

This Is A Fire Fresh Document

FIRESAFETY COMPARTMENTATION

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1. GENERAL

- 1.01 This practice outlines the standards for interior compartmentation and is applicable when recommended by the application criteria documents (Sections 760-600-210 through 760-600-300).

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- 1.02 This practice is being re-issued to update fire cutoff (compartmentation) requirements for EDP (Electronic Data Processing) and storage areas in buildings in consideration of being protected by a fire detection and suppression system. Whenever this section is reissued, the reason(s) for reissue will be given in this paragraph.
- 1.03 Compartmental separation is employed to reduce the likelihood of serious spread of fire within a telephone structure and is accomplished by the use of floor-to-floor separation or by the use of separation of areas such as storerooms, boiler rooms, standby engine rooms, power rooms, cable entrance facilities, etc.
- 1.04 In the recommendations found in the subsequent paragraphs, construction is defined on the basis of performance standards (in terms of hourly ratings) rather than in terms with minimum dimension and materials.
- 1.05 The use of noncombustible construction is essential in restricting the spread of fire. It is assumed that the structural members not included in these recommendations are of listed noncombustible constructions.
- 1.06 The use of the dampers in connection with compartmentation is covered in Section 760-640-100.
- 1.07 The recommendations in this section are based, in general, on the National Fire Protection Association (NFPA) standards, the Model Building and Fire Codes, insurance and property risk management considerations, technical advice of Bellcore and consensus opinion of Company subject matter experts.
- 1.08 Where local, state, federal or Occupational Safety and Health Act (OSHA) regulations require higher degrees of protection, the legislated criteria should be followed to the extent required. Where those provisions are in conflict with this section, a variance means should be found by seeking "equivalent protection" through alternative installation methods which will satisfy the intent of this section.
- 1.09 A Fire Division Plan should be included on each architectural floor plan (which identifies the ratings of all partitions) to reduce the possibility of unprotected openings in rated partitions.

2. WALLS

- 2.01 The following areas of buildings are addressed herein:

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- a. Telephone Equipment Areas
- b. Telephone Equipment Power Areas
- c. Electronic Data Processing Areas
- d. Standby Engine Rooms
- e. Air Conditioning and Ventilating Equipment Areas
- f. Boiler Rooms, maintenance Shops, Gas Meter Rooms and Receiving and Uncrating Areas
- g. Cafeterias and Kitchens
- h. Stairwells and Corridors
- i. Transformer vaults
- j. Storage Areas
- k. Tape Libraries
- l. Oil Tank Enclosures
- m. Cable Entrance Facilities
- n. Shaft Enclosures

A. Telephone Equipment Areas

- 2.02 For the purpose of this section, a "telephone equipment area" should be interpreted to mean the space housing a switching machine (i.e., #3 ESS, #5 ESS, DMS 100/200, Crossbar, etc.) and associated main distribution frames.
- 2.03 Telephone equipment areas shall be separated from other areas by partitions having a fire resistance rating of at least 1 hour and constructed of noncombustible material, and the doorways protected by a 3/4-hour listed self-closing door.
- 2.04 Where telephone equipment consisting of new technology (i.e., digital switches) is installed in spaces housing existing telephone equipment of older technology (i.e., Step by Step, Crossbar, non-digital equipment, etc.) that is to remain in service and not be removed in conjunction with the new telephone equipment installation work, the new telephone equipment area should be separated from the existing telephone equipment area by partitions that have a fire resistance rating of at least one hour and constructed of noncombustible material, and the doorways protected by a 3/4-hour listed self-closing door.
- 2.05 It is not recommended that low bay modular distribution frames associated with new telephone equipment installations be compartmentized. Existing high bay mainframes should be considered for compartmentation whenever possible.
- 2.06 Power and communications cables associated with new technology telephone

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equipment should be run on separate racks and provided with independent through-penetration systems at fire rated assemblies.

- 2.07 In telephone equipment areas where future equipment space is used temporarily for non-equipment purposes, the temporary occupancy shall be separated from the equipment area by a 1-hour fire-rated noncombustible partition, and the doorway protected by a 3/4-hour listed self-closing door.
- 2.08 Fire dampers are not required where air conditioning ducts pass through the fire rated partitions. Fire dampers are required where the duct terminates at the fire rated partition or transfer grilles.
- 2.09 All areas where smoking is allowed shall be separated from telephone equipment areas by a 1-hour fire-rated noncombustible enclosure with doorways protected by 3/4-hour listed self-closing doors.
- 2.10 Partitions to accommodate an office occupancy involved in the operation of a telephone equipment office (such as a supervisor's enclosure) do not have to be ceiling-high nor 1-hour fire-rated but must be of non-combustible material.

