

# Federal Aviation Agency



AC NO : AC 150/5210-10

AIRPORTS

EFFECTIVE DATE

12/7/67

GIFT & EXCHANGE DIVISION

LIBRARY OF CONGRESS

10 FIRST ST SE

WASHINGTON, DC 20540

SUBJECT : AIRPORT FIRE AND RESCUE EQUIPMENT BUILDING GUIDE

FILE

1. PURPOSE. This advisory circular provides general guidance in site selection, design, and construction for use by airport authorities, architects, and engineers when preparing plans for aircraft fire and rescue equipment buildings hereinafter referred to as "fire stations."
2. CANCELLATION. FAA Airport Engineering Data Sheet No. 32, Airport Fire and Rescue Equipment Buildings Guide, dated July 1961, is cancelled.
3. REFERENCES. Copies of the following circulars and additional copies of this advisory circular may be obtained from the Department of Transportation, Distribution Unit, TAD-434.3, Washington, D.C. 20590:
  - a. AC 150/5210-6, Aircraft Fire and Rescue Facilities and Extinguishing Agents.
  - b. AC 150/5210-7, Aircraft Fire and Rescue Communications.
  - c. AC 150/5210-8, Aircraft Firefighting and Rescue Personnel and Personnel Clothing.
4. GENERAL.
  - a. This circular suggests principles for site locations, building design, and construction which should be applied in planning and developing airport fire stations.
  - b. The housing requirements for aircraft fire and rescue trucks, personnel, and equipment vary so widely for each airport that specific criteria covering site location, building design, and construction can only be determined on a case-by-case basis.
  - c. Fire stations should be constructed to house only the aircraft fire and rescue equipment on hand, on order, or budgeted.

- d. An increