SKETCH #1

Sketch #1 depicts a service arrangement for a Fire Alarm Service Switch.

a- Is this an acceptable wiring arrangement?
b- For a 30A Fire Alarm Service Switch may the Grounding Electrode Conductor be sized for 30A and a # 10 awg wire be used?

SKETCH #2

Sketch #2 depicts a service arrangement for a Fire Alarm Service Switch and a Multi-Story Fire Alarm Power Riser

a- Is this an acceptable wiring arrangement?

SKETCH #3

Sketch #3 depicts a service arrangement for a Fire Alarm Service Switch at 265/460v and a step down transformer indicating the bonding of the neutral at the transformer.

a- Is this an acceptable wiring arrangement?

SKETCH #4

Sketch #4 depicts a service arrangement for a Fire Alarm Service Switch at 265/460v and a step down transformer indicating the bonding of the neutral at the Fire Alarm disconnect on the load side of the transformer.

a- Is this an acceptable wiring arrangement?

SKETCH #5

Sketch #5 depicts a service arrangement for a Fire Alarm Service Switch and a dedicated 3-Pole Automatic Transfer Switch.

a- Is this an acceptable wiring arrangement?
**SKETCH #6**

Sketch #6 depicts a service arrangement for a Fire Alarm Service Switch and a dedicated 4-Pole Automatic Transfer Switch.

a- Is this an acceptable wiring arrangement?

**SKETCH #7**

Sketch #7 depicts a service arrangement for a Dedicated Fire Alarm ATS in a building with Multiple Emergency Generators.

a- Is this an acceptable wiring arrangement?

**SKETCH #8**

Sketch #8 depicts a service arrangement for a Dedicated Fire Alarm ATS in a building with Multiple Emergency Generators.

a- Is this an acceptable wiring arrangement?

**SKETCH #9**

Sketch #9 depicts a service arrangement for a Dedicated Fire Alarm ATS in a building with Multiple Emergency Generators and a Paralleling Switchboard.

a- Is this an acceptable wiring arrangement?

**SKETCH #10**

Sketch #10 depicts a service arrangement for a Sub-System Fire Alarm Fused Cut-Out.

a- Is this an acceptable wiring arrangement?
**PHASE CONDUCTORS** (UNGROUNDED CONDUCTORS)

**SERVICE SWITCH - FIRE ALARM TAP**

**TYPICAL FIRE ALARM SERVICE SWITCH 120/208**

- Service switch must be rated for available fault current at service point.
- All NPLFA distribution devices and pull boxes must be labeled and painted red.
- All conduit to be RMC, IMC, or MI cable. (750.46)
- RMC may be RGS or aluminum.