B. Telephone Equipment Power Areas

- 2.11 Telephone equipment power areas shall be separated from other areas by a partition having a fire resistance rating of at least 1 hour and constructed of noncombustible material, and the doorways protected by a 3/4-hour listed self-closing door. Telephone equipment power shall include batteries, rectifiers, motor generator sets and associated distribution equipment.

C. Electronic Data Processing Areas

- 2.12 For the purpose of this section, an "Electronic Data Processing (EDP)" area should be interpreted to mean the space housing main frame computers and associated support equipment.
- 2.13 EDP areas shall be separated from other areas by partitions having a fire resistance rating of at least 1 hour and constructed of noncombustible material, and the doorways protected by a 3/4-hour listed self-closing door. However, in new buildings an exception to this 1-hour compartmentation requirement may be taken, to allow for flexibility for future growth and efficient utilization of floor space, provided that the building is fully protected by suppression, EWFD (detection) and smoke evacuation.

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- 2.14 Fire dampers are not required where air conditioning ducts pass through the fire rated partition. Fire dampers are required where the duct terminates at the fire rated partition.
- 2.15 All areas where smoking is allowed shall be separated from EDP areas by a 1-hour fire-rated noncombustible enclosure with doorways protected by 3/4-hour listed self-closing doors.
- 2.16 Fire rated partitions to accommodate an office occupancy involved in the operation of the EDP equipment areas (such as a supervisor's enclosure) do not have to be ceiling-high nor 1-hour fire-rated but must be of non-combustible material.

D. Standby Engine Rooms

- 2.17 Diesel and turbine standby engine rooms shall be separated from all other compartments by a minimum 1-hour fire-rated partition with doorways protected by listed self-closing doors of 3/4-hour rating. Gasoline engines shall be compartmentalized with 2-hour fire rated walls with doorways protected by listed self-closing doors of 1-1/2 hour rating.
- 2.18 For additional information and requirements on standby engines see Section 760-610-400.

E. Air Conditioning and Ventilating Equipment Areas

- 2.19 Central type air conditioning equipment, when serving only one floor, shall be separated from other areas by 1-hour fire-rated noncombustible cutoff with doorways protected by 3/4-hour listed self-closing doors.
- 2.20 Central type air conditioning equipment when serving more than one floor shall be separated from other areas by a 2-hour fire-rated noncombustible cutoffs with doorways protected by 1-1/2 hour listed self-closing doors.
- 2.21 Self-contained package air conditioning units or fan-coil units may be installed within the area they serve without a fire rated cutoff. If these or similar type of units are installed in an adjacent space and in a configuration dedicated to only the area served, in order to provide for efficient and effective utilization of floor space and/or system operation, treat the space the units are in as though it were a part of the area which is served by the units. Another words, fire rated cutoff is not necessary in relationship to the area served but may be required due to other

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adjacent space occupancy use. This typically involves placing the units in a gallery together side-by-side and/or on top of each other with partitions constructed for plenum configuration, appearance, etc. adjacent to the particular area served.

Note: If the unit incorporates ducts that penetrate 1-hour rated partitions, the opening shall be protected with a fire damper.

F. Boiler Rooms, Maintenance Shops, Gas Meter Rooms, Receiving and Uncrating Areas

2.22 Boiler rooms, maintenance shops, gas meter rooms and receiving and uncrating areas shall be separated from each other and other areas by 1-hour fire-rated noncombustible cutoffs with doorways protected by 3/4-hour listed self-closing doors.

G. Cafeterias-Kitchens

2.23 Cafeterias-Kitchens shall be separated from other areas by 1-hour fire-rated noncombustible cutoffs with doorways protected by 3/4-hour listed self-closing doors.

H. Stairwells, Corridors

2.24 Stairwells shall have a fire resistance rating of 1 or 2 hours, depending on the height of the building. (See Table A at the end of this practice.) When the corridors form a part of a required means of egress, the required fire-rated cutoff is the same as the stairway connecting with the corridor. (See Figure 3.)

I. Transformer Vaults

2.25 Transformer vaults for combustible oil-insulated transformers and other combustible oil-insulated electrical gear, as well as for dry-type and oil-insulated transformers rated more than 35,000 volts, shall be of 3-hour fire-resistance construction.

