA FIRE PREVENTION DIVISION  
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## FIRE PREVENTION Fire Alarms

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Fire alarm wiring is low energy, low voltage wiring requiring special care in selection of the wire type and wiring methods. Any underground installations may be very susceptible to the ground currents set up by lightening strikes nearby, as well as utility power conductors that may be located in the same trench. Component failures and/or false alarms may be caused by either condition. It is necessary to use shielded cable for all underground fire alarm signaling cables, installed in approved raceway, with one end of the shield grounded. Additional lightening and/or surge protection may be required and shall be installed based on the equipment manufacturer's recommendation.

All underground fire alarm cables shall be enclosed in a dedicated, schedule 40 PVC pipe, listed for underground fire alarm and containing **NO OTHER** cables.

All wire and cable used for fire alarm systems shall be IMSA, UL and/or NFPA recognized for the application, and shall be installed in approved raceway, except for wood frame structures where NFPA 70 allows non-metallic cables, and the Authority Having Jurisdiction [AHJ] has approved the use of non-metallic electric cables.

Two [2] conductor cable (minimum) shall be used in all installations. No single conductor wire is acceptable unless installed in approved raceway.

Initiating devices shall be wired using # 18 AWG as a minimum.

Indicating devices shall be wired using # 16 AWG as a minimum. [Voltage drop calculations may dictate substantially larger wire size].

Wiring installed underground between structures shall be polyethylene jacket, IMSA rated, # 14 AWG as a minimum.

The conductors from the FACP to the Master Box Local Energy Trip coil shall be # 14 AWG as a minimum.

Splices in underground cable shall NOT be made below grade. All splices shall be made above ground in a recognized REA pedestal or other approved splice enclosure.

Splices in all other fire alarm conductors shall be made in a approved junction box with a RED cover, within a control panel, Master Box Pedestal, or equivalent enclosure.

Where exposed wiring is allowed, it shall be located six [6] inches minimum away from all water and steam pipes, metal ductwork, or other mechanical equipment which may cause damage due to excessive heat or vibration. Proper clearance shall be maintained at all times.

Non-metallic sheathed cable shall NOT be run with power cables in the same raceway, through common ducts, or through the same holes in wood frame structural members. A minimum of two [2] inches of clearance shall be maintained between all fire alarm cables and electric power cables.

