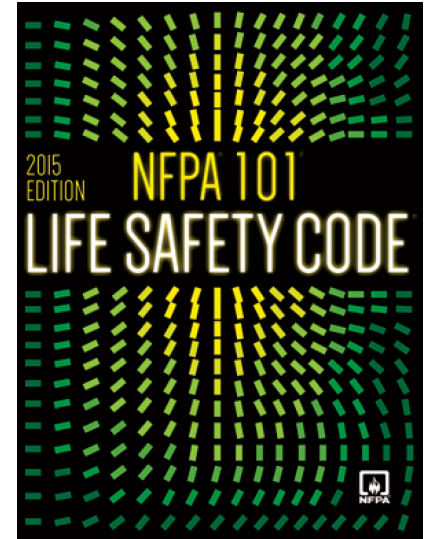
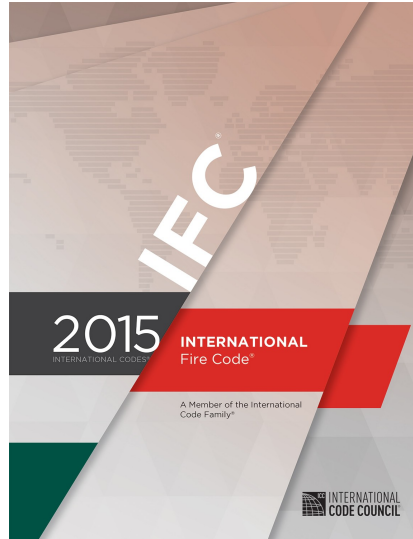
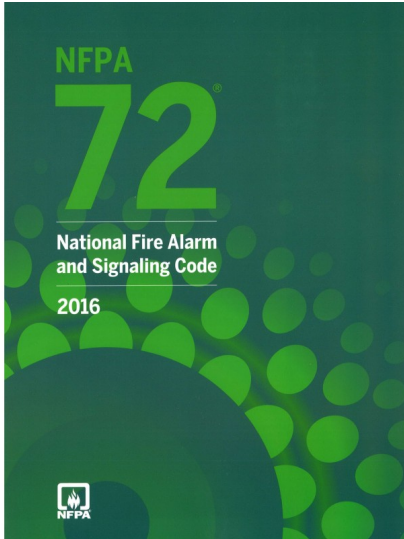
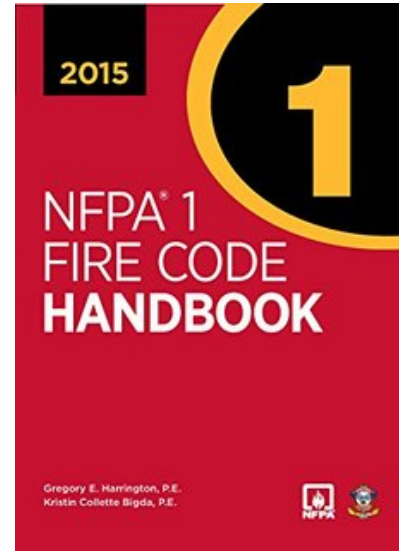
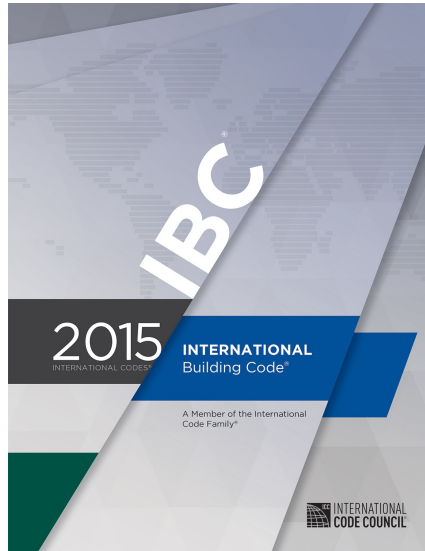


Agenda - Project Close Out Standards



Surge Protection, Documentation, & ITM considerations

Due diligence and Cross-reference



IBC and NFPA 1 point toward NFPA 72 and NFPA 70/NEC

IFC – 907.6.1.5

“In addition to any built-in surge protection of the fire alarm panel, each fire alarm panel and power supply panel shall have an added surge protector installed.