J. Storage Areas

2.26 Storage areas (permanent or temporary) shall be separated from other areas by 1-hour fire-rated noncombustible cutoffs with doorways protected by 3/4-hour listed self-closing doors. However, exceptions may be taken as follow:

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- a. Storage areas of less than 100 square feet in administrative office space need not be separated from the administrative office space by a rated cutoff but must be of noncombustible material.
- b. Storage rooms associated with administrative or EDP areas of a building which are adjacent to and classified for use the same as the area served and protected by a suppression and detection system do not need to be separated from the particular area served by a rated cutoff but must be of noncombustible construction.

2.27 The protection required for hazardous materials shall be determined for each specific location by the governing local codes.

K. Tape Libraries

2.29 Tape Libraries and/or areas used to store magnetic media shall be separated from other areas by a 2-hour fire-rated noncombustible cutoffs with doorways protected by 1-1/2 hour listed self-closing doors.

L. Oil Tank Enclosures

2.30 Fuel oil tanks (heating plant, diesel engines, and turbines), including day tanks, exceeding 660 gallons aggregate capacity on one floor shall be located in a cutoff enclosure having a fire resistance rating of 3 hours and equipped with self-closing Class A (3-hour) listed doors.

M. Cable Entrance Facilities

2.31 Cable Entrance Facilities (CEFs) shall be so constructed that they are separated from the general area by a partition having a fire resistance rating of not less than 1 hour and with doorways protected by 3/4-hour listed self-closing steel fire doors.

Note: Existing facilities having entrance doors into CEFs constructed of 1/4-inch thick steel plate shall be considered as in compliance with this practice. See Section 760-600-210 for limitations.

N. Shaft Enclosures

2.32 Where a shaft is used between two or more successive stories, it shall be totally enclosed to prevent the spread of fire vertically throughout the building.

2.33 Elevator shafts and elevator machine rooms shall be enclosed by construction

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having a fire resistance rating as required in Table A of this practice.

- 2.34 Cable openings in rated shaft enclosures shall be protected in accordance with Section 760-630-410.
- 2.35 Shafts used for sight, ventilation, dumbwaiters, conduit, etc., shall be enclosed by construction having a fire resistance rating as outlined in Table A of this practice.
- 2.36 Shafts that do not extend through the roof shall be enclosed at the top with a fire-resistant construction equivalent to the walls of the shaft.
- 2.37 Vertical shafts for power cables, communication cables, piping, air distribution, and ventilating ducts shall be separated from other areas by 1- or 2-hour fire-rated cutoffs depending on the height of the building. (See Table A.)

3. WALL OPENINGS

A. Doors

- 3.01 Door openings are classed as A, B, C, D, or E in accordance with the type of wall and location in which they are situated. Definitions of each class are listed below:
 - (a) Class A (3-hour) openings are in walls separating buildings or dividing a single building into fire areas. Doors for the protection of these openings have a fire resistance rating of 3 hours. Glass shall not be permitted in these doors.
 - (b) Class B (1-1/2 or 1-hour) openings are in enclosures of vertical communication through buildings (stairs, elevators, etc.). Doors for the protection of these openings in a 2-hour fire-rated enclosure have a fire resistance rating of 1-1/2 hours. Vision panels, when required, shall be glazed with 1/4-inch thick labeled wire glass not exceeding 100 square inches with no dimension greater than 33 inches. Doors in 1-hour enclosures may have 1-hour ratings. (See Table A.)
 - (c) Class C (3/4-hour) openings are in 1-hour fire-rated corridor and room partitions. Doors for the protection of these openings have a fire resistance rating of 3/4 hour. Vision panels, when required, shall be glazed with 1/4-inch thick label wire glass not exceeding 1296 square inches with no dimensions exceeding 54 inches.

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Note: Doors installed in 1-hour rated partitions and constructed to meet C label requirements may be certified and labeled by the Company. (See Figure 1).

- (d) Class D (1-1/2-hour) openings are in exterior walls which are subject to severe fire exposure from outside the building. Doors for the protection of these openings have a fire resistance rating of 1-1/2 hours. No glass shall be used in doors for severe exterior exposure locations.
 - (e) Class E (3/4-hour) openings are in exterior walls which are subject to moderate fire exposure from outside of the building. When required, labeled wire glass 1/4-inch thick may be used in these doors when the glass area does not exceed 720 square inches with no dimension exceeding 54 inches. Window openings rated class E may also be protected by listed window assemblies glazed with 1/4-inch thick labeled wire glass. The area of individual glass lights shall not exceed 720 square inches.
- 3.02 Vision panels shall be glazed with 1/4-inch labeled wire glass only.
- Note: Vision panels, where provided in fire-rated door assemblies, must be installed by the door manufacturers in order not to void the Testing Agency's label applied to that assembly.
- Glazing of the vision panel may be done in the field.
- 3.03 Protective devices used in oversize openings in fire-rated walls or partitions shall meet the requirements of ASTM E-152, Standard Methods of Fire Tests of Door Assemblies, and bear a label indicating the appropriate rating for the barrier penetrated.
- 3.04 To ensure the protection for which fire-rated doors are designed, it is extremely important that these doors be kept closed. Figure 1 illustrates two possible methods of identifying fire doors. View A in Figure 1 illustrates the type label which may be affixed to doors in areas where a label would not be in conflict with the room decor. View B in Figure 1 illustrates a label for use in locations where decor is a concern. This label may be affixed to the butt edge of the door or on the jamb at the butt side so that it will be seen only when the door is open. If this method is used, have labels made for this purpose.
- 3.05 The use of fire dampers in fire-rated door assemblies is not recommended.

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B. Ventilation Louvers, Grilles

- 3.06 Ventilation louvers, grilles, and other necessary openings in rated partitions and walls shall be protected by listed automatic-closing fire dampers or fire doors. Heat activated hold-open devices do not necessarily provide protection against smoke hazard; therefore, it is considered advisable to limit the number of openings, particularly avoiding those in partitions forming exit corridors and stairs.
- 3.07 Fire dampers are not required where air conditioning ducts pass through partitions if the duct extends at least 6 feet beyond the partition penetrated. Refer to Section 760-640-100, "Considerations for Heating Ventilating and Air Conditioning" and Section 760-630-410, "General Considerations for Floor and Wall Penetrations and Protection of Cable Runs" for additional information and requirements.

C. Vision Panels in Partitions/Walls

- 3.08 Vision panels in 1-hour rated partitions shall be limited to 1/4-inch thick approved labeled wire glass, set in 18-gauge steel frames with steel stops (glazing putty not permitted), and the maximum area of wire glass per panel not to exceed 1296 square inches, with the larger dimension not to exceed 54 inches. If more than one pair of vision panels is required, vertical wall sections of not less than 18 inches in width shall be provided between each pair of vision panels. The total area of vision panels in a wall shall not exceed 25 percent of the total wall area.

D. Hardware

- 3.09 Only listed components such as hinges, latching mechanisms, exit hardware, etc., should be used with listed fire doors and as a listed assembly.
- 3.10 Latching devices must not be removed or made inoperative in order to eliminate the need for turning the knob in opening the door.

E. Closure Devices

- 3.11 To provide the protection for which they were designed, fire doors are equipped with a self-closing device and shall be maintained in the normally closed position at all times. Self-closing doors should not be wedged or tied in an open position or in any other manner be obstructed in closing. Fusible hold-open devices shall not be used. When a special situation occurs which requires that a fire door be held open, it shall be arranged to close automatically in the event of smoke, by

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means of listed products of combustion detectors as a part of the listed closure device. The system shall incorporate the following additional features:

- (a) If a listed release device is provided, it shall be so arranged that, upon interruption of electric current, the door will be released.
- (b) The release device shall be capable of being operated manually.
- (c) The detection system shall be provided with electrical supervision to assure reliability of operation.

4. FLOORS

- 4.01 Floors should have fire resistance ratings as outlined in Section 760-630-200.
- 4.02 Cable holes, cable slots, and sleeves shall be firestopped in accordance with recommendations in Section 760-630-410 and Section 781-810-850, Central Office Cable Opening Firestops, Generic Equipment Requirements.
- 4.03 Special care must be exercised when installing prefabricated metal or concrete exterior wall panels in multistoried buildings so that there is a firestop at each floor between the wall panel and the structural floor.

5. CEILING ASSEMBLIES

- 5.01 Fire-rated partitions shall normally extend from the floor to the underside of the floor above. There may be instances, however, where this may not be practical because of obstructions. In these cases, Figure 2 will provide guidance for some typical situations.

