Fire Alarm Fundamentals & Generator's

Bill Abderhalden & Roy Kingsley

Deputy State Fire Marshal

MINNESOTA STATE FIRE MARSHAL DIVISION

445 Minnesota Street; Suite 145 Saint Paul, MN 55101

42 Slide Total
50-55 Minutes

OBJECTIVES

Course Objectives

- Identify components of fire alarm systems
- Review applicable requirements for fire alarm system installation
- Determine appropriate spacing for initiating devices
- Assess operational readiness of a fire alarm system
- Generator weekly, mouthy, and load testing

APPLICABLE CODES AND STANDARDS

- State Fire Code 2020
- State Building Code 2020
- NFPA 72 – National Fire Alarm Code 2010
- NFPA 70 – National Electrical Code 2011
- Americans With Disabilities Act Accessibility Guideline (ADAAG)
- NFPA 110-2010 Standard for Emergency and Standby Power Systems

K341 Installation
K342 Initiation
K343 Notification
K344 Control Functions
K345 Testing and Maintenance
K346 Out of Service
K347 Smoke Detection New & Existing

FIRE ALARM AND DETECTION SYSTEMS

Purpose of fire alarm and detection systems

- Notification of Occupants (life safety)
- Control of Fire Safety Systems & Equipment
- Supervision of Systems & Equipment
- Summon Appropriate Aid

SYSTEM COMPONENTS

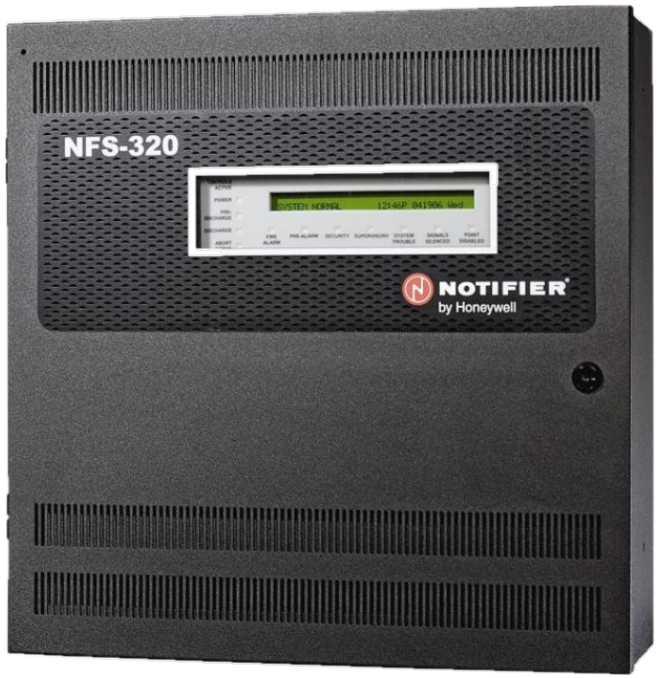
- Fire Alarm Control Unit (FACU):
  - **Also called Fire Alarm Control Panel (FACP)**
- Initiating Devices
- Notification Appliances
- Supervisory Circuits
- Alarm Transmission & Monitoring

FIRE ALARM CONTROL PANEL (FACP)

- Provides power to system
- Controls detection devices
- Activates notification appliances
- Electrically supervises circuits
- Transmits signal to other locations

*Also called Fire Alarm Control Unit (FACU)