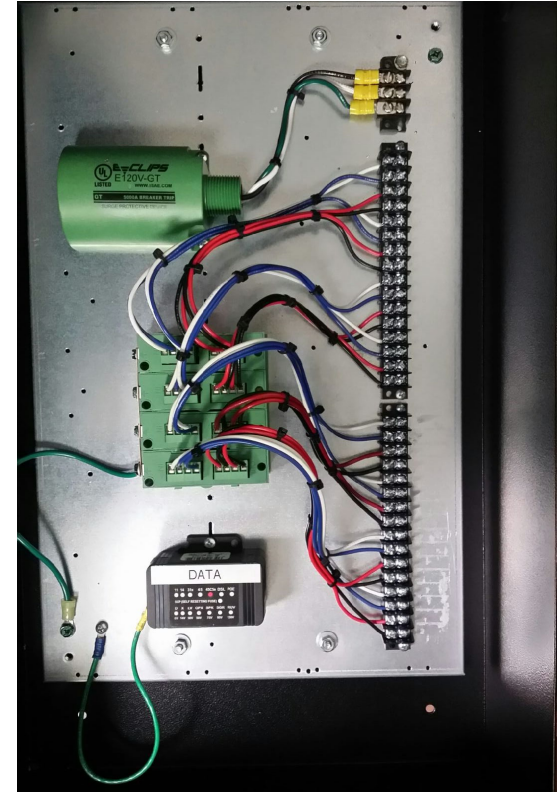
If data lines run between separate buildings, data line surge/spike protection is required on each data line where the line enters and/or exits each building.”



Protect both ends. All wires. Lock the doors.

NFPA 72 – 24.6.7.3

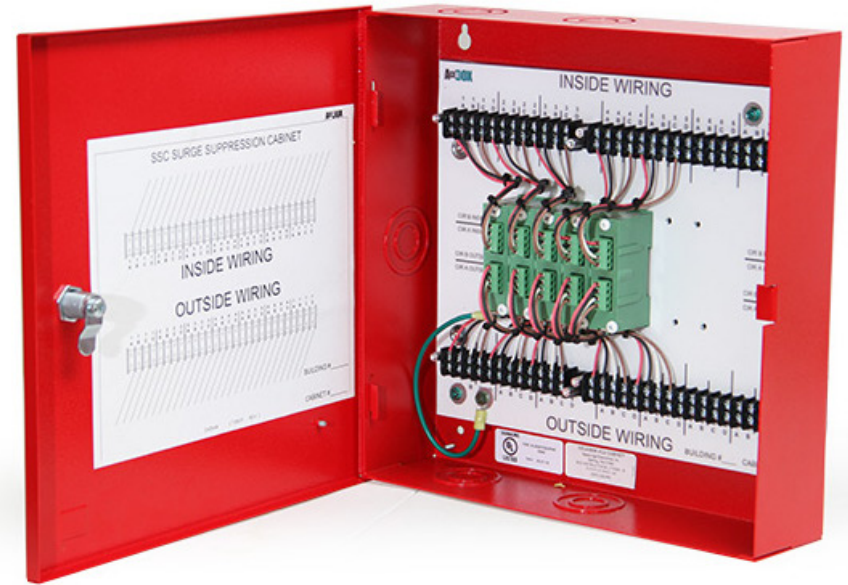
“All external conductors shall be provided with surge suppression to minimize potential equipment damage from lightning strikes.”



Reduce risk. It's not just about lightning but...

