



Fire Alarm Systems Level IV Exam Blueprint

4.1 Submittal Preparation & Layout Tasks = 26% of exam

4.1.1 Define occupancy and project requirements

Demonstrate expert knowledge and application of codes, standards
Consult w/stakeholders to provide expert knowledge of fire detection and signaling systems

4.1.2 Determine or approve contractual criteria

Ensure compliance with the AHJ and applicable fire and life safety code requirements
Review plans for special environmental conditions
Ensure deficiencies are documented along with any alternate/correct designs
Negotiate final contract
Identify in writing any inclusions or exclusions

4.1.3 Coordinate with client stakeholders

Communicate project requirements with stakeholders
Apply the code and standard requirements to proper fire alarm system design, installation, and testing
Coordinate documentation with client
Perform plan review with AHJ for compliance

4.1.4 Coordinate with design stakeholders

Address role of Architect & Engineer & Construction Manager
Negotiate schedule for on-time, on-budget project

4.1.5 Resolve site visit findings

Coordinate with owner/end user/AHJ/client, etc
Apply occupancy types, codes, and standards to site visit for the proper criteria of fire alarm system application, design, installation, and testing
Apply the equipment manufacturer specifications to site visit and findings
Apply system limitations to site visit and findings
Identify potential life safety risks in the premises and in fuel loads
Prepare written report identifying AHJ, applicable codes, existing equipment, estimated construction costs, required permits, fees, scope of project and time of project

4.1.6 Confirm identity of AHJ or other authority

Verify and confirm identity of the AHJ or other authority for proposed scope of work
Determine AHJ's interpretation and apply to project
Resolve code variance issues with governing authorities or approval agencies
Where applicable, provide formal request to AHJ for granting a code variance





4.1.7 Review and approve shop drawing

- Review plan for compliance with the jurisdictions' applicable fire and life safety code requirements
- Review plan for compliance with project specifications and drawings
- Review and verify fire detection and signaling system architecture
- Communicate effectively with CAD operator to complete shop drawings
- Prepare final documents including all changes and modifications to system(s)
- Lay out evacuation system to assure adequate notification and direction of occupants
- Determine proper location of devices to optimize avoidance of nuisance alarms
- Use recognized business practices
- Research equipment specifications

4.1.8 Use results of power/battery calculations and system requirements

- Confirm and verify power requirements for optimal equipment use in accordance with adopted building and fire codes and standards
- Apply Ohm's law and Kirschoff's law
- Apply calculations to ensure compliance with adopted building and fire codes and standards and AHJ guidelines

4.1.9 Read Specifications and drawings

- Apply expert knowledge of adopted building codes and fire alarm standards to shop drawings for installation
- Review plans for compliance with the jurisdictions applicable fire and life safety code requirements to ascertain system or equipment connections
- Interpret manufacturer's specifications for system-wide operation
- Read and explain intent of specifications
- Resolve discrepancies
- Approve drawing conventions

4.1.10 Interpret codes and standards

- Ensure that plan complies with the jurisdiction's applicable fire and life safety code requirements
- Communicate with stakeholders and AHJ to confirm compliance
- Document any and all changes

4.1.11 Write/issue technical reports

- Ensure that plans comply with the jurisdiction's applicable fire and life safety code requirements
- Document any and all changes
- Apply expert communication protocols in the dissemination of correspondence

4.1.12 Confirm legal authority

- Conform to legislated requirements of local, state and federal regulations
- Confirm and resolve project conditions





4.1.13 Approve project schedule

- Confirm schedule and document completion
- Approve project schedule
- Negotiate schedule to make sure all constraints are met (for on-time, on-budget project)

4.2 Installation Tasks = 23% of exam

4.2.1 Approve installation strategy

- Coordinate and resolve design conflicts and related special circumstances
- Determine design features needed for severe environment (include unheated structures, structures subject to vandalism and/or physical abuse, structures subject to high humidity, corrosive or salty atmospheres)
- Define methods to increase reliability and survivability (taking into account location of equipment, physical protection of system and components, proper wiring methods)
- Perform hazard analysis to identify threats, including nuisance alarms
- Select alarm equipment to deploy against threat

