

DESIGN GUIDELINES

INTRODUCTION

This section of the Needs Assessment defines specific design requirements for this project that are related to space needs and project costs. These design guidelines will address general requirements for the buildings, including site requirements, and specific requirements for each component or entity comprising the buildings in this project.

These guidelines are written with the assumption that this project will consist of two separate buildings. One building will be the Fire Department Building and the other building will be the Public Safety Building. Components or entities of each of these building are:

FIRE DEPARTMENT BUILDING

- Lincoln Hose Company
- Hook and Ladder Company
- Rescue Squad
- Maintenance

PUBLIC SAFETY BUILDING

- Somerville Police Department
- Municipal Court
- Violations Department

These guidelines will address site issues, architectural, structural, mechanical and electrical design issues, and will include guidelines for each building and each space within each building.

SITE REQUIREMENTS - FIRE DEPARTMENT BUILDING

1. Parking Security. It is recommended that the site design provide two levels of security for vehicle parking. These security levels are as follows:
 - a. Level 1, Unsecured. This would be for visitor and staff parking, and should allow visitors and staff to enter and leave the parking area without security barriers.
 - b. Level 2, Partially Secured. This parking area should be fenced, and would be used by people having business at the facility. Access to shipping/receiving, dumpster removal, and other vendors requiring access. Access to this parking area may be through the Level 1 parking area. It is considered “partially” secured, because it should be gated, with the gate left open during working hours, and locked after hours. This parking area would also be used to park vehicles overnight that will not be parked inside the building, which will include at least two vehicles for the Maintenance Unit.
2. Site Access. The site should be designed to allow fire and rescue apparatus to enter the site, drive to the rear of the building, enter the rear of the apparatus bays, and exit from the front of the apparatus bays. Two means of access to the site will not be required since, as a worst case, apparatus could back into the front of the vehicle bays in the event that the site access is blocked due to traffic accidents, street maintenance, acts of sabotage, or other reasons.
3. Site Lighting. Although the facility will not be occupied 24-hours per day, adequate lighting should be provided throughout the site to deter vandalism and help maintain security. All areas of the site, not only the parking areas, should be well lighted. Wall washes should be used on the exterior of the building, and path lighting should be provided.
4. Radiant Heat Concrete Pads. Concrete pads on exterior of building should be designed with radiant heat coils for snow melting.

SITE REQUIREMENTS - PUBLIC SAFETY BUILDING

1. Parking Security. It is recommended that the site design provide four levels of security for vehicle parking. These security levels are as follows:
 - a. Level 1, Unsecured. This would be for visitor and staff parking, and should allow visitors and staff to enter and leave the parking area without security barriers.
 - b. Level 2, Partially Secured. This parking area should be fenced, and would be used by people having business at the facility. Access to shipping/receiving, dumpster removal, and other vendors requiring access. Access to this parking area may be through the Level 1 parking area. It is considered “partially” secured, because it should be gated, with the gate left open during working hours, and locked after hours.
 - c. Level 3, Secured. The police motor court should be considered Level 3 parking. This should be used for patrol vehicles, parking for detectives, and parking for other special police vehicles, such as SWAT, bomb squad, and crime scene vehicles. Sally port access should be gained from within the Level 3 parking. Judges and Municipal Court staff should also park in a Level 3 parking area, although separate from the police motor court. Level 3 parking should be in a fenced enclosure, secured 24 hours per day, and with controlled access, such as an electronic proximity access device.

- d. Level 4, Secured and Monitored. Vehicles or other large items, such as boats or trailers, which have been impounded as evidence should be stored in this area. It should include a security fence with limited access, and should be electronically monitored with security devices such as closed circuit television (CCTV) and/or intrusion detection.
2. Site Access. This portion of the site should be designed with access provided from at least two separate locations. This is required in order to ensure access to the site despite potential traffic accidents, street maintenance, or acts of sabotage, and also to maximize the free flow of traffic to and from the site.
3. Site Lighting. The building should be well lighted 24-hours per day. Adequate lighting should be provided throughout the site to deter vandalism and help maintain security. All areas of the site, not only the parking areas, should be well lighted. Wall washes should be used on the exterior of the building, and path lighting should be provided.
4. Landscaping. Landscaping should be designed to enhance security. Dense shrubbery should be avoided within 10 feet of the building, large clusters of high shrubbery should be avoided throughout the site, and tall evergreens with branches lower than 5 feet above grade should not be used. Landscaping should be designed to prevent someone from hiding on the site until after dark, or planting explosives near the building.