NFPA 72 - 12.2.4.2

Where fire alarm circuits enter or exit buildings, the circuits and equipment shall be installed in accordance with the requirements of Article 760 of *NFPA 70®*, *National Electrical Code®*.

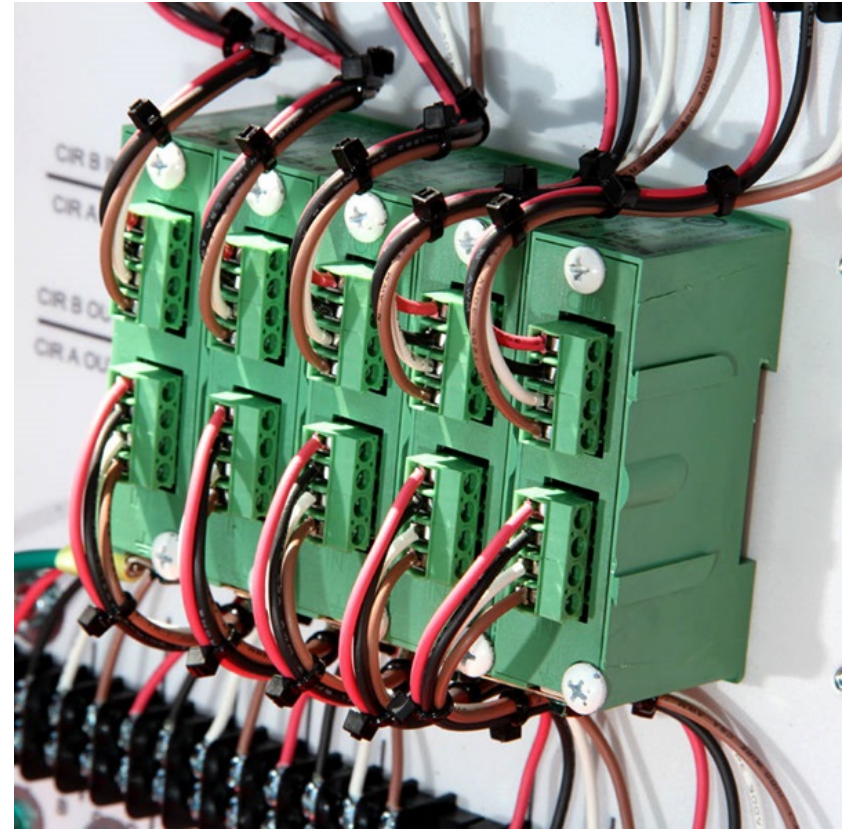


NFPA 72 points to NFPA 70 / NEC and vice versa.

NFPA 70 – 760.32

“Fire Alarm Circuits Extending Beyond One Building - Non-power-limited fire alarm circuits and power-limited fire alarm circuits that extend beyond one building and run outdoors shall meet the installation requirements of Parts II, III, and IV of Article 800.

Informational Note: An example of a protective device suitable to provide protection is a device tested to the requirements of ANSI/UL 497B, *Protectors for Data Communications.*”

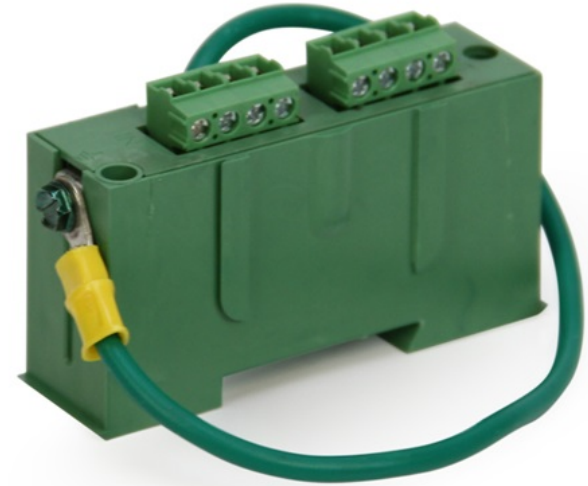


NEC is saying to choose a UL497B device. What's that?...