Fire Alarm Control Panels



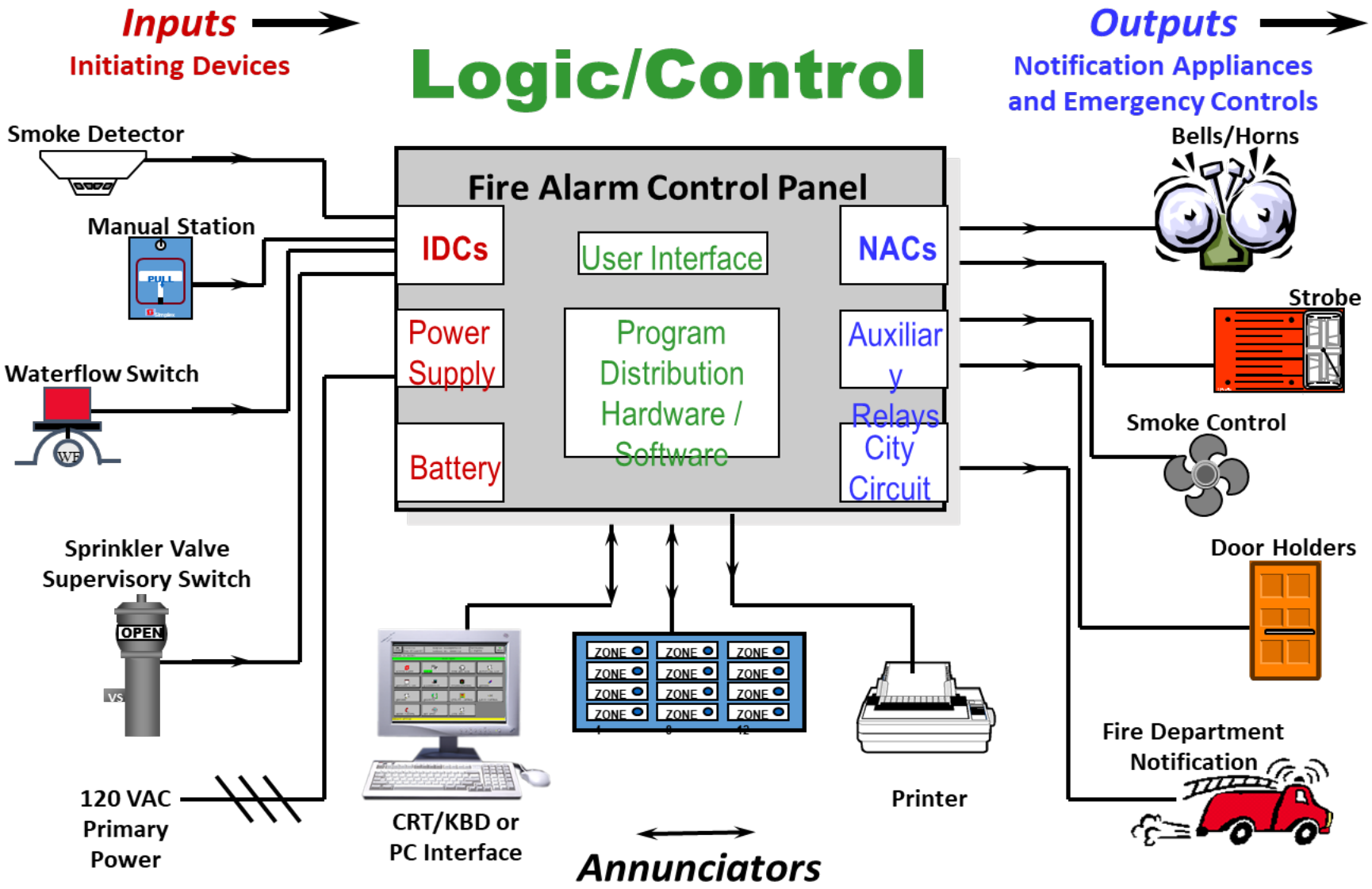
MAIN POWER SUPPLY

- Two separate power supplies required:
  - **Primary:**
    - Usually normal building power
    - Can also be a generator
  - **Secondary:**
    - Usually storage batteries
    - Can also be a generator (auto start)
- Both power supplies must be reliable

SECONDARY POWER SUPPLY

- Must be capable of operating the fire alarm system:
  - **24 hours in “normal” (non-alarm) condition**
  - **Then for 5 minutes in alarm condition**
- Additional power supply requirements for voice evacuation and monitoring stations

CONTROL PANEL PROCESS



SIGNAL TYPES

Alarm – warning of fire danger

- Activated by an initiating device
- Activates the notification appliances

- Distinctive annunciation
- Silencing accessible to authorized personnel only
- Zones to be individually annunciated

Types

- Manual pull stations
- Heat and smoke detectors
- Water flow

ALARM ACTIVATION

Door Release & Lighting Control

SIGNAL TYPES

Supervisory – action needed for a fire protection system:

- Activated by a supervisory device (tamper, low air, low temperature, etc.)
- Audible and visual signal at fire alarm control unit, annunciators, & monitoring station

- Indicates a problem with a system monitored by the fire alarm system
- Distinctive annunciation
- Silencing accessible to authorized personnel only

SIGNAL TYPES

Supervisory signal examples:

- Sprinkler system valve supervisory switch
- Fire pump running, phase reversal, etc.
- Duct smoke detectors
- Elevator recall detectors
- Stand-alone door hold-opens

Ancillary Functions

Smoke Damper Control

SIGNAL TYPES

Trouble – fault or abnormal condition that could impair the fire alarm system:

- Must be audibly and visually distinct from supervisory signals
- Notification at the fire alarm control unit, annunciators, and monitoring station
- In location where it is likely to be heard

SIGNAL TYPES

Trouble Signals

- Indicates a problem with the fire alarm system itself
- Silencing accessible to authorized personnel only
- Signal must resound every 24 hours if not repaired

SIGNAL TYPES

Trouble signal examples:

- Broken wire
- Detector missing
- Blown fuse
- Dirty smoke detector
- Power supply problems, low battery or no AC

TYPES OF CONTROL PANELS AND SYSTEMS

Conventional (i.e. *"hard-wired"*)

- Annunciation by circuit
- Smaller systems
- Older existing systems

Addressable:

- Individually identifiable
- Most newer systems, even smaller ones
- Expanded to addressable notification appliances

INITIATING DEVICES

- Manual Pull Stations
- Fire Detectors:
  - **Heat**
  - **Smoke**
  - **Flame**
  - **Spark**
- Water Flow (sprinkler system)
- Other Fire Protection Systems

Manual Pull Stations

Where required by 2015 MSFC pull stations must be installed conspicuously, unobstructed and and securely .

- The operable part of the manual pull station has to be between 42 and 48” above floor level.
- Manual pull stations must be located within 60” of each exit opening.
- Manual pull stations must be mounted on both sides of exits wider than 40 ft.
- Additional stations must be added if the travel distance to the exit is more than 200 ft.

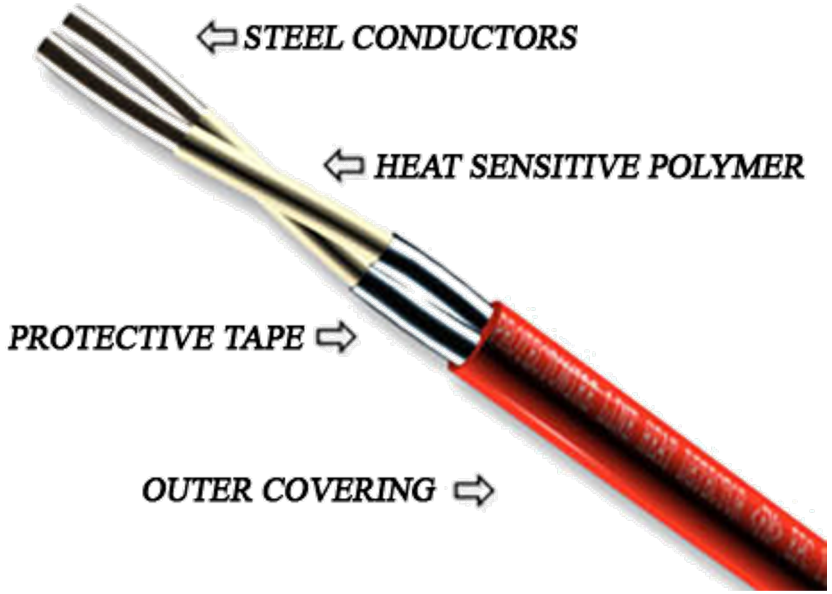
HEAT DETECTION

- Fixed Temperature Detector
- Rate of Rise Detector
- Protectowire

HEAT DETECTORS

HEAT DETECTORS

Protectowire



SMOKE DETECTORS

- Ionization Detector
- Photoelectric Detector
- Linear Beam Detector
- Air Sampling
- HVAC Ducts
- Video Image (newer technology)

Single – Multiple Station Smoke Alarms

Single – Multiple Station Smoke/CO Alarms

- Required in dwelling units & sleeping rooms

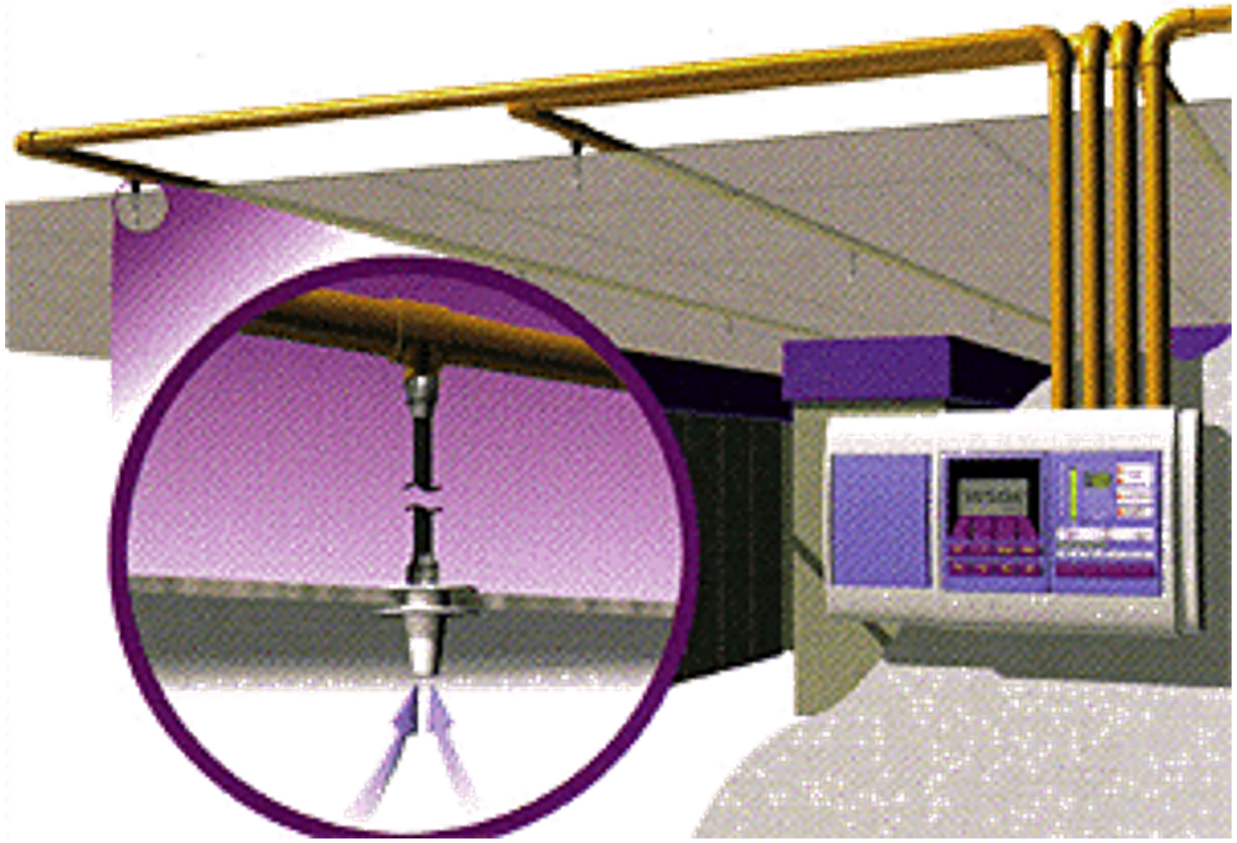
Terminology

- The term "**alarm**" refers to a single station device:
  - **Not part of a system,**
  - **Intended to alert the occupant,**
  - **Examples: smoke alarms, CO alarms,**
- The term "detector" refers to a device connected to a fire alarm system.
  - **A detector does not alert the occupant (horn/strobes do that)**

LINEAR BEAM DETECTION

- Project beam across large open areas
- Used in atriums and large bay spaces

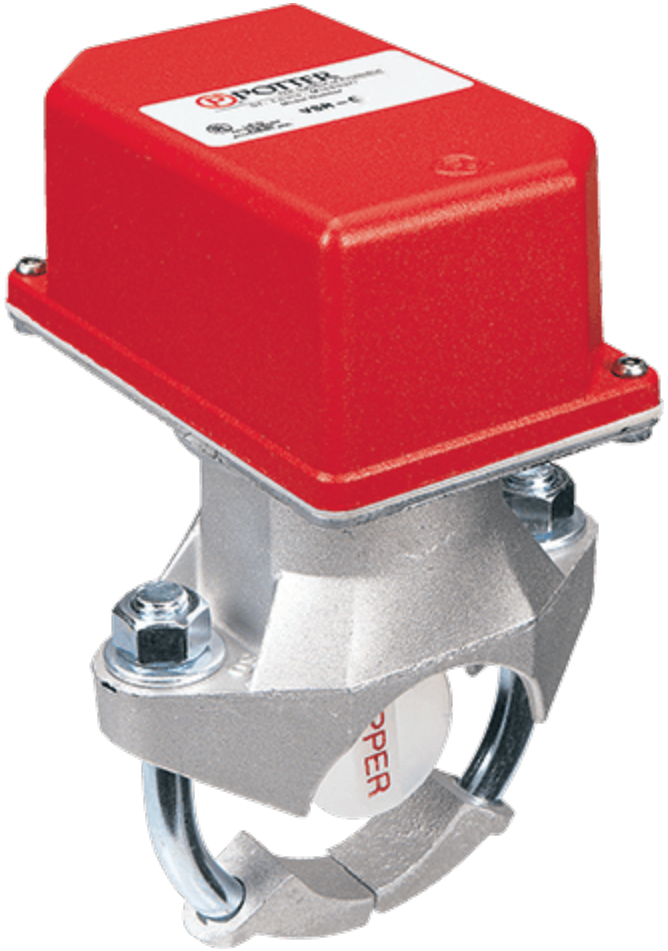
AIR SAMPLING SMOKE DETECTION



VIDEO IMAGE DETECTION

VIDEO IMAGE DETECTION

WATERFLOW



Wet System Waterflow Switch

Dry System Waterflow Switch

NOTIFICATION APPLIANCES

Audible appliances

Visual appliances

NOTIFICATION APPLIANCES

Horn Strobe (Very Common)

- Used primarily for full general evacuation.
- Can be set for different patterns, but the sound is standard.