GENERAL BUILDING DESIGN REQUIREMENTS - FIRE DEPARTMENT BUILDING

1. Essential Facility. The building Fire Department Building should be designed structurally and architecturally to meet essential facility requirements in accordance with applicable building codes and ordinances.
2. Exterior Walls. Exterior wall materials should be durable and compatible with local environmental conditions.
3. Access System. Standard keyed access devices are satisfactory for most of the spaces in this building. Overhead access doors for apparatus at the rear of the building should be remote controlled from the apparatus, in addition to local control. Overhead exit doors for apparatus in the front of the building shall be either automatically or manually controlled from the fire and rescue dispatch center, in addition to local control.
4. Emergency Power. In the event of a primary power source failure an emergency generator should be installed to provide 100% power and lighting for this entire building.

GENERAL BUILDING DESIGN REQUIREMENTS - PUBLIC SAFETY BUILDING

1. Essential Facility. The building Police Department portion of the building should be designed structurally and architecturally to meet essential facility requirements in accordance with applicable building codes and ordinances. If a clear vertical separation of the Police Department spaces from Municipal Court and Violations Department spaces cannot be achieved in the design of the building, then the entire building should comply with essential facility requirements.
2. Exterior Walls. Exterior wall materials should be bullet-resistant. Concrete or masonry is preferred.
3. Exterior Windows. Ground floor window sill height should be minimum 4'-4" above grade in order to protect seated occupants from sniper fire. As an alternative to this sill height, a layer of bullet-resistant glazing should be applied to ground floor windows. Window glazing should be sufficiently reflective to prevent

viewing into the building from the exterior. Window frames at the sill should not project more than 1-3/4" (preferably less) from the exterior face of the glass. If windows are to be recessed, the sills at the exterior should slope down at 45-degrees minimum in order to prevent the placement of explosives next to the window.

4. Access System. It is recommended that the police facilities be equipped with a monitored electronic proximity access system. Proximity access devices should be located to allow authorized persons to enter secured spaces from public spaces. Additional restricted access devices should be installed for access to high security spaces, such as evidence storage spaces and armories.

Electronic access systems need not be installed for the Municipal Court or Violations Department spaces. Standard keyed lockset devices are satisfactory.

5. Emergency Power. In the event of a primary power source failure an emergency generator should be installed to provide 100% power and lighting for the entire Police Department component of the building. The remainder of the building shall be provided with standard emergency egress power and lighting as required by applicable building codes and ordinances.
6. Uninterruptible Power Supply (UPS). UPS power shall be provided to the Police Department dispatch equipment and other computer controlled equipment.

SECURITY SYSTEM REQUIREMENTS

1. Security Strategy. A comprehensive security strategy for the site and the buildings on the site cannot be finalized until the schematic design phase of this project. Comprehensive security strategy must be customized for each project based on its site design and building floor plans. However, this Needs Assessment will establish guidelines for estimating security needs, which may be modified when building floor plans have been developed.
2. Site Security. Pan/tilt/zoom CCTV cameras should cover all areas of the site, including parking lots, site access and egress, sidewalks, and pathways. Intrusion detection should be equipped on all security fences and gates.
3. Exterior Building Security. Site security CCTV cameras should have the capability of covering the exterior walls of both buildings. Exterior doors for both buildings should include monitored door status devices.
4. Interior Building Security
 - a. CCTV Surveillance. CCTV cameras should be installed to cover the following areas:
 - (1) Entrance to the Police Department and Municipal Court, with coverage on the backs of persons entering the building. (May be a common entry for the Police Department and Municipal Court.)
 - (2) Sally port.
 - (3) Booking areas.
 - (4) Evidence receiving spaces.
 - (5) Exterior doors (site CCTV may cover these doors)
 - b. Motion Detection. Motion detectors, to be activated after working hours, should be installed in high-security storage areas, such as storage spaces for narcotics, cash, jewelry, or other valuable evidence.

- c. Metal Detectors. Include provisions for the installation of metal detectors and/or x-ray machines at the entries of the Police Department and the Municipal Court.
5. Security Monitoring. Security monitoring for electronic security devices, including CCTV, motion detectors, and door status monitors, shall be monitored in the dispatch center of the Police Department.

