



Fire Alarm Systems Level II Exam Blueprint

2.1 Submittal Preparation & Layout Tasks = 17% of exam

2.1.1 Apply project requirements to known occupancy type

- Read and identify common code requirements
- Communicate w/ supervisor to answer questions
- Apply project requirements to known occupancy type

2.1.2 Apply contractual criteria to projects

- Read and interpret project specifications
- Prepare drawings
- Communicate with supervisor to answer questions
- Apply steps in acceptance of materials, components, and devices
- Demonstrate familiarity with architectural, mechanical, electrical, structural & site plans

2.1.3 Coordinate with client on-site

- Read project specifications and determine basic scope of work
- Relay information pertaining to project specifications

2.1.4 Verify site conditions for system application

- Collect information and verify floor plans
- Apply codes and standards using correct terminology
- Inspect installation sites and study work orders, building plans, and installation manuals in order to determine materials requirements and installation procedures

2.1.5 Assist in creation of shop drawing

- Apply standards under supervision
- Perform basic calculations
- Demonstrate good drafting techniques using standard design symbols
- Prepare simple layouts to standard
- Calculate quantity and number of fire detection devices required
- Prepare materials lists from project specifications

2.1.6 Calculate power/battery and other requirements as requested

- Perform required calculations (battery calculations, electricity and voltage drop)
- Calculate system overcurrent protection





2.1.7 Identify codes and standards

- Find appropriate codes and standards as required by specific project or scope or work
- Follow correct steps in acceptance of materials, components, and devices
- Recognize role of testing laboratories
- Recognize methods for review and testing of fire alarm signaling equipment
- Recognize and interpret principles and requirements of standards (system alarm initiating devices, system control functions, fire suppression systems)
- Understand utilization of NRTL (Nationally recognized testing laboratories)

2.2 Installation Tasks = 32% of exam

2.2.1 Read plans

- Review plans applicable to the fire alarm system, including any changes, modifications, or special conditions and requirements that exist for the project
- Recognize the full scope of work and impact on project
- Identify all types of new and existing fire alarm equipment and initiating devices
- Recognize relationships among construction industry construction industry trades, such as architectural, mechanical, electrical, and structural
- Interpret other trades' site plans
- Recognize construction symbols and terminology
- Determine location of structural obstructions and mechanical systems

2.2.2 Apply installation strategy on-site

- Coordinate contract with project manager
- Communicate site conditions to supervisor during project
- Install manual fire alarm boxes, automatic fire detection devices, audible signaling appliances, visible signaling appliances, and annunciators
- Install detectors and fire alarm signaling systems
- Define types of fire alarm signaling systems
- Define operation and determine differences between noncoded, zone noncoded, coded, master coded, march time coded, zone coded, selective coded, voice alarm communication and evacuation
- Mount and fasten control panels, and perform functional terminations for electrical and initiation and NAC circuits, and telephone wiring in order to connect components
- Recognize names and functions of fire alarm systems (including cabling requirements, initiating devices, control functions, alarm indicating appliance, type of power required, signaling services and automatic detectors in use)
- Use standard plans and specifications of jobs to identify dimensions, type of materials, elevations, and locations
- Feed cables through access holes, roof spaces, and cavity walls to reach fixture outlets; then position and terminate cables, wires and strapping
- Mount and fasten control panels, fire alarm boxes, audible signaling devices, and attach electrical and telephone wiring in order to connect components
- Properly use mounting devices





2.2.3 Accept materials

- Coordinate ordering schedule with other trades or projects
- Communicate with supervisor need for materials
- Confirm delivery of materials (receiving and inventory)
- Direct storage of delivered materials, on-site and off-site
- Assure quality control process is followed from order placement to installation of equipment

2.2.4 Properly install fire alarm system components

- Apply relevant codes and standards
- Apply conduit terminology
- Implement and execute plans for pulling cables, mounting devices, running conduit installation
- Calculate proper wire size
- Calculate proper conduit size
- Differentiate types of fire alarm systems (including electrical requirements, initiating devices, control functions, alarm indicating appliance, power requirements, signaling services and automatic detectors in use)

2.2.5 Start up the system and perform acceptance test

- Define checklist criteria
- Perform pre-power up checklist
- Use diagnostic tools, such as Ohmmeter, VOM, computer programs, to confirm power-up and operation of system components
- Follow manufacturers' specifications
- Monitor functionality and response of fire alarm system components

2.2.6 Use computer applications to program system

- Understand manufacturer's specifications for computer software programming
- Perform site-specific programming
- Perform acceptance and reacceptance testing after programming
- Follow and correct processing of alarm signals originating in alarm, through control panel to operate notification devices, correct operation of interfaced equipment and building systems
- Read basic schematics of coded and non-coded systems
- Use programming tools to adjust sensitivity of units based on information provided in project specifications or by AHJ





2.2.7 Troubleshoot system

- Perform equipment & circuit testing
- Use basic electrical and electronic tests for circuitry and component function
- Operate system controls
- Identify and correct fire alarm system troubles
- Test and inspect system to identify inoperable/undependable components
- Know characteristics of field service components
- Use industry manufacturer's specifications for cleaning, checking, operating, adjusting system and/or components for continuing, maximum operability
- Use diagnostic tools such as Ohmmeter, VOM and computer programs

2.2.8 Identify and report on-site scheduling conflicts

- Establish communication with all project trades

2.2.9 Perform system commissioning

- Implement established commissioning procedures

2.2.10 Compile test completion data

- Provide content of test results in legible, industry format
- Provide test results per fire codes standards/guidelines
- Identify code deficiencies; inform owner/AHJ in writing

2.2.11 Create as-builts

- Prepare as-built documentation
- Maintain site records
- Perform mark-ups on drawings on-site
- Use correct symbols and techniques

2.2.12 Train customer/end user

- Articulate all pertinent training that needs to be learned by the customer/end user for the fire alarm system in accordance with the equipment manufacturer's specifications, and the AHJ, including approval authorities, location of system components, care and maintenance procedures
- Post instructions for the fire alarm system
- Document end user training
- Use appropriate communication format

2.2.13 Apply fire-stopping practices

- Use fire-stopping concepts in areas such as fire doors, fire walls, partitions, etc.
- Apply fire-stopping for wire penetration through walls and floors
- Implement required documentation of fire-stopping installation, sign off and AHJ approval





2.2.14 Ensure worksite safety

- Employ proven methodologies that minimize worksite accidents
- Employ specific safety standards and requirements
- Verify electrical safety at the project
- Observe proper worksite safety practices
- Perform safety inspections in industrial, manufacturing or repair setting
- Prepare proper documentation
- Complete industry accepted report formats

2.3 Maintenance Tasks = 24% of exam

2.3.1 Follow applicable maintenance standards and procedures

- Verify equipment calibration
- Operate specialized test equipment
- Document results of tests
- Identify potential problems or failures and refer to supervisor
- Notify appropriate parties if impairments are revealed
- Recognize the NEC and its application to fire alarm systems
- Notify AHJ when system is impaired

2.3.2 Troubleshoot and repair system faults

- Reason analytically
- Perform periodic equipment & circuit testing according to standards and/or manufacturer's specifications
- Use basic electrical and electronic tests for circuitry and component function
- Operate system controls
- Identify and correct troubles in the fire alarm system
- Identify potential issues and refer to supervisor
- Determine requirements and procedures for conducting tests per manufacturer's published instructions

2.3.3 Document procedures

- Prepare technical report
- Use industry accepted report formats and symbols

2.4 Education/Communication Tasks = 15% of exam

2.4.1 Train and mentor Level I co-workers

- Communicate standard business practices to subordinates
- Convey Codes/Standards Requirements to subordinates

2.5 Management/Supervision Tasks = 12% of exam





2.5.1 Manage simultaneous projects on-site

- Coordinate project tasks
- Prioritize and communicate schedule to all stakeholders
- Gather pertinent MSDS information and ensure that all safety/OSHA regulations are adhered to

2.5.2 Manage on-site manpower

- Coordinate tasking with staff on-site
- Communicate with on-site personnel
- Communicate manpower needs to supervisor
- Coordinate project timing and scheduling

2.5.3 Oversee technical aspects of job on-site

- Operate computer (hardware/software)
- Communicate with supervisor(s)
- Recognize issues needing resolution
- Understand and know the scope of work

2.5.4 Identify and report personnel issues

- Identify on-site personnel issues
- Recommend action to immediate supervisor

2.5.5 Observe rules promoting safe work environment

- Distinguish between safe and unsafe practices
- Instruct subordinates in maintaining safe work environment