Strobe Only

- Used is Bathrooms, Meeting Rooms, and other small spaces where there is significant outside sound penetration.
- Also used to fulfill ADA requirements in hospitality rooms where typically only a sounder would be placed.

NOTIFICATION APPLIANCES

Speakers and Speaker Strobes

Used primarily on voice evacuation systems. These devices are quickly becoming the standard because they provide clear and concise directions to building occupants in the event of an emergency.

NOTIFICATION SIGNALS

- Public Mode:
  - General evacuation signal (default)
- Private Mode:
  - Attendant signal:
    - No evacuation signal (no notification appliances throughout)
    - Usually a coded voice message or chimes

NOTIFICATION SIGNALS

- Notification appliances used for other purposes than fire cannot say “FIRE” on them

SOUND PRESSURE LEVELS

- 15 dBA above average ambient sound levels
- 5 dBA above the maximum sound level
- Cannot Exceed 110 dBA

- Where ambient noise is greater than 95 dBa a visual appliance must be used.

MSFC 907.5.2.1.1 & 907.5.2.1.2

SOUND PRESSURE LEVELS

- 5 dBA above maximum sound level,
- 110 dBA is maximum allowed (NFPA 72 – 7.4.1.2 or 18.4.1.2 - 2010)

SOUND PRESSURE LEVELS

• **Institutional**	**50**
• Business	55
• Assembly	55
• Industrial	80
• Mechanical Rm.	85
• Storage	30
• Residential	35
• Mercantile	40
• Underground / windowless	40
• Educational	45

LOW FREQUENCY-NFPA 72

- Where audible appliances are provided in sleeping areas, they shall produce a low frequency signal that meets the following:
  - Alarm signal shall be square wave
  - Must have a frequency of 520 Hz

Fire Alarm Replacements

- All Notification Locations must meet the requirements of NFPA 101 18.3.4 New or 19.3.4 Existing
- Existing notification appliances may remain in service provided
  - Compatible with the new fire alarm system
  - Meet require sound pressure levels
  - Provide the same notification signal or there is a pronounced and defined audible separation between areas where existing and new notification appliance signals meet.

Occupancy Classification

Occupancy Classifications

OCCUPANCY CLASSIFICATIONS
MN State Fire Code – 2020

Group A – Assembly (50 or more persons):
- A-1 – Theaters (performing arts, fixed seats)
- A-2 – Dining and drinking (bars, restaurants, clubs)
- A-3 – Auditoriums, gymnasiums, museums, worship, libraries, recreation, amusement, etc.
- A-4 – Arenas, swimming pools, tennis courts (indoor spectator seating)
- A-5 – Stadiums, grandstands (outdoor seating)

Group B – Business:
- Professional services
- College/university classrooms
- Offices
- Clinics (including outpatient)
- Motor vehicle showrooms
- Electronic data processing
- Assembly – less than 50 persons

Group E – Educational (through 12th grade):
- Pre-school
- K–12
- Adult Day Care (occupants capable of escape)
- Day Care – older children (see I-4 for younger)

Group F – Factory/Industrial:
- Group F-1 – Moderate Hazard (combustible materials):
  - Aircraft
  - Automobiles
  - Boats
  - Metals
  - Rugs
  - Woodworking
- Group F-2 – Low Hazard – Not a significant fire risk (mostly non-combustible materials):
  - Non-alcoholic beverages
  - Brick & Masonry
  - Ceramic products
  - Glass
  - Gypsum
  - Ice
  - Metal Products (fabrication & assembly)

Group H – Hazardous Occupancies:
- Group H-1: detonation hazard (explosive materials)
- Group H-2: deflagration/accelerated burning (flammable/combustible liquids in use, dusts)
- Group H-3: readily support combustion or pose physical hazard (flammable/combustible liquids in storage, flammable solids, Class 2 or 3 oxidizers)
- Group H-4: health hazards (corrosives, toxic and highly toxic materials)
- Group H-5: semiconductor fabrication

Group I – Institutional:
- Group I-1 (more than 16 persons):
  - Supervised custodial care (assisted living, group homes, congregate care, half-way houses, board & care, Supervised living facilities – Class A-2)
- Group I-2:
  - Hospitals
  - Nursing homes
  - Detox centers
  - Supervised living facilities – Class B-3
- Group I-3: jails, prisons, detention centers
- Group I-4: Adult day services and child day care facilities for 6 or more persons receiving custodial care

Group M – Mercantile:
- Stores
- Retail/wholesale stores
- Sales rooms
- Motor vehicle fuel dispensing (no repairs)

Group R – Residential:
- Group R-1 (transient in nature < 30 days):
  - Hotels/Motels
  - Boarding houses – Congregate living (>10)
  - Lodging house ≥ 6 guest rooms or > 10 occupants
- Group R-2 (Nontransient > 30 days):
  - Apartments – Condominiums
  - Dormitories
  - Congregate living facilities – (> 16)
  - Fraternities and sororities (>16)
  - Convents/Monasteries
- Group R-3:
  - One- & two-family homes
  - Lodging house < 6 rooms or < 10 occupants
  - Boarding houses/Congregate living (< 6)
  - Day care (family & group family) (< 6)
  - Housing w/services/Assisted Living (< 6)
  - Supervised living facilities (A-1 and B-1)
- Group R-4:
  - Supervised residential care (6 –16 people)
  - Housing w/services/Assisted living
  - Treatment facilities
  - Supervised living facilities (A-2 and B-2)

Group S – Storage:
- Group S-1: moderate hazard (combustible):
  - Combustible materials
  - Vehicle repair garages
- Group S-2: low hazard (non-combustible):
  - Metal items
  - Glass, ceramic, food products
  - Parking garages

Group U – Miscellaneous:
- Private garages/Carports
- Agricultural buildings/Barns/Greenhouses
- Fences/Retaining Walls
- Towers/Tanks
- Sheds

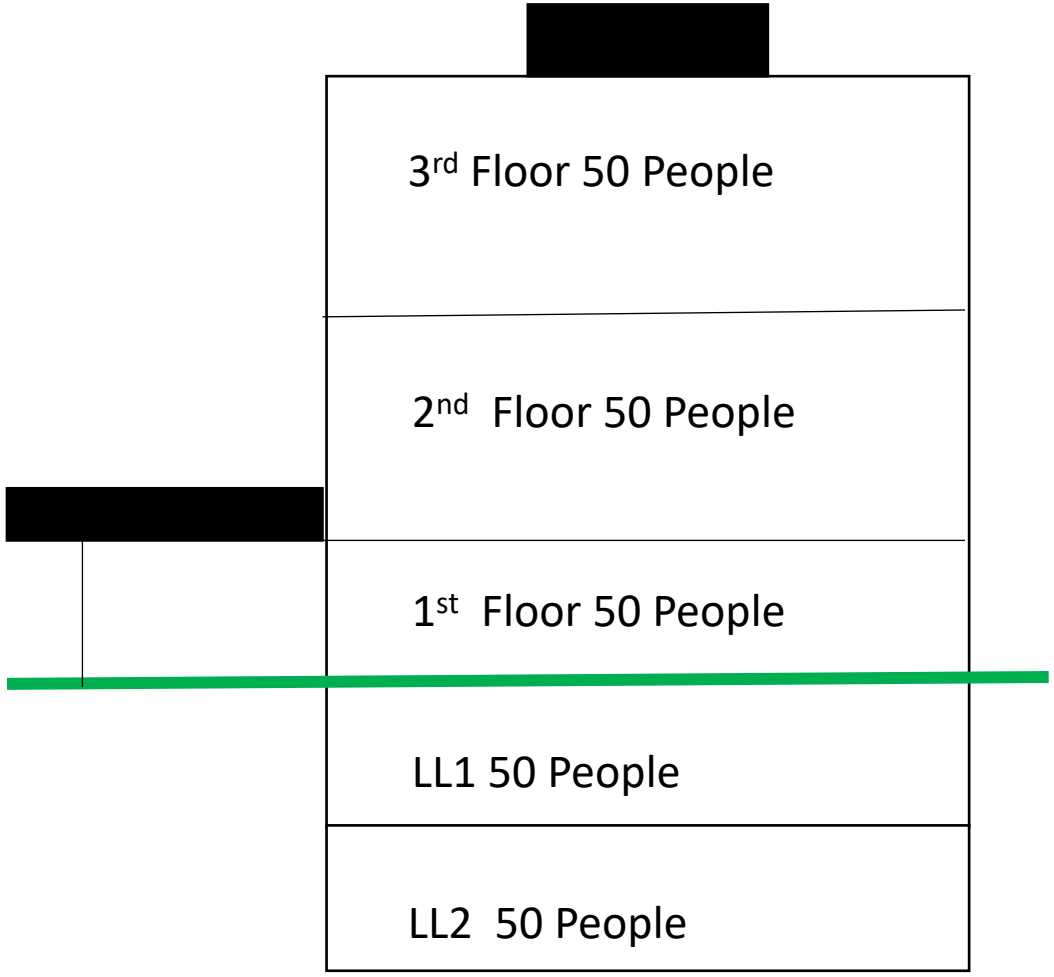
MSFC Chapter 9 B Occupancies

A fire alarm system shall be installed in Group B occupancies when the building has an occupant load of 500 or more persons

MSFC 907.2.1

MSFC Chapter 9 B Occupancies

The building has an occupant load of more than 100 persons above or below the lowest level of exit discharge



MSFC 907.2.1.1

MSFC Chapter 9 B Occupancies

Fire alarm is required in a building that contains an ambulatory care facility

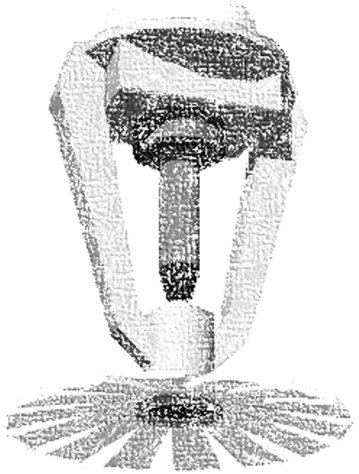
- Smoke detection is required in:
  - Corridors
  - Rooms
  - Areas open to corridors
- When automatic sprinkler systems or smoke detection is installed in ambulatory care facilities they must be tied into the buildings alarm system

MSFC 907.2.2

MSFC Chapter 9 B Occupancies

EXCEPTION

In other than ambulatory care facilities, a fire alarm system is not required when an approved automatic fire-extinguishing system is installed throughout the building.



MSFC Chapter 9 B Occupancies -Initiation

Initiation of the fire alarm system must be done automatically

Fire detectors must be installed in:

- Boiler Rooms
- Furnace Rooms
- Mechanical Rooms
- Electrical Rooms
- Shops
- Kitchens
- Trash Collection Rooms
- Storage Rooms
- Similar Areas

MSFC 907.2.2.1

MSFC Chapter 9 B Occupancies -Initiation

Manual pull stations are not required in Group B occupancies

Pull stations are still required in Ambulatory Care Facilities

MSFC Chapter 9 B Occupancies -Initiation

Activation of the fire alarm system must initiate a general evacuation signal

MSFC 907.2.2.2

MSFC Chapter 9 B Occupancies -Initiation

EXCEPTION

Visible notification appliances shall be permitted to be used in patient care areas instead of audible notification appliances

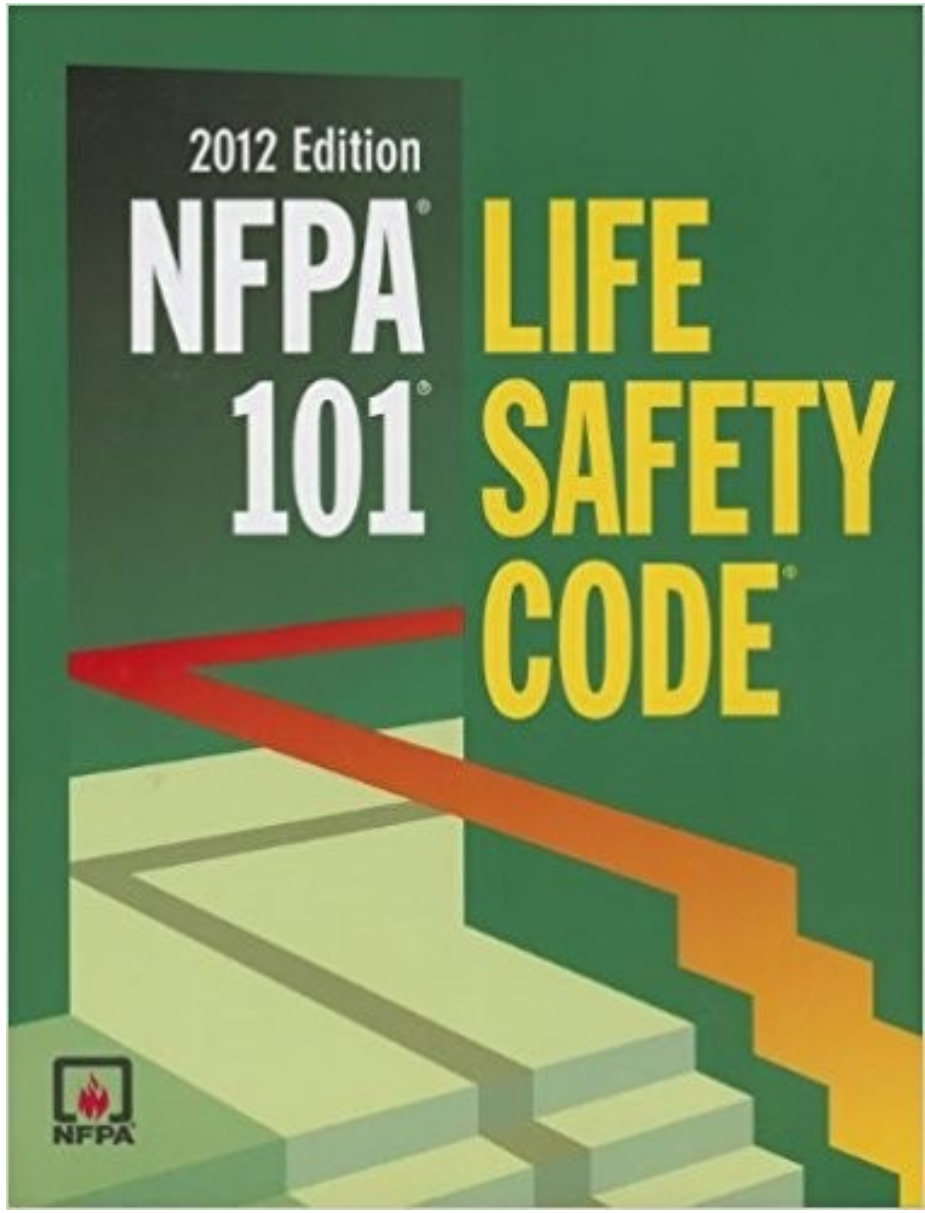
MSFC Chapter 9 B Occupancies -Initiation

EXCEPTION

Visible notification appliances shall be permitted to be used in patient care areas instead of audible notification appliances

l Occupancies -Initiation

- **18.3.4.1 General.** Health care occupancies shall be provided
- with a fire alarm system in accordance with Section 9.6.
- **9.6 Fire Detection, Alarm, and Communications Systems.**



NFPA 101 I Occupancies -Initiation

Fire detectors must be installed in:

- Boiler Rooms
- Furnace Rooms
- Mechanical Rooms
- Electrical Rooms
- Shops
- Kitchens
- Trash Collection Rooms
- Storage Rooms(is it a resident or storage room)
- Hallways
- NOT in Patient or resident rooms (They have nurse call systems)

101-18.3.4.1 &9.6

NFPA 101 I Occupancies -Initiation

Activation of the fire alarm system must initiate a general evacuation signal

GENERAL EVACUATION

101-9.6.3

NFPA 101 I Occupancies -Initiation

Manual pull stations are not required in Group I occupancies

Pull stations are still required in all nurse's stations or other continuously attended areas.

K345 Fire alarm System

Alarm system needs to be tested semi-annually

- **You need a copy of the most current fire alarm test report.**
- **You need a copy of the last sensitivity test that was completed.**

YOUR GUESS - HOW MANY TIMES CITED ?

K345 Fire alarm System

Alarm system needs to be tested semi-annually

- **You need a copy of the most current fire alarm test report.**
- **You need a copy of the last sensitivity test that was completed.**

Cited 48 times . . .

K345 Fire alarm System

Question . . .

Can you dispose of testing / inspection documents older than 3 years?

"Best practice"- retain for life of the system.

… consider archiving > 3 yrs., but still have readily available for review as necessary / requested …

K918 Essential Electrical Systems

K918 Essential Electrical Systems
Lighting for Emergency Generators

QUESTION:

Is it acceptable to use a flashlight as the emergency light?

Light for Emergency Generators

K918 Essential Electrical Systems
Lighting for Emergency Generators

QUESTION:

Is it acceptable to use a flashlight as the emergency light?

ANSWER:

Light for Emergency Generators

NFPA 110-13 7.3.3*

The intensity of illumination in the separate building or room housing the EPS equipment for Level 1 system shall be 32 lux (30 ft. candles), unless otherwise specified by the AHJ

K918 Essential Electrical Systems
Lighting for Emergency Generators

QUESTION - cont.

A Mag light with 2AA batteries has 15.2 lumen and 2952 peak candle power (web site info)

ANSWER:

The AHJ is CMS

- CMS is requiring battery operated lighting

The exception to the section - does not require emergency lighting of the genset if it is outside and non-occupiable. (NFPA 110-12 7.3.1)

K918 Essential Electrical Systems
Lighting for Emergency Generators

QUESTION:

Is the facility's transfer switch required to be lighted by battery operated emergency lighting?

K918 Essential Electrical Systems
Lighting for Emergency Generators

QUESTION:

Is the facility's transfer switch required to be lighted by battery operated emergency lighting?

ANSWER:

The transfer switch is considered EPSS.

The EPS is required to have lighting - not the EPSS.

NFPA 110

Routine maintenance and operational testing shall be based on:

- **Manufacturer's recommended instructions**
- **Instruction manuals**
- **Minimum requirements of NFPA 110 Chapter 8**
- **The Authority Having Jurisdiction**

Consideration shall be given to temporarily providing an alternate source when the emergency generator is out of service

K918 Essential Electrical Systems

Generator Testing

- **A scheduled test under load at least monthly**
- **Shall include a complete simulated cold start and automatic and manual transfer of EES**
- **The tests shall be conducted by competent personnel**
- **The tests are needed to keep the machines ready to function and, in addition, serve to detect causes of malfunction and to train personnel in operating procedures**

K918 Essential Electrical Systems

Written Record shall Include:

- **DATE OF SERVICE**
- **NAME OF THE SERVICING TECHNICIAN**
- **SUMMARY OF CONDITIONS NOTED**
- **DETAILED DESCRIPTION OF ANY CONDITIONS REQUIRING CORRECTION AND WHAT CORRECTIVE ACTION WAS TAKEN**
- **TESTING OF ANY REPAIR AS RECOMMENDED BY MANUFACTURER**
- **RECORDS SHALL BE KEPT ON THE PREMISES**
- **BE AVAILABLE FOR INSPECTION BY THE FIRE CODE OFFICIAL**

K918 Essential Electrical Systems Emergency

Generator Inspections (code appendix)

- Prime Mover (engine)
- General Inspection
- Fuel & Fuel Tank Level
- Inspect for and remove water in fuel
- Inspect Float Switch
- Inspect Transfer Pump Operation
- Inspect Solenoid Valve Operation
- Inspect Flexible hoses and connections

EMERGENCY GENERATOR INSPECTIONS

- LUBRICATION OIL
- CHECK OIL LEVEL & OIL HEATER
- CHECK COOLING SYSTEM & COOLANT LEVEL
- CHECK ADEQUATE COOLING WATER TO HEAT EXCHANGER
- CHECK ADEQUATE FRESH AIR THROUGH RADIATOR
- INSPECT WATER PUMP
- INSPECT FLEXIBLE HOSES AND CONNECTIONS
- INSPECT EXHAUST
- INSPECT AND CHECK FOR LEAKAGE
- CHECK DRAIN CONDENSATION (TRAP)

Emergency Generator Inspections

- Check batteries
- check electrolyte level (if not maintenance free)
- Check electrical system
- conduct general inspection
- inspect and clean general condition of EPSS
- check for vibration, leakage, noise, temperature or deterioration
- inspect and clean service room
- check that system is in automatic condition

K918 Essential Electrical Systems

Emergency Generator Inspections

- Monthly in Addition to weekly
  - Inspect Fan Belt
  - Inspect and Clean Battery Case
  - Inspect Charge and rate
  - Inspect Equalize Charger
  - Inspect Alternator Belt
  - Inspect Governor Oil level and linkage

K918 Essential Electrical Systems
Emergency Generator Testing - per NFPA 110 8.4

Monthly

- **Run at least 30 minutes under load**

K918 Essential Electrical Systems
Emergency Generator Testing - per NFPA 110 8.4

Monthly

- Run at least 30 minutes under load
- **Under operating temperature conditions and not less than 30% of the EPS nameplate rating OR (Diesel)**

K918 Essential Electrical Systems
Emergency Generator Testing - per NFPA 110 8.4

Monthly

- Run at least 30 minutes under load
- Under operating temperature conditions and not less than 30% of the EPS nameplate rating OR (Diesel)
- **Loading that maintains the minimum exhaust temp. recommended by the manufacturer (Diesel)**

K918 Essential Electrical Systems
Emergency Generator Testing - per NFPA 110 8.4

Monthly

- Run at least 30 minutes under load
- Under operating temperature conditions and not less than 30% of the EPS nameplate rating OR (Diesel)
- Loading that maintains the minimum exhaust temp. recommended by the manufacturer (Diesel)
- **Diesel-powered EPS that cannot achieve 30% loads monthly can conduct an annual load test where they must achieve 50% load for 30 continuous minutes and 75% for 60 continuous minutes, with no less that 90 continuous minutes.**

K918 Essential Electrical Systems
Emergency Generator Testing

Document

- **Date**
- **Name of staff conducting test**
- **Start time**
- **Time to take over load (10 seconds max)**
- **Gauge readings including**
- **engine temp, oil pressure, amps**
- **Stop Time**
- **Total elapsed time**
- **Percent of generator load capacity during operation**
  - (This is <u>not</u> the percentage of building powered by generator)

K918 Essential Electrical Systems
Emergency Generator Testing

Question . . .

Is there a standard that says we need to write the start and stop time on our monthly generator load test for 30 minutes?

ANSWER:

" YES "

NFPA 110-2012

8.4.2* Diesel generator sets in service shall be exercised at least once monthly, for a minimum of 30 minutes, using one of the following methods:

(1) Loading that maintains the minimum exhaust gas temperatures as recommended by the manufacturer

(2) Under operating temperature conditions and at not less than 30 percent of the EPS nameplate kW rating

K918 Essential Electrical Systems
Special Tools and Spare Parts - per NFPA 110 8.2

- **Special tools and testing devices for routine maintenance shall be available**
- **Replacement parts identified by experience as high mortality items shall be maintained in a secure location(s) on the premises**
- **Consideration shall be given to stocking spare parts, recommended by the manufacturer**

K918 Essential Electrical Systems
Transfer Switches

- **Transfer switches shall be inspected, tested, and have a maintenance schedule**
- **Transfer switches shall be maintained free from accumulated dust and dirt**
- **Inspection shall include examination of the transfer switch contacts for evidence of deterioration**

Transfer Switches - Inspections
NFPA 110 8.3.5

Shall include:

- Checking of connections
- Inspection for evidence of overheating
- Inspection for evidence of excessive contact erosion
- Removal of dust and dirt
- Replacement of contacts when required

K918 Essential Electrical Systems
Transfer Switches - Testing

- **Transfer switches shall be operated monthly**
- **Switches electrically operated from auto to on and back to auto positions**
- **Main breakers and feeder breakers tested annually with EPS off**

K918 Essential Electrical Systems
Manuals - per NFPA 110 8.2

Two sets of instruction manuals shall be supplied and shall contain the following:

- A detailed explanation of the EPSS's operation
- Instructions for routine maintenance
- Instructions for repair of the EPS and the EPSS
- An illustrated parts list and part numbers
- Illustrated and schematic drawings of electrical wiring including operating and safety devices, control panels, instrumentation, and annunciators

Manuals

For Level 1 systems:

- Instruction manuals shall be kept in a secure, convenient location
- One set near the equipment
- The other in a separate location

K918 Emergency Shut Down Button per NFPA 110 5.6.5.6

"Observation during the inspection revealed there is no emergency stop button located remotely from the prime mover".

NFPA 110 5.6.5.6

- **All installations shall have a remote manual stop station**
  - To prevent inadvertent or unintentional operation located
  - Outside the room housing the prime mover, where so installed -or-
  - Elsewhere on the premises where the prime mover is located outside the building.

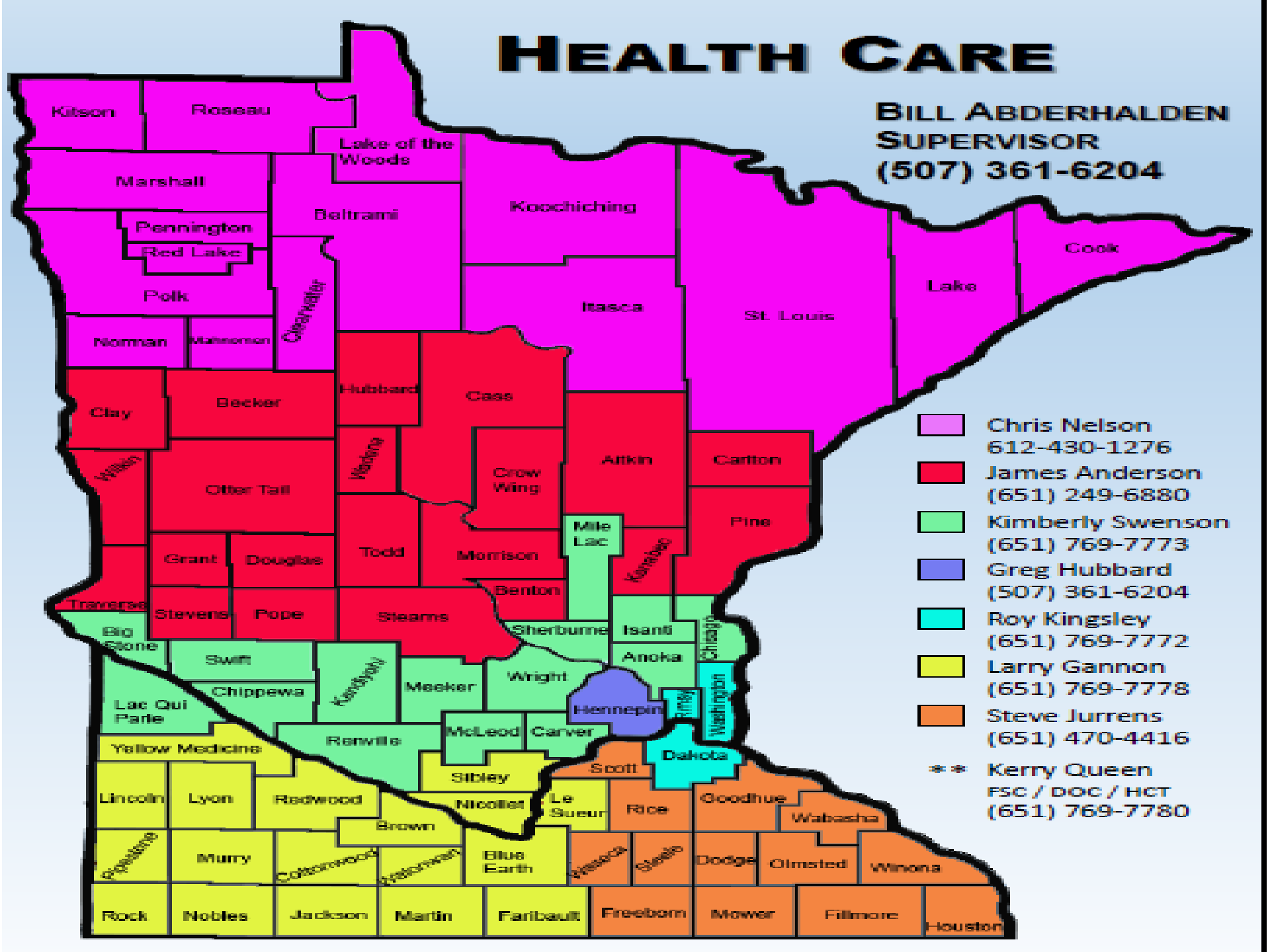
K918 Essential Electrical Systems

YOUR GUESS - HOW MANY TIMES CITED ?

K918 Essential Electrical Systems

Cited 48 times . . .

NEW


HEALTH CARE
BILL ABDERHALDEN
SUPERVISOR
(507) 361-6204
Kittson
Roseau
Lake of the Woods
Marshall
Beltrami
Koochiching
Pennington
Red Lake
Polk
Clearwater
Itasca
St. Louis
Lake
Cook
Norman
Mahnomen
Hubbard
Cass
Clay
Becker
Wilkin
Otter Tail
Wadena
Crow Wing
Aitkin
Carlton
Pine
Mille Lac
Kanabec
Grant
Douglas
Todd
Morrison
Benton
Traverse
Stevens
Pope
Stearns
Sherburne
Isanti
Chisago
Big Stone
Swift
Anoka
Kandiyohi
Meeker
Wright
Chippewa
Lac Qui Parle
Hennepin
Pinky
Washington
Renville
McLeod
Carver
Yellow Medicine
Dakota
Scott
Sibley
Lincoln
Lyon
Redwood
Nicollet
Le Sueur
Rice
Goodhue
Brown
Wabasha
Pipestone
Murry
Cottonwood
Watonwan
Blue Earth
Waseca
Steele
Dodge
Olmsted
Winona
Rock
Nobles
Jackson
Martin
Faribault
Freeborn
Mower
Fillmore
Houston
Chris Nelson
612-430-1276
James Anderson
(651) 249-6880
Kimberly Swenson
(651) 769-7773
Greg Hubbard
(507) 361-6204
Roy Kingsley
(651) 769-7772
Larry Gannon
(651) 769-7778
Steve Jurrens
(651) 470-4416
** Kerry Queen
FSC / DOC / HCT
(651) 769-7780

Thank you

MINNESOTA STATE FIRE MARSHAL DIVISION

445 Minnesota Street; Suite 145 Saint Paul, MN 55101

Website: https://sfm.dps.mn.gov

Phone: (651) 201-7200