SPACE REQUIREMENTS - FIRE DEPARTMENT BUILDING

1. Apparatus Bays.
 - a. Materials. Construction of bays for fire and rescue apparatus, including all apparatus bay storage rooms, should consist of solid, durable materials, such as concrete masonry units (CMU).
 - b. Overhead Doors. 12-feet wide x 14-feet high, minimum.
 - c. Ceilings. Exposed structure, 14-feet clear.
 - d. Finishes. Sealed concrete floors, cleanable wall finishes such as epoxy paint.
 - e. Lincoln Hose Company Only. Provide 3-inch diameter hose fill-up.
 - f. Exhaust Hose. Provide quick-release apparatus exhaust hose connection for each apparatus vehicle.
 - g. Compressed Air. Quick-connect compressed air connections in each apparatus bay. Minimum two per bay, except minimum four in the maintenance bay.
2. Second Floor Spaces. Includes lounges, offices, toilet rooms, training rooms, multi-purpose rooms, kitchen, conference rooms, communications and dispatch, exercise rooms, showers, lockers and dormitories.
 - a. Materials. Gypsum board on wood or metal studs with appropriate finishes for kitchen, showers, locker rooms, toilet rooms, and other special finish spaces as noted in this section.
 - b. Doors. Hollow metal doors in hollow metal frames, 3-feet x 7-feet, unless special access requires oversized or double doors.
 - c. Ceilings. Suspended acoustical or gypsum board, 8-feet to 10-feet clear depending of area of space.
 - d. Finishes. Appropriate architectural finishes for intended use.

SPACE REQUIREMENTS - POLICE DEPARTMENT

1. General Design Requirements. All spaces, except as otherwise noted in this section, should be designed as standard office space in terms of materials and finishes. This includes reception areas, offices, toilet rooms, training rooms, briefing rooms, conference rooms, interview rooms, communications and dispatch, exercise rooms, showers, lockers and storage rooms.
 - a. Materials. Gypsum board on wood or metal studs with appropriate finishes for toilet rooms, showers, locker rooms, and other special finish spaces as noted in this section.

- b. Doors. Hollow metal doors in hollow metal frames, 3-feet x 7-feet, unless special access requires oversized or double doors.
 - c. Ceilings. Suspended acoustical or gypsum board, 8-feet to 10-feet clear depending of area of space.
 - d. Finishes. Appropriate architectural finishes for intended use.
2. Corridors. Corridors should be 6-feet wide minimum with durable wainscot.
 3. Reception Area. Must have service/transaction access to dispatcher and records clerk. Access to any other spaces within the department shall be by escort only through secure doors.
 4. Dispatch Center
 - a. Computer Floor. Dispatch workstations should be installed over accessible computer floor system.
 - b. Service Counter. Bullet-resistant service transaction counter for dispatcher to deal with walk-in public.
 5. Records Clerk. Bullet-resistant service transaction counter for dispatcher to deal with walk-in public.
 6. Interview Room. Hard interview room in Detectives Bureau must be designed as follows:
 - a. Hard ceiling
 - b. Door swinging outward
 - c. Hidden surveillance camera, monitoring location to be determined
 7. Evidence Room. Perimeter walls must extend to the structure above to create a secure enclosure.
 8. Sally Port. Can be a chain-link enclosure within the Level 3 parking area. Provide with automatic vehicle doors with drive-through capability. Sally port shall have direct access to the booking and short-term holding area.
 9. Booking and Holding Areas. Design and construct to corrections standards. Walls should be CMU, washable finish (epoxy paint, or equal), hard ceilings, institutional plumbing and light fixtures.
 10. Armory. CMU enclosure with suspended steel plate ceiling. Gypsum board, plywood, and wood furring on walls and ceiling. Armorer's bench with compressed air and sink.
 11. Laboratory
 - a. Laboratory grade casework, including cabinets, countertops, fixtures and fittings
 - b. Triple-chamber cyanoacrylate cabinet
 - c. Chemical fume hood
 - d. Finishes
 - (1) Floors: Chemical-resistant, welded-seam resilient flooring
 - (2) Walls: Epoxy paint
 - (3) Ceilings: Standard acoustical grid and tiles
 12. Firing Range

- a. Total enclosure of 8-inches concrete or fully-grouted concrete masonry units
- b. Wet system bullet trap
- c. Proficiency shooting booths
- d. Programmable, retractable target system
- e. Reverberation insulation
- f. Safety baffles and deflectors
- g. Laminar flow exhaust to comply with OSHA performance criteria
- h. Range master's control booth

SPACE REQUIREMENTS - MUNICIPAL COURT

1. Lobby. Shall accommodate metal detectors and security x-rays.
2. Judge's Chambers. Provide private access and direct access to judges bench in court room.
3. Courtroom
 - a. Judge's bench shall be raised to allow judge while sitting to look down on attorneys standing.
 - b. Design for non-jury trials.

SPACE REQUIREMENTS - VIOLATIONS DEPARTMENT

1. Standards. Design as standard office space.
2. Vault. Allow space for a double-door, floor model vault in the Supervisor's Office.