

1 / 12 · Installation

On a pre-installation walk, what do you check first in each room, and why?

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Why mark every supply diffuser on your drawing set during the field walk?

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After the walk, what do the groups "go", "go with a note" and "hold" mean?

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Name four field findings that call for an RFI rather than a field fix.

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What does a good RFI contain?

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A field condition conflicts with the design. Who reports, who decides, who accepts?

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Supply air can keep smoke away from a nearby detector, so it may never alarm. Compare diffuser locations with the detector layout and raise any conflict before rough-in.

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The ceiling: height, type, and beam or joist depth and spacing. Detector spacing depends on these facts, so write down measured numbers, not "looks fine".

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Ceiling height or beams differ from the layout; a room's use or size changed; delivered equipment differs from the accepted submittal; an interface point is missing or moved. Conflicting documents also need one.

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Go: field matches drawings. Go with a note: a small shift that changes no coverage, circuit or code requirement; record the as-built. Hold: the change could affect spacing, coverage, loading, survivability or an interface.

Good practice (no code section)

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The installer reports the condition. The designer of record changes the design, in writing. The AHJ accepts the result, often after a resubmittal. A verbal hallway answer is not enough.

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Sheet, revision and exact location; what the drawing shows; what you found, with measurements and a photo; the requirement it affects, by section number; a suggested fix marked as a suggestion; the answer-by date.

Good practice (no code section)

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**Class A versus Class B:
what happens to devices
beyond a single open?**

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**Which pathway class keeps
working through a single
wire-to-wire short, and
how?**

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**Match the class: checked
end to end by equipment,
fail-safe by losing power,
unmonitored, Ethernet-type.**

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**What is the classic
installation mistake on a
Class A circuit?**

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**Pathway class versus
survivability level: what
does each describe?**

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**Chapter 12 defines
survivability levels. Where
do you look to see when a
level is required?**

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Class X. It tolerates a single open or ground like Class A, and fault isolators let it keep operating through a short. Class A alone does not survive a short.

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Class A has a separate return route, so devices past the open keep working and the panel shows a trouble. Class B has one route out, so everything past the open is lost, though the trouble must still report.

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Running the outgoing and return conductors in the same cable or raceway, so one event takes out both paths. Read the Chapter 12 separation rules before you plan the route.

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Class C: integrity checked by the equipment communicating end to end. Class D: fail-safe, works by losing power, like a door holder releasing. Class E: not monitored. Class N: Ethernet-type with its own redundancy rules.

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In the chapters that call for them: Chapter 24 for voice systems, where relocation or partial evacuation is the usual case, and Chapters 21 and 23 for other cases.

NFPA 72-2022 Chapters 21, 23 and 24

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Class describes behavior under electrical faults: open, ground, short. Survivability describes how long the pathway keeps working during a fire, using protection such as rated cable, enclosures or construction.

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