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TABLE A
REQUIRED FIRE PROTECTION

OCCUPANCY	UNDER 4 FLOORS		4 FLOORS AND OVER	
	WALL RATING (HOURS)	DOOR LISTING (HOURS)	WALL RATING (HOURS)	DOOR LISTING (HOURS)
Telephone Eqpt. Areas	1	3/4	1	3/4
Electronic Data Processing Areas *	1	3/4	1	3/4
Heating Plant (Boiler Rooms), Air Cond. & Ventilating Eqpt.**	1 1&2	3/4 3/4 & 1-1/2	1 2	3/4 1-1/2
Power Plant (DC)	1	3/4	1	3/4
Standby Engines (Diesel and Turbine)	1	3/4	1	3/4
Gasoline Standby Engines	2	1-1/2	2	1-1/2
Vertical Shafts	1	1	2	1-1/2
Elevator	1	1	2	1-1/2
Stairwells	1	1	2	1-1/2
Corridors †	1	1	2	1-1/2
Storage ‡	1	3/4	1	3/4
Tape Libraries	2	1-1/2	2	1-1/2
Cable Entrance Facilities	1	3/4	1	3/4
Transformer Vaults	3	3	3	3
Fuel Oil Storage	3	3	3	3
Elevator Machine Rooms	1	1	2	1-1/2
Maintenance Shops	1	3/4	1	3/4
Gas Meter Room	1	3/4	1	3/4
Lounge	1	3/4	1	3/4
Cafeteria/Kitchen	1	3/4	1	3/4

* See paragraphs 2.12 thru 2.16 for exceptions and conditions.

** See paragraphs 2.19 thru 2.22.

† When forming part of required exit way, see paragraph 2.24 and FIG. 3.

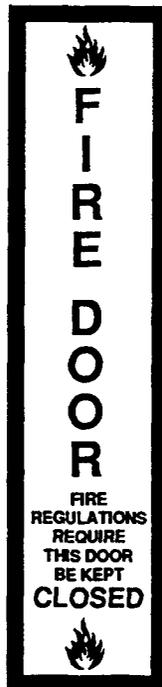
‡ See paragraphs 2.26 and 2.27 for exceptions and conditions.

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**VIEW A - 3 X 5 INCH GUMMED LABEL
(FACE OF DOOR)**



**VIEW B - 1 X 6 INCH GUMMED LABEL
(EDGE OF DOOR)**

NOTE:

