

Fire Alarm Systems Certification

Level IV Content Outline

The skills and knowledge listed under each task are suggestive of those involved in that task, but are not intended to constitute an exhaustive listing.

4.1 Submittal Preparation and Layout Tasks

Questions related to these tasks make up 23 - 28% of the 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 Kirchoff'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

Questions related to these tasks make up 22 - 27% of the 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

Questions related to these tasks make up 13 - 18% of the 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

Questions related to these tasks make up 12 - 17% of the 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

Questions related to these tasks make up 17 - 22% of the 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 Prepare a response to an RFP/RFQ.

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

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