

Section 8

SECURITY CONSIDERATIONS

The security of people, the library collections, and equipment is a very important consideration for library buildings now being planned. It is simply an unfortunate fact of life that every reasonable precaution must now be taken to ensure the safety of library customers, staff, materials, and equipment from theft, vandalism, and other potential acts of violence.

The design of the building should incorporate fire and smoke detection and prevention systems, per applicable codes. Provide an intrusion security system to detect unauthorized entry when the building is closed, as it will house extremely valuable collections of books and documents, works of art, considerable electronic equipment, office machines, and vending machines. Provide for smoke and heat detectors to detect a fire at its inception and provide a local warning. Locate the system out of reach of children. Equip all emergency exits with a time released audible alarm.

Provide dead bolts for all exterior doors. Provide removable core locks for all doors. Provide tamper resistant electrical receptacles in areas accessible to children that are compliant with NEC Article 517-18c (also referred to as ASTM 517-18c).

THEFT AND VANDALISM PROTECTION

Effective management of access to and egress from the various collection storage and reading areas is essential for the provision of good service and the protection of the collections. Unobstructed sight lines that allow staff observation of customer behavior are a good deterrent to theft and vandalism, as well as beneficial for staff and customer safety. The design and layout of service desks need to consider points of entry and exit from the Library on every level.

FIRE PREVENTION AND FIRE PROTECTION SYSTEMS

The library building should be provided with a sprinkler system designed for discharged water density and spacing, as prescribed by the National Fire Protection Association (NFPA) Code 13. All code requirements for the State of Arkansas and/or White County/City of Searcy *must* also be met. Provision of a sprinkler system that incorporates safeguards to minimize water damage is imperative. Water can cause irreparable damage to electronic equipment.

Each zone should be provided with necessary piping, sprinkler heads, water flow alarms, tamper switches, valves, drains, hangers, supports, etc. The entire system should be installed as a hydraulically designed system.

Sprinkler head coverage should be based on Ordinary Hazard Groups 1 or 2, as described in NFPA 13. The architects should specify sprinkler head types as follows:

- Finished areas with hung ceilings may require concealed type heads; and
- Unfinished areas or areas without hung ceilings may be able to utilize upright or pendent type heads, as required by code.

FIRE DETECTION AND ALARM SYSTEM

A zoned, individually coded fire alarm system, with separate and distinct codes for smoke detection and sprinkler water flow should be investigated. The system should include, but not be limited to, the following:

- Fire alarm control panel;
- Remote annunciator panel;
- Manual fire alarm stations;
- Area smoke detectors;
- Duct smoke detectors;
- Heat detectors;
- Sprinkler water flow switch alarm;
- Alarm devices;
- Central station alarm, supervisory and trouble connection control;
- Air handling systems shutdown control;
- Elevator recall control (where applicable);
- Electromagnetic door holders and release control;
- Sprinkler valve tamper switch supervision;
- Fire pump supervision;
- Manual code switch; and
- Battery backup.

Signal termination panels for this system should be provided in the nearest Searcy Fire Department station.

FIRE STANDPIPE AND FIRE PUMP SYSTEM

Fire standpipe risers and associated drain risers, where required, should be located in stairwells. A complete floor control assembly should be provided at each floor for the sprinkler system. An electric automatic fire pump, jockey pump, and associated controllers and transfer switch designed to deliver the necessary gallons per minute (gpm) should also be provided. Confer with the Searcy Fire Marshall for specific requirements.

A separate water service to the fire pump should be provided. This water service should be connected to the existing municipal main with an approved back-flow

prevention device. A fire pump test header and required fire department connections should also be provided.

See Section 9, pages 3 – 4 for additional information re fire protection.

BUILDING SECURITY SYSTEMS

Theft Detection System

A Theft Detection System will be used to control the loss of library collections. Theft Detection Systems utilize some form of reader or gate at all public exit points of the building. The building's entranceways should be designed to attractively incorporate these devices. Utilize building materials that do not interfere with their proper operation and locate the detection devices within proper distances from other systems that may impede proper operation.

Confer with library staff on specifics of the system. The design should provide for the installation of a system to detect and deter the unauthorized removal of library materials from the building. Theft Detection Systems are an integrated component of RFID installations. As noted in the RFID discussion design requirements for Theft Detection Systems vary significantly from vendor to vendor. Before the design of the entrance and exit areas are finalized, extensive discussions with the vendor(s) and library staff **must** be held.

The system should also provide a means for counting foot traffic coming in and out of the building.

Emergency and Standby Power Equipment

Emergency systems provide power and illumination essential for safety to life and property. Most states and cities require emergency power for exit lighting and egress lighting in places of assembly, plus power for equipment necessary for safety such as elevators, fire alarm systems, and to fire pumps where such pumps are required.

Emergency Systems. The choice of arrangement and the size and type of equipment depends in large measure on the requirements of local codes that determine the loads to be fed from the emergency system. The architects should note that, although the building program is using the term emergency, the concepts involved are equally applicable to standby systems, remembering the NEC requires emergency and standby systems to be kept entirely separate.

In general, when emergency power is discussed, it is assumed to be replacing normal power. The assumption underlying governmental codes and ordinances is that power must be supplied to selected loads within the building because of a utility power outage. Cognizance *is not* taken of situations where normal power has not failed and the outage

is localized because of an equipment failure. That aspect of design, reliability, is left to the designer. Some of the arrangements that will be discussed below differentiate between the nature of outages, that is, a utility or general outage versus an equipment or local outage.

The emergency system includes all devices, wiring, raceways, and other electrical equipment, including the emergency source that is intended to supply electric power to the selected loads. These loads normally include:

- Egress lighting, in corridors, exits, and lobby lights; and
- Signal equipment, such as public address and fire alarm that must remain functional during an emergency.

The recognized arrangements are discussed below.

Where emergency loads are light, a storage battery is used, to be connected automatically upon a power outage. Alternating current lighting can accept direct current emergency power if equipped with a local inverter. The emergency equipment is entirely separate from the normal equipment and is normally de-energized. This arrangement is used in small facilities requiring egress lighting only, where it is found that supplying a completely separate emergency system is the preferred economic or engineering choice. Large battery installations are used where uninterrupted power is required, as is generally the case in computer installations where no power interruption, however short, can be tolerated. These systems are highly technical.

Where emergency loads are larger than can be supplied economically by batteries, and where the 8 to 15 second start-up times is tolerable, a generator set is employed. The prime mover may be gasoline, diesel, steam, or gas. It should be pointed out that a combination of sources could be used in a single building. For instance, a generator can supply bulk power loads and a battery installation selected lighting loads, provided that the design carefully avoids any possibility of contact between the two systems. The system can be arranged with a single transfer switch that senses normal power loss or it can use multiple switches, each one will sense power loss at its downstream location. The latter system provides greater power reliability, provided the design is such that the emergency power uses an independent power path to the transfer switches. Otherwise, a faulty piece of equipment that will interrupt normal power downstream will also prevent emergency power from reaching that point.

Many codes permit the use of two separate electric services in lieu of a normal service plus an emergency source, provided the two sources are independent, that is, come from different utility transformers or feeders, enter the building at different points and preferably from different directions, and use separate service drops or laterals. The point is, of course, the type of reliability desired can only be obtained by minimizing the possibility of a single event interrupting both services. The usual arrangement is for one service to be normal and the other standby. A much less frequent case utilizes both

feeders as normal, each carrying part of the normal load and each acting as a standby for the other.

Emergency system wiring must be kept entirely independent of all other wiring and equipment and should not occupy the same enclosure or conduit as normal system wiring, except in dual fed units such as transfer switches.

Where individual battery units are installed in a space to provide emergency lighting, they should be permanently wired and not plug connected. Also, the panel device feeding these outlets should be capable of being locked, or arranged to be accessible to authorized personnel only.