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Regulations of Connecticut State Agencies

Standard for Fire-Resistive Vaults and Safes

(Effective October 28, 1969)

Sec. 11-8-1. Definitions

The following terms, when used in sections 11-8-1 to 11-8-12, inclusive, have the following meanings:

(a) "Approved" as applied to a material or piece of equipment, means one which has been tested and is listed by Underwriters' Laboratories, Inc., or any other nationally recognized testing laboratory.

(b) "Fire-resistive building" means a building whose structural members are of noncombustible material throughout and which can withstand a fire completely consuming combustible contents, trim and floor surfacing on any floor without collapse.

(c) "Nonfire-resistive building" means a building whose structural members, including floors and roof, cannot withstand a fire completely consuming combustible contents, trim and floor surfacing without collapse.

(d) "Vault" means a completely fire-resistive enclosure so equipped, maintained and supervised as to minimize the possibility of origin of fire within and to prevent entrance of fire from without.

(e) "Ground-supported vault" means one which is supported by the ground up and which is structurally independent of the building in which it is located.

(f) "Structure-supported vault" means one which is supported by the framework of a fire-resistive building and which may be situated independently on any floor of such building.

(g) The term "vault door," as used in sections 11-8-1 to 11-8-12, inclusive, designates and is limited to vault door units approved and labeled as such by Underwriters' Laboratories, Inc., or any other nationally recognized testing laboratories.

(h) "Roof of vault" means the ceiling or roof of a single vault, or the ceiling or roof of the topmost vault of a tier; not the slab between vaults in a tier, which is classed as a floor.

Sec. 11-8-2. Design of vault

(a) In a fire-resistive building, the vault may be of either the ground-supported or structure-supported type. In a nonfire-resistive building the vault shall be of the ground-supported type. Walls of the building shall not be used as walls of the vault.

(b) The vault shall be located in a normally dry place, preferably accessible to the section of the building where the records are used.

(c) Standard record vaults shall not exceed fifteen thousand cubic feet in volume, and the interior height shall not exceed ten feet.

(d) A vault shall be of such design and construction as to insure that the structure will withstand satisfactorily all of the conditions which a severe fire may impose on it. Plans and specifications shall be prepared and construction supervised by a registered engineer or architect.

Sec. 11-8-3. Foundation

(a) **Structure-supported vaults.** The supporting structure shall be of adequate strength to carry the entire load of the vault and its contents. There shall be no combustible material in any portion of the supporting members of the structure. Structural members of the building which support the vault shall have all steelwork protected by at least four inches of fireproofing concrete.

(b) **Ground-supported vaults.** Foundations for ground-supported vaults shall be reinforced concrete adequate for the entire load of the vault structure and contents. Supporting structural members shall have all steelwork protected by at least four inches of fireproofing concrete.

Sec. 11-8-4. Floor

(a) **Structure-supported vaults.** The floor of the fire-resistive building may serve for the floor of the vault, if it is of noncombustible construction throughout and complies with the following requirements: (1) The floor of the vault shall be reinforced concrete not less than six inches thick; if exposed to undue fire hazard from outside the vault, it shall have a thickness equivalent to that required for the walls. (2) The floor of the vault shall not be pierced for any purpose. (3) No wood or other combustible material shall be used for flooring surfacing.

(b) **Ground-supported vaults.** Where the floor of the vault rests on grade, or on compacted gravel fill, the minimum thickness shall be that required to support the load. In all other cases minimum thickness shall be six inches. The requirements in subdivisions (1), (2) and (3) of subsection (a) for structure-supported vaults shall apply, and in nonfire-resistive buildings the floor of the vault shall be independent of the floor construction of the rest of the building.

Sec. 11-8-5. Walls

(a) **Construction.** (1) Walls shall be reinforced concrete, or brickwork with vertical as well as horizontal joints filled with mortar; or, in a fire-resistive building, a framework of heat-protected steel or reinforced concrete with panels of reinforced concrete or brickwork. Reinforcement for concrete shall consist of steel rods at least one-half inch in diameter spaced six inches on center and running at right angles in both directions. Rods shall be securely wired at intersections not over twelve inches apart in both directions and be installed centrally in the wall or panel. (2) Where a structural steel frame is used the steel shall be protected with at least four inches of concrete, brickwork or its equivalent, tied with steel ties or wire mesh equivalent to No. 8 A.S.W. gage wire on eight-inch pitch. Brick protection if used shall be filled solidly to the steel with concrete. (3) The walls of a structure-supported vault shall follow the panels of the building wherever possible and shall extend from floor to ceiling of the building in each story where a vault is located. If vaults are located on more than one floor of a building, they should preferably be placed one above the other in the several stories. (4) No combustible material shall be used for trim or partitions.

(b) **Thickness.** Walls for four-hour vaults shall be not less than eight inches thick if of reinforced concrete or twelve inches if of brick; walls for six-hour vaults, not less than ten inches thick if of reinforced concrete or twelve inches if of brick. Heavier walls may be required to take care of unusual structural conditions, loads or local hazards.

(c) **Openings in walls.** (1) Interior walls of vaults, that is, those walls which are entirely within the building, shall be unpierced except for protected openings which are required for essential facilities specifically mentioned in this standard. Door openings shall be protected with vault doors. (2) Exterior walls of vaults, that is, those which are exterior walls of the building, shall be unpierced except by exhaust vents essential for proper ventilation. Such openings shall be protected with approved dampers or with approved fire doors suitable for openings in exterior walls. (d) There shall be no openings from vaults into elevator, stairway, conveyor or other shafts.

Sec. 11-8-6. Bonding of wall, floor and roof

The requirements of sections 2237, 2238, 2239 and 2242 (e) of NFPA Standard No. 232, Protection of Records, shall be strictly observed.

Sec. 11-8-7. Roof

(a) **Structure-supported vaults.** In structure-supported vaults, the roof or floor of the fire-resistive building may serve for the roof of the vault, if it is of noncombustible construction throughout and complies with the following requirements: (1) The roof of the vault shall be of reinforced concrete on reinforced concrete or protected steel supports. (2) The roof of the vault shall be at least six inches thick; if it is subject to unusual impact or exposed to undue fire hazard from outside the vault, it shall have a thickness equivalent to that required for the walls. (3) All interior structural steel shall be protected with at least two inches of fireproofing. (4) Roofs of vaults shall not be pierced for any purpose.

(b) **Ground-supported vaults.** In ground-supported vaults, the requirements in subdivisions (1) to (4), inclusive, of subsection (a) shall apply. In addition, in a nonfire-resistive building, the roofs of vaults shall be entirely independent of the wall, floor, ceiling, columns, piers or roof construction of the building.

Sec. 11-8-8. Vault doors

(a) **Classification.** Each door opening in the vault shall be provided with a vault door unit bearing a rating, in hours of fire-resistance, comparable to the classification of the walls of the vault. Ordinary fire doors such as hollow metal, tinclad, sheet metal or metalclad types, steel plate types and file room doors are not acceptable as vault doors.

(b) **Installation.** Installation of the vault door unit shall be made in conformity with instructions supplied by the manufacturer and shall be entrusted only to those experienced in such installation work.

(c) **Escape Device.** The door-locking mechanism shall be of a type enabling a person accidentally locked inside the vault to open the door from the inside.

Sec. 11-8-9. Dampproofing

When the walls, floor or roof of a vault are dampproofed, methods and materials used shall be such that the desired fire-resistance of the vault shall not be impaired.

Sec. 11-8-10. Services to vault

(a) **Lighting.** (1) Lighting shall be electric, with all interior wiring in conduit and installed in accordance with the National Electric Code, NFPA No. 70. Conduit if exposed shall preferably

be located on the ceiling; where it is carried through the wall of the vault the hole shall be made as small as possible and the space around the conduit shall be completely filled with cement grouting. Floors and roofs shall not be pierced for conduit. (2) The wiring shall provide as many fixed lamps as needed for adequate illumination, and may provide a reasonable number of convenience outlets. There shall be no pendant or extension cord within the vault. (3) Wiring shall be so arranged that both wires of the circuit are disconnected when the lights are out. Main switches shall be outside the vault and provided with a pilot light.

(b) **Heating.** Heating shall be by hot water, steam, approved radiant electrical units or forced warm air heating. See subsection (c) for the standard to be followed in installing forced air duct work. Coils or radiators shall be so located as to avoid the possibility of any records coming in contact with them. Piping should preferably be placed overhead. Where the pipe is carried through the wall, the hole shall be made as small as possible, the pipe provided with a close-fitting noncombustible sleeve, and the space around the outside of the sleeve shall be completely filled with cement grouting. Floors and roofs shall not be pierced for piping. Open flame heaters or portable electric heaters shall not be used.

(c) **Ventilation.** Ventilation of the interior should preferably be through door openings. Where it is imperative that a ventilating system be provided, it should be recognized that the presence of this system adds to the possibility of entrance of fire or damaging heat from outside. To minimize this possibility, the system shall be installed in accordance with the Standard for Air Conditioning Systems, NFPA No. 90A, and the following safeguards shall be taken: (1) All air conditioning apparatus, fans, filters, etc., shall be located outside the vault. (2) Each duct shall be provided with an adjustable fire damper equipped with approved automatic means for closing it and shutting down fans in the event of fire outside or inside the vault. (3) Ducts shall be located so as to avoid the possibility of records coming in contact with them. (4) Where a duct is carried through the wall, its installation shall be such that it will not impair the ability of the vault to protect its contents. The floors and roofs of vaults shall not be pierced for ducts.

Sec. 11-8-11. Vault operating practices

(a) **Equipment.** (1) Filing equipment shall be noncombustible throughout. (2) Loose papers shall not be filed on open shelving. (3) Arrangement of filing devices shall be such that they will be in short sections and with ample aisles between for convenient access and to retard the spread of fire. (4) Open-front containers should be located at least thirty-six inches away from door openings; fully enclosed containers at least four inches away from door openings. (5) The bottoms of the lowest record storage spaces should be not less than four inches above the floor of the vault.

(b) **Supervision.** The vault shall be under responsible supervision from opening until closing time and inspections shall be made daily, particularly before closing time, to insure that all containers are closed, no records are left on top of containers or elsewhere exposed, all waste papers are removed, and vault doors are closed and locked.

(c) **Housekeeping.** (1) General cleanliness shall be of the highest type. (2) No materials other than records and record storage equipment shall be permitted in vaults at any time. (3) Safety photographic film may be treated as records, but flammable nitrate film shall not, under any circumstances, be kept in record vaults. (4) Smoking inside vaults shall be forbidden, and "No Smoking" signs shall be prominently displayed.

Sec. 11-8-12. Fire Resistive Safes

No safe, file cabinet or record container in which records designated by the public records administrator as essential operating records of the state or of any of its political subdivisions are housed shall bear lower than a Class C rating, as established by Underwriters' Laboratories, Inc., or any other nationally recognized testing authority, unless such safe, file cabinet or record container is protected within a suitable fire-resistive vault. The public records administrator may, if the importance of the records to be housed or the severity of the environmental fire hazard warrants, require the use of Class B or Class A equipment, as so established.