UL 497B Standard

Standard for Protectors for Data Communications and Fire-Alarm Circuits.

Data communication circuit protectors and fire-alarm circuit protectors are intended to protect equipment, wiring, and personnel against the effects of excessive potentials and currents caused by lightning in communications alarm-initiating or alarm-indicating loop circuits.



Fyi, UL 1449 3rd addition is for 120 volt main power.

UL 1449 3rd Edition Standard

Underwriters Laboratories standard UL 1449 is the primary safety standard for surge protective devices (SPDs).

Some protectors are even UL listed to trip the circuit breaker to protect themselves and the FACP from sacrifice.



Avoid downtime & fire watches! FACP's are sensitive!

Technology works

Components on the circuit boards:

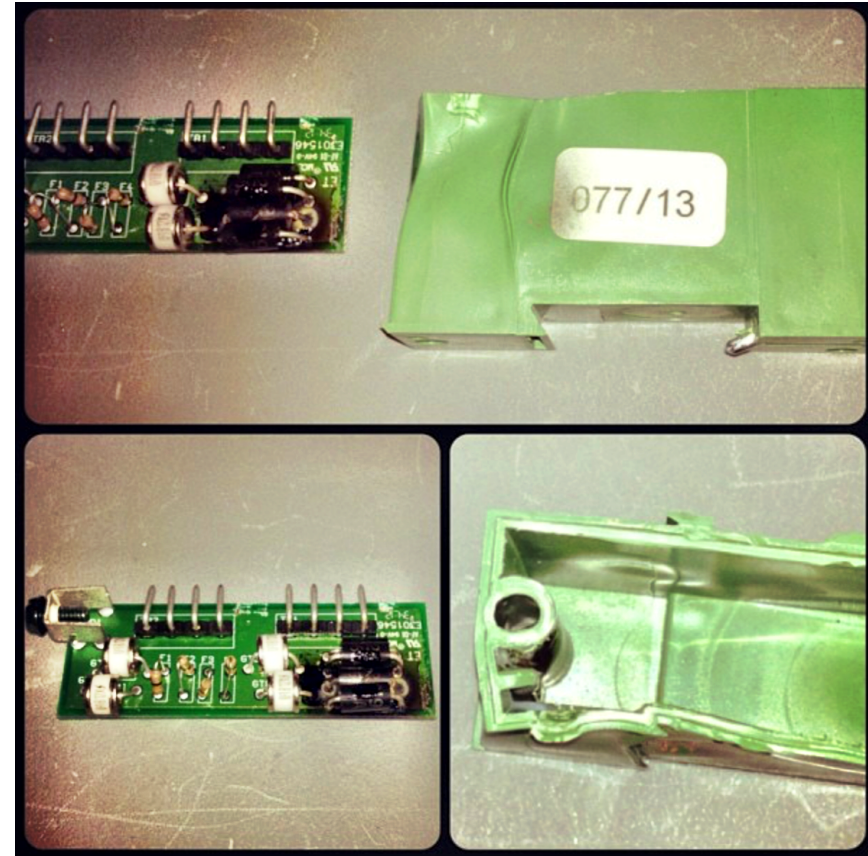
SAD = Silicone Avalanche Diode (Over-Voltage)

MOV = Metal Oxide Varistor (Over-Voltage)

GDT = Gas Discharge Tube (Over-Voltage)

✓ Use multiple types of components for technology combinations that synergize.

✓ SAD, GDT combo is low capacitance.



Multi-stage hybrid technology = superior protection.

NFPA 72 – 10.3.1

“Equipment constructed and installed in conformity with the Code shall be listed for the purpose for which it is used.”



Intended purpose???... Is the question.

NFPA 72 – 27.7.1.6.4.1

“Fire alarm circuits shall be identified by the use of red covers or doors.”



Clearly mark for separation from other trades.

NFPA 72 - 10.6.5.2.3

“For fire alarm and/or signaling systems, the circuit disconnecting means shall have a red marking.”



Here's an example of code compliant clear red labeling.

NFPA 72 - 10.6.5.2.2

“The system circuit disconnecting means shall be permanently identified as to its purpose in accordance with the following:

- (1) “FIRE ALARM” for fire alarm systems
- (2) “EMERGENCY COMMUNICATIONS” for emergency communications systems
- (3) “FIRE ALARM/ECS” for combination fire alarm and emergency communications systems”



Appropriate labels accomplish purpose identification.

NFPA 70 – 760.30

“Fire alarm circuits shall be identified at terminal and junction locations in a manner that helps to prevent unintentional signals on fire alarm system circuit(s) during testing and servicing of other systems.”



Signal interference?... Get that CAT 5 data wire outta here!

NFPA 72 – 7.5.6.2

“The record of completion shall be completed by the installing contractor and submitted to the AHJ and owner at the conclusion of the job.”

“14.2.5 - Prior to system maintenance or testing, the record of completion shall be provided by the owner to the service personnel.”

RECORD OF COMPLETION

Property Information

Name of property: Headquarters
Address: 555 Main St
Description of property: Office
Occupancy type: Commercial

Equipment Information

ID No 1: 123456
Serial: 7891011
ID No 2: 123456
Serial: 7891011

Certifications and Approvals

16.1 System Installation Contractor:
This system, as specified herein, has been installed and tested according to all NFPA standards cited herein.
Signed: [Signature] Printed name: John Doe Date: 4/15/15
Organization: Installer Title: Technician Phone: 555-812-2220

16.5 Authority Having Jurisdiction:
I have witnessed a satisfactory acceptance test of this system and find it to be installed and operating properly in accordance with its approved plans and specifications, with its approved sequence of operations, and with all NFPA standards cited herein.
Signed: [Signature] Printed name: John Doe Date: 4/15/15
Organization: Department Title: Fire Marshal Phone: 555-212-2099

Contractor completes / Owner provides.

NFPA 72 – 7.6.6

“The record of all inspections, testing, and maintenance as required by 14.6.2.4 shall be documented using the record of inspection and testing forms.”

14.6.2.4 points to 7.8.2 which tells you to use the completion and ITM forms.



You can use this process to document surge inspection.

NFPA 72 - Table 14.3.1

“Visual Inspection of Transient suppressors shall be completed Semiannually by verifying location and condition.”



Recommended best practice: Replace every 5 years with new.

NFPA 101 - 9.11.3.1

“All required documentation regarding the design of the fire protection system and the procedures for maintenance, inspection, and testing of the fire protection system shall be maintained at an approved, secured location for the life of the fire protection system.”



Personal benefit = Save time; save money; be organized.

NFPA 72 – 7.7.2.1 & 7.7.2.4

"With every new system, a documentation cabinet shall be installed at the system control unit or other approved location at the protected premises."

"A cabinet must be prominently labeled **SYSTEM RECORD DOCUMENTS**"



Chapter 7 & 14 have been updated! Take a closer look!

Recap / Remember / Take Away's...

1. Use surge protection on both 120 volt main power & building-to-building lines.
2. Install surge per NEC and find a good ground (25 ohms or less but 5 is ideal).
3. Choose devices with the latest UL listings so you're using the best technology.
4. Use products made specifically for Fire Alarm & Life Safety.
5. Mark circuits and wiring in red with good labeling.
6. Complete records.
7. Inspect, Test, and Maintain.
8. Document everything.
9. Put all the paperwork in the document box, where it should be.
10. Go read the new NFPA 72 2016.

Prevent damage / Reduce liability / Save time & money.

Kristian White



Be safe.

Be well.

Be good!

Connect the dots. Connect on LinkedIn and Twitter.

Panel Q & A

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