

# DESIGN AND CONSTRUCTION GUIDELINES AND STANDARDS

DIVISION • 28 ELECTRONIC SAFETY AND SECURITY

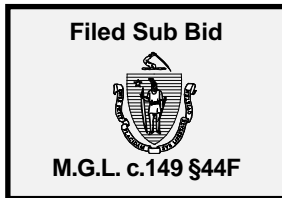
## 28 00 00 • ELECTRONIC SAFETY AND SECURITY

### SECTION INCLUDES

Service Connections  
Wiring  
Telephone  
Cable TV  
Fire Alarm  
CO Detection  
Intercom

### RELATED SECTIONS

23 00 00 Heating, Ventilation & Air Conditioning  
26 00 00 Electrical



*The work covered by this section should be part of the Electrical work which is a stipulated filed sub-bid category under M.G.L. Chapter 149, §44F. If the total project amount exceeds \$100,000 and the cumulative estimated value of all Electrical and Electronic Safety work exceeds \$20,000 it triggers the filed sub-bid requirement. It may be better to specify Electrical and Electronic Safety and Security in a single section to avoid confusion.*

### SERVICE CONNECTIONS

#### DESIGN

Coordinate the design with the local utility companies (telephone, cable television) prior to finalizing bidding documents.

Provide a common mounting panel for the service connections to the building(s).

#### EXECUTION

The Contractor is responsible for coordination of utilities, including installation and scheduling. Coordinate Contract Documents accordingly.

All local utility connection fees should be billed to the housing authority that will pay the utilities directly.

Provide spare conduit where utilities cross roads and paving to make future installation easier.

### WIRING

#### DESIGN

Service entrances should be coordinated so that the all utilities enter the building from the same location.

### TELEPHONE

Telephone cable shall be a minimum Category 5, 4 pair, copper 24 AWG jacketed cable. Now that new products such as fiber optic phone service are available, consult with the telephone company as required.

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When the telephone system is being upgraded as part of a full electrical upgrade, make provisions for the cases where there may be more than one telephone service provider and that a tenant may have more than one phone line to their unit.

Provide one telephone jack in the living room and one in each of the bedrooms. Provide one wall mounted phone jack in the kitchen.

### CABLE TV

TV cable shall be dual RF-6 Quad Shield coaxial cable. Consult with the cable TV company as required.

When the cable TV system is being upgraded as part of a full electrical upgrade, make provisions for the cases where there may be more than one cable TV service provider.

Provide one cable TV jack in the living room and one in each of the bedrooms.

### FIRE ALARM

#### DESIGN

The precise configuration of the fire alarm system will be determined by the requirements of the various codes and regulations, including:

- Building Code 780 CMR
- NFPA 72, MGL c.148 §26B-26E
- Board of Fire Prevention Regulations 527 CMR 24.00

The requirements of the local fire department and building inspector should always be solicited and considered. The consultant should not commit to any features which exceed that required by code without discussing with the LHA and DHCD and receiving approval.

Avoid systems and equipment that can only be serviced by the original manufacturer's service organization. Replacement parts should be available to independent service contractors. Systems whose components are interchangeable with other manufacturer's components offer the most flexibility to the LHA for repairs and service.

Include removal of old equipment with the installation of new equipment. Never leave existing inactive equipment in place. The existing Fire Alarm system shall remain active until the new Fire Alarm system is tested and accepted.

Include hardwired carbon monoxide detectors into fire alarm upgrades.

Many cities and towns are changing from a master box on a municipal loop to radio controlled master box. When new fire alarm control panels are being installed confirm with the fire department the type of master box required.

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As a minimum, fire alarm systems should include the following:

- Whenever installing completely new fire alarm systems, the new system shall be addressable. Consult with the fire department in naming points for the addressable system.
- Every dwelling unit should be provided with 120v, hard-wired, interconnected smoke detectors inside each bedroom and immediately outside the sleeping areas. As an alternative, system-connected smoke detectors are acceptable if they are mounted on sounder bases and configured to activate a local alarm only. Confirm this approach with the fire department and local inspector.
- In multi-level units, e.g. townhouse apartments, interconnected smoke detectors should be provided on each level of occupancy.
- In buildings required to have fire alarm systems, system-connected heat detectors are required within six feet of the unit entrance door *only* if the unit entrance opens to a common corridor. These heat detectors are not required in buildings where the dwelling units are equipped with residential sprinklers that when activated will activate the fire protective signaling system.
- In buildings required to have fire alarm systems, system-connected smoke detectors are required in lobbies, common hallways and stairways.
- Manual pull stations are *only* required in buildings with 13 or more units, or four or more stories in height regardless of the number of units or more than one story below the highest level of exit discharge of exits serving the dwelling units.
- Fire department notification is *only* required in buildings with 13 or more units. For fire alarm systems in elderly developments, however, DHCD requires fire department notification regardless of the number of units.
- In multi-unit elderly developments provide mini-horn/strobe in each unit in order to ensure audibility requirements are satisfied.
- In units for the hearing impaired (5% of the units) provide additional system annunciation in the bathroom and living room of each unit and provide integral strobes on the local smoke detectors. All handicapped units must also have this additional annunciation.
- In DDS or DMH buildings, provide a full fire alarm system with Fire Department notification. These buildings shall also be fully sprinklered.
- For developments for the elderly, provide a full fire alarm system with fire department notification regardless of the number of units in the building or whether the units exit directly to the exterior or an interior corridor. In ranch style 667s with front and rear egress directly to the outdoors, a minimum of one system connected heat detector shall be provided within 6 feet of either the front or rear egress doors.
- Beacons should also be provided on the exterior of each building within sight of approaching fire apparatus.

In developments for the elderly emergency call systems are sometimes interconnected with the fire alarm system. When a fire alarm system upgrade is

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done at one of these developments, the emergency call system interconnection shall be maintained unless the local fire department or authority having jurisdiction grants approval for the segregation of the emergency call system from the fire alarm system.

### EXECUTION

Every reasonable effort should be extended to conceal wiring. Where wiring cannot be concealed, it should be installed in surface metal raceways (e.g. Wiremold) within the building.

Conduit installed outside the building should be provided with water-tight fittings. Buried conduit should be PVC.

Fire alarm panels or remote annunciators should be located at the main entrance to the office or community building, whichever is appropriate. Confirm location with the local fire department.

## CO DETECTION

### DESIGN

The precise configuration of the CO detection system will be determined by the requirements of the various codes and regulations, including:

- 527 CMR 31.00
- NFPA-54 section 10.8.3

The requirements of the local fire department should always be solicited and considered. All recommendations that exceed code requirements, whether initiated by the fire department, designer or others, must be discussed with the LHA and DHCD prior to incorporation into the scope of the project.

## INTERCOM

### DESIGN

Intercom entry systems installed are generally the conventional type with a vandal proof intercom entry panel located at the front door only and an apartment station located in each apartment. Alternatively, telephone entry systems are also available. Prior to installing a telephone entry system, fully investigate the advantages and disadvantages of the telephone entry systems and related costs.

If a lobby video camera exists at the front entrance, replacement of a non functional video camera should be done coincident with the intercom replacement.

Installation of video systems may be considered where security has been a problem.

Every reasonable effort should be extended to conceal wiring. Where wiring cannot be concealed, with prior LHA and DHCD approval, design the system to be installed in surface metal raceways (e.g. Wiremold) within the building. The Designer should also consider the use of a wireless intercom system.