**SERVICE SWtich MUST BE RATED FOR AVAILABLE FAULT CURRENT AT SERVICE POINT.**

**ALL NPLFA DISTRIBUTION DEVICES AND PULL BOXES MUST BE LABELED AND PAINTED RED.**

**ALL CONDUIT TO BE RMC, IMC, OR MI CABLE.** (750.46)

**RMC MAY BE RGS OR ALUMINUM**

**GROUNDING ELECTRODE CONDUCTOR**

- #8 min. (Table 250.66)
- #10 acceptable for a 30A service switch

**MUST HAVE PROVISION FOR LOCKING IN THE ON POSITION**

**FIRE ALARM SERVICE SWITCH**

**BONDING SCREW OR CONDUCTOR TO ENCLOSURE**

**EQUIPMENT GROUNDING CONDUCTOR** (Table 250.122)

**RACEWAY BONDED TO ENCLOSURE: 250.118**

**CT CABINET**

**SERVICESWITCH**

**GROUND BAR (TYPICAL) BONDED TO ENCLOSURE**

**ISOLATED NEUTRAL BAR (TYPICAL)**

**Fuse**

**TYPICAL FIRE ALARM FUSED CUT-OUT PANEL 120/208V.**

**INDUSTRY REFERENCE SKETCH: 1 / 10**

1/13 THRU 3/13 AS REVIEWED BY MR. DONALD GOTTFRIED

7/06/11
FUSE SIZE IN FIRE ALARM SERVICE SWITCH AND REMOTE FIRE ALARM CUT-OUTS MUST COORDINATE.
• RISER CONDUCTORS MUST BE CONTINUOUS OR SPLICED AT A LISTED TERMINAL DEVICE.
• A LISTED DEVICE MUST BE USED FOR TAPPING FEEDER CONDUCTORS.
• ALL CONDUIT TO BE RMC, IMC, OR MI CABLE. (760.46)
• ALL NFPA DISTRIBUTION DEVICES AND PULL BOX COVERS MUST BE LABELED AND PAINTED RED.
#8 MIN. (TABLE 250.66)
(#10 ACCEPTABLE FOR A 30A. SERVICE SWITCH)

MUST HAVE PROVISION FOR LOCKING IN THE ON POSITION

FIRE ALARM SERVICE SWITCH

BONDING SCREW OR CONDUCTOR TO ENCLOSURE

TABLE 250.122

EQUIPMENT GROUNDING CONDUCTOR

DRY-TYPE TRANSFORMER

SEPARATELY DERIVED SYSTEM

GROUNDING ELECTRODE NEARBY PREFERABLY THE STRUCTURAL METAL

CT CABINET

SERVICE SWITCH - FIRE ALARM TAP

* FIRE ALARM TAP LOCATED AFTER THE CON EDISON CT AND IN LINE OF THE SERVICE SWITCH

6-SERVICE SWITCHES PERMITTED PER CON EDISON SERVICE
THE FIRE ALARM SERVICE SWITCH WITH PERMISSON MAY BE IF
FIRE ALARM SERVICE SWITCH DOES NOT REQUIRE ADVISORY BOARD APPROVAL (Y102.0 EXCEPTION #1)
ONLY IF FIRE ALARM WORK IS BEING DONE.
FIRE ALARM SERVICE MUST BE SERVICE RATED
ALL CONDUIT TO BE RMC, IMC OR MICCABLE (WRAP)
ALL NON-FIRE DISTRIBUTION DEVICES AND BOX COVERS MUST BE LABELED AND PRINTED RED.

GROUND BAR (TYPICAL) BONDED TO ENCLOSURE

ISOLATED NEUTRAL BAR (TYPICAL)

FUSE

TYPICAL FIRE ALARM SERVICE SWITCH 265/460V
OPTION #1

" GROUNDING ELECTRODE CONNECTION AT TRANSFORMER"

INDUSTRY REFERENCE SKETCH:  3 / 10
7/06/11
PHASE CONDUCTORS
(UNGROUNDED CONDUCTORS)
SERVICE SWITCH - FIRE ALARM TAP
CT CABINET

265/460V

3-PHASE 4-WIRE AND GROUND
UTILITY

265/460V
SERVICE SWITCH - FIRE ALARM TAP

CT CABINET

GROUND BAR (TYPICAL)
BONDED TO ENCLOSURE

ISOLATED
NEUTRAL BAR (TYPICAL)

FUSE

#8 MIN. (TABLE 250.66)
(#10 ACCEPTABLE FOR A 30A SERVICE SWITCH)
MUST HAVE PROVISION FOR
LOCKING IN THE ON POSITION

FIRE ALARM
SERVICE SWITCH

BONDING SCREW OR
CONDUCTOR TO ENCLOSURE

(TABLE 250.122)

EQUIPMENT GROUNDING CONDUCTOR (TABLE 220.122)

DELTA PRIMARY

13220V Y

120/240V

EQUIPMENT GROUNDING CONDUCTOR

GROUNDED ELECTRODE CONDUCTOR

GROUNDING ELECTRODE
NEARBY STRUCTURAL METAL

GROUNDING ELECTRODE NEARLY
PREFERABLY THE STRUCTURAL METAL.

EQUIPMENT GROUNDING CONDUCTOR (TABLE 250.14)

SEPARATELY DERIVED SYSTEM

TYPICAL FIRE ALARM
SERVICE SWITCH 265/460V
OPTION #2

" GROUNDING ELECTRODE CONNECTION
AT THE FIRST DISCONNECTING MEANS"

INDUSTRY REFERENCE SKETCH: 4 / 10

7/06/11
TYPICAL FIRE ALARM FUSED CUT-OUT PANEL 120/208V.

