

## FIRE ALARM SYSTEM DESIGN

Miller Consulting Group, LLC provides their clients with detailed designs for fire alarm systems that take into consideration many important criteria. Putting expert knowledge to use, the principal of MCG integrates code considerations with architectural, engineering, and building use factors to design a high quality system that best meets a client's needs for fire alarm and detection. The following outlines MCG's approach to designing a fire alarm system.

- I. Provide a detailed design for fire alarm systems that encompasses the following criteria:
  - A. Architectural Considerations
    1. Height of building and number of stories
    2. Construction type
    3. Use group classification(s)
    4. Specific usage of space
    5. Corridors, hallways, and adjoining rooms
    6. Rated enclosures (shafts and stairwells)
    7. Lobbies, atriums, high ceiling areas
    8. Aesthetic consideration of device placement
    9. Elevator systems
  - B. Mechanical System Considerations
    1. HVAC systems
    2. Fire/smoke damper detection and control
    3. Smoke control systems
  - C. Fire Protection System Considerations
    1. Wet systems
    2. Dry systems
    3. Reaction systems
    4. Clean agent and CO<sub>2</sub> suppression systems
  - D. Authority Having Jurisdiction (AHJ)
    1. ADA compliance
    2. Equivalent facilitation of visual devices
    3. AHJ review of system during building permit application
  - E. Insuring Agency
- II. Design Process
  - A. Review architectural plans with architect based upon criteria from I.A above.
  - B. Review mechanical systems with the mechanical engineer based upon 80% design drawings.
  - C. Review fire protection systems with the Fire Protection Engineer and/or the design/build contractor. If information is not yet available, make conservative allowances for the system integration to the fire alarm system.

- D. Design the fire alarm system consisting of:
  - 1. Devices on floor plan with appropriate notes
  - 2. Project specific riser diagram
  - 3. Functional matrix
  - 4. Project/system specification
  - 5. Details pertinent to the project
  - 6. Device legend (complete and project specific)
  - 7. Written budgetary estimate
- E. Submit to "client" for review and PE stamp
- F. Upon submission of building permit package to AHJ, meet with the AHJ to review system design
- G. Design revision based upon "client"/architect/AHJ input, and submit for construction package

### III. Bid Support

- A. Review and approve/disapprove substitution request
- B. Support questions from vendors and contractors
- C. Issue addendums as necessary for clarification to original scope of work

### IV. Post Bid Review

- A. Review of Data Sheets
  - 1. Make recommendation for approval/disapproval of data sheet submittals based upon compliance with specification and construction drawings. Allow for two (2) submissions of data sheets before item 2 below is initiated.
  - 2. Resubmission of previously disapproved data sheets chargeable at a predetermined hourly rate.
- B. Review of Shop Drawings
  - 1. Make recommendation for approval/disapproval of shop drawing submittals based upon compliance with specification and construction drawings. Allow for two (2) submissions of shop drawings before item 2 below is initiated.
  - 2. Resubmission of previously disapproved shop drawings chargeable at a predetermined hourly rate.
- C. Review of Vendor/Contractor's Acceptance Test Procedure prior to system commissioning.
- D. Review of Vendor/Contractor's NFPA 72 Certificate of Completion

### V. Other Services Available

- A. Represent owner as qualified entity to witness fire alarm system acceptance testing, and sign off for owner
- B. Evaluation of existing systems
  - 1. For interface to new system
  - 2. For integration to new system
  - 3. For reusable components with new system
  - 4. For compliance with current codes and ADA requirements.
- C. Provide as-built drawings for existing systems (requires extensive onsite work with electrician and/or technician)