4.2.2 Approve purchase order

- Determine material needs
- Issue purchase order
- Resolve major exceptions

4.2.3 Review resolution of on-site scheduling conflicts

- Recognize liability and its application to performance and payment bonds, liquidated damages, hold harmless clauses, insurance coverage
- Negotiate procedure so as to eliminate source(s) of conflict
- Document conflicts, resolution and any third party assistance or intervention

4.2.4 Develop written policies & procedures for conflicts

- Determine need for conflict resolution policies

4.2.5 Review and approve as-builts

- Use standard industry practices
- Distribute completed as-built to authorities as needed
- Coordinate with computer aided design (CAD) personnel
- Confirm accuracy of the as-built drawings

4.2.6 Create Schedule of Work with Other Systems and Trades

- Coordinate interface with systems installation of other trades on site
- Coordinate schedule(s) for physical installation

4.3 Maintenance Tasks = 15% of exam





4.3.1 Troubleshoot and repair faults

- Prepare written documentation of issues resolution
- Prepare written rationale for replacement or repair decision
- Confirm that all issues, repairs and replacements have been resolved or corrected

4.4 Education/Communication Tasks = 16% of exam

4.4.1 Train and mentor subordinates

- Communicate standard business practices to subordinates
- Convey codes/standards requirements to subordinates

4.4.2 Educate staff

- Develop training plan based on gap analysis
- Document results of training
- Create evaluation plan
- Provide formal training

4.4.3 Present information verbally and in writing

- Communicate clearly, verbally and in writing, using proper language
- Use appropriate communication format for audience

4.4.4 Educate AHJs/other authorities

- Communicate clearly, verbally and in writing, using proper language
- Clarify, document, and interpret any issues to AHJ/other authority, both verbally and in writing
- Support code interpretations with research
- Provide updates to AHJ on latest technology available

4.4.5 Interpret code language to laymen

- Communicate, both verbally and in writing, ramifications of code adherence/non-adherence to owner, operator, design professionals, AHJs, and other concerned individuals/parties

4.5 Management/Supervision Tasks = 20% of exam

4.5.1 Oversee management of simultaneous projects

- Develop schedule
- Communicate schedule and any changes to all stakeholders
- Coordinate schedule(s) to take advantage of economies of scale
- Establish communication channels with other trades to determine appropriate procedures
- Document change order, field installation changes, project completions





4.5.2 Determine manpower requirements

- Identify scope of work to determine manpower needs
- Analyze labor requirements for each job, applying appropriate time elements and unit cost factors
- Engage required manpower
- Communicate with project leaders
- Document manpower decisions

4.5.3 Review and analyze a bid package

- Articulate clear and coherent plan
- Develop supporting budgetary information
- Assemble team(s) to complete work
- Review and analysis a bid package (including project manual, specifications, contract drawings, addenda, modifications, special instructions to bidders)
- Interpret requirements of all local building codes and standards as they apply to project
- Detail and consider all special requirements that may affect cost and company liability (such as bonds, federal and state labor standards, affirmative action, Buy America clauses)
- Identify and resolve conflicts between general specifications, mechanical specifications and fire protection requirements
- Review insurance requirements and effect on project costs

4.5.4 Oversee technical aspects of job

- Document issues and their resolution
- Read and interpret construction schedules, such as critical path
- Separate fire protection project into categories to conform to general construction
- Identify computing needs
- Select and purchase computing equipment

4.5.5 Resolve interpersonal conflict

- Track any conflicts
- Document results of conflicts

4.5.6 Review and document resolution ethics issues

- Review recommended action(s)
- Document actions taken
- Establish communication channels with other trades to report on and conform to regulations (including federal, state and local law, affirmative action, Copeland & Davis-Bacon, payroll affidavits, minority subcontracting, SBA programs, Executive Orders, tax considerations)





4.5.7 Create policies to ensure safe work environment

- Create work environment safety policies
- Create worksite safety policies
- Convene regular safety review meetings
- Document results of those meetings
- Document all cases of safety violations, including resolution
- Determine safety equipment needed for specific site

4.5.8 Develop and document budgets

- Negotiate budget
- Calculate final budget
- Prepare project cost breakouts for billing purposes
- Prepare accurate requisitions
- Compute quantities of materials, applying appropriate standard cost factors
- Compute overhead
- Consider revenue factors, retention and progress payments
- Review punch list items and final job completion with consideration of release of liens
- Negotiate any needed changes to budget
- Document all budget changes
- Get subscriber to acknowledge all changes in writing