GENERATOR

120/208V 3PHASE 4 WIRE SYSTEM WITH 3 POLE ATS

DEDICATED 3 POLE ATS WITH SOLID NEUTRAL CONNECTION (PAINT RED)

- ALL CONDUIT TO BE RMC, IMC OR MI CABLE. (760.46)
- ALL NPLFA DISTRIBUTION DEVICES AND PULL BOX COVERS MUST BE LABELED AND PAINTED RED.

SEE 1/13 & 2/13

EMERGENCY GENERATOR
120/208V 3PHASE 4 WIRE SYSTEM WITH 3 POLE ATS
FIRE ALARM CONNECTIONS

INDUSTRY REFERENCE SKETCH: 5 / 10
7/06/11
Typical Fire Alarm Fused Cut-Out Panel 120/208V.

- All conduit to be RMC, IMC or MI cable. (760.46)
- All NPLFA distribution devices and pull box covers must be labeled and painted red.

Emergency Generator
120/208V 3Phase 4 Wire System With a 4 Pole ATS

Industry Reference Sketch: 6 / 10

7/06/11
MULTIPLE EMERGENCY GENERATORS

NON - PARALLELED

GEN.#1

3Ø/4W

DEDICATED FIRE ALARM EMERGENCY DISCONNECT SWITCH

120/208V

GEN.#2

3Ø/4W

DEDICATED FIRE ALARM NORMAL (UTILITY) SERVICE SWITCH

120/208V

DEDICATED FIRE ALARM ATS

120/208V

FIRE ALARM EQUIP.

- ALL CONDUIT TO BE RMC, IMC OR MI CABLE (760.46)
- ALL NPLFA DISTRIBUTION DEVICES AND PULL BOX COVERS MUST BE LABELED AND PAINTED RED.

FIRE ALARM EMERGENCY CONNECTIONS TWO OR MORE NON - PARALLELED GENERATING SOURCES WITH A FIRE ALARM CONNECTION TO A SINGLE GENERATOR SOURCE.

INDUSTRY REFERENCE SKETCH: 7 / 10

7/06/11
- ALL CONDUIT TO BE RMC, IMC OR MI CABLE (780.46)
- ATS#1 SHALL HAVE PROVISION FOR STARTING BOTH EMERGENCY GENERATORS ON LOSS OF POWER.
- ALL NELFA DISTRIBUTION DEVICES AND PULL BOX COVERS MUST BE LABELED AND PAINTED RED.

FIRE ALARM EMERGENCY OPTIONAL CONNECTIONS
TWO OR MORE NON - PARALLELED GENERATING SOURCES WITH A FIRE ALARM CONNECTION TO TWO GENERATOR SOURCES.

INDUSTRY REFERENCE SKETCH: 8 / 10
7/06/11
MULTIPLE EMERGENCY GENERATORS WITH PARALLELING SWITCHGEAR

- DOES NOT REQUIRE A SERVICE SWITCH CONFIGURATION.

- ALL CONDUIT TO BE RMC, IMC OR MI CABLE (760.46)

- ALL NPLFA DISTRIBUTION DEVICES AND PULL BOX COVERS MUST BE LABELED AND PAINTED RED.

FIRE ALARM EMERGENCY CONNECTIONS TO A PARALLELED GENERATOR SOURCE.

INDUSTRY REFERENCE SKETCH: 9 / 10
TAP FOR SUB-SYSTEM FUSE CUT-OUT MUST BE MADE ON THE LINE SIDE OF THE FEEDER OR TERMINATION OF THE LOCAL PANEL.

- A LISTED DEVICE MUST BE USED FOR TAPPING FEEDER CONDUCTORS.

- ALL CONDUIT TO BE RMC, IMC OR MI CABLE (760.46)

- ALL NPLFA DISTRIBUTION DEVICES AND PULL BOX COVERS MUST BE LABELED AND PAINTED RED.