

1 / 12 · Installation

Initiating device vs notification appliance

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2 / 12 · Installation

Waterflow switch vs valve tamper switch

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3 / 12 · Installation

Why use a heat detector instead of a smoke detector?

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4 / 12 · Installation

What does supervision mean on a fire alarm circuit?

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5 / 12 · Installation

Why break the wire at each device terminal?

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6 / 12 · Installation

Why no T-taps on a conventional supervised circuit?

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Waterflow reports water moving in a sprinkler pipe: an alarm signal. Tamper reports a valve moved off normal: a supervisory signal.

NFPA 72-2022 ch.17

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1 / 12 · Installation

An initiating device tells the panel something happened (detector, pull station, waterflow switch). A notification appliance tells people (horn, strobe, speaker).

NFPA 72-2022 ch.17 and ch.18

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4 / 12 · Installation

The panel constantly checks the wiring is intact, usually by passing a small current through to an end-of-line device.

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3 / 12 · Installation

Where smoke detectors would false alarm: kitchens, mechanical rooms, dusty or humid spaces.

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6 / 12 · Installation

The branch has no end-of-line device, so a break on the branch never shows at the panel.

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5 / 12 · Installation

If an unbroken wire is looped under a screw and slips off, the circuit still looks complete while the device is disconnected.

NFPA 72-2022 ch.12; device installation sheet

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7 / 12 · Installation

How does a NAC stay quiet in standby?

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8 / 12 · Installation

Two-wire smoke detectors and the panel

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9 / 12 · Installation

Class B under a single open

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10 / 12 · Installation

Class A under a single open

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11 / 12 · Installation

FPL, FPLR, FPLP

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12 / 12 · Installation

Cable substitution direction

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They must be listed as compatible with the panel. Check the compatibility list in the panel manual.

Panel installation manual

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The panel reverses polarity and a diode in each appliance blocks current; in alarm the polarity flips and appliances operate.

Appliance and panel installation manuals

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Trouble at the panel; every device keeps working because the panel reaches it from the other end. No EOL in the field.

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9 / 12 • Installation

Trouble at the panel; every device past the open stops working.

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12 / 12 • Installation

Higher rating replaces lower: FPLP can replace FPLR or FPL; FPLR can replace FPL. Never the other way.

NFPA 70 (2020) Art. 760

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11 / 12 • Installation

Power-limited fire alarm cable: general use, riser (vertical shafts), plenum (air-handling spaces).

NFPA 70 (2020) Art. 760

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