**LABELS WILL BE RED LETTERS
AND BORDER ON WHITE
BACKGROUND**

Fig. 1 - Fire Door Labels

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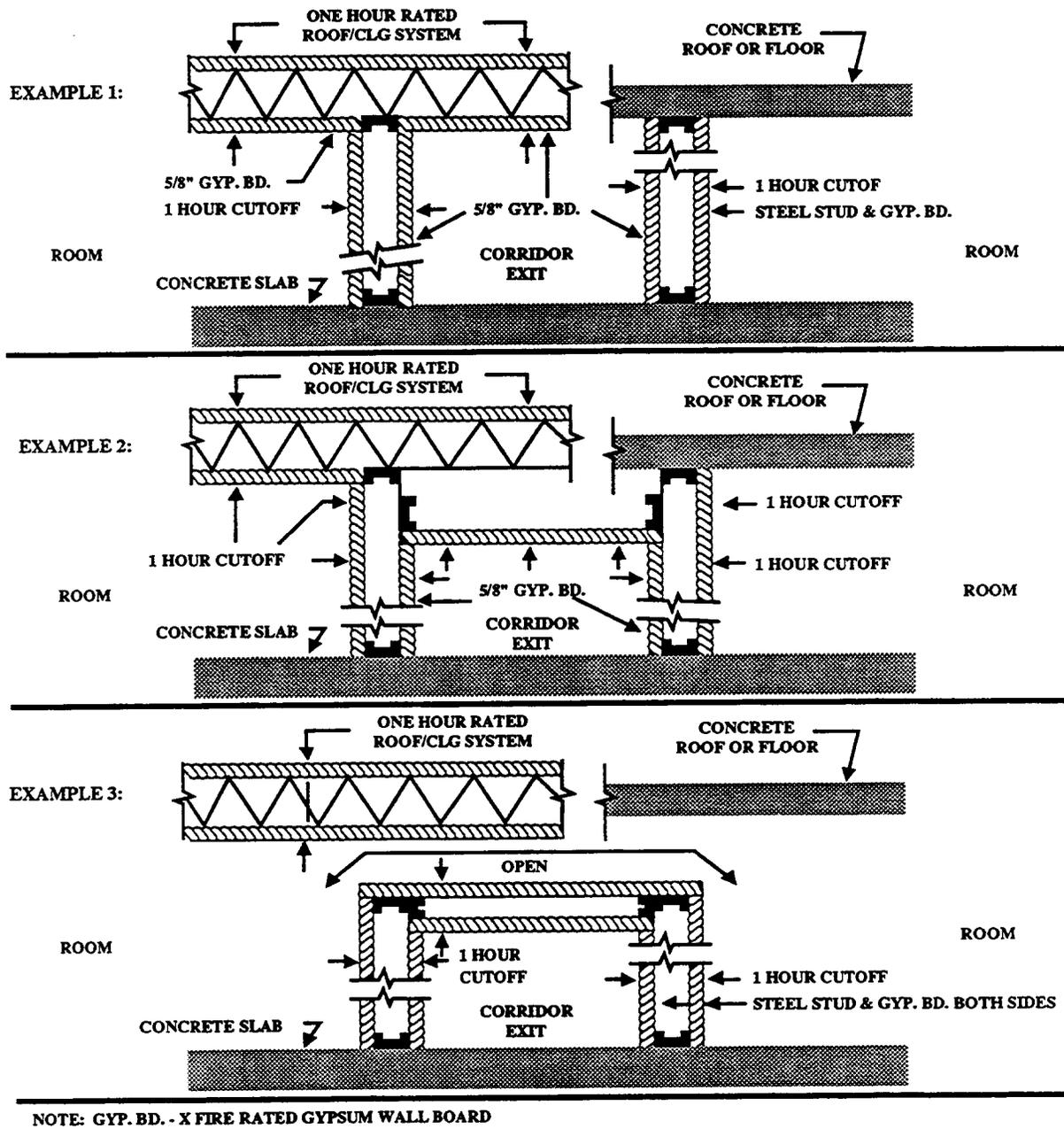
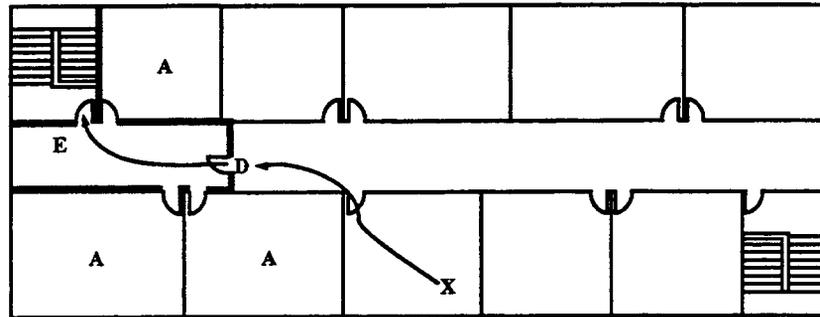


Figure 2 - Ceiling Assemblies

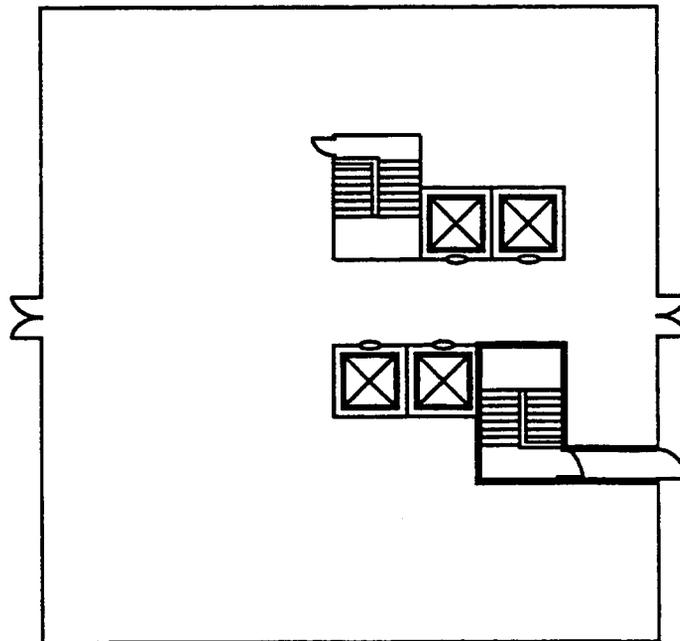
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EXIT PASSAGEWAY



Exit Passageway Used to Eliminate Excessive Travel Distance
 X → E > Permitted Travel Distance
 X → D ≤ Permitted Travel Distance



Exit Passageway To Connect Exit Stair To Exit Discharge

Fig. 3 - Exit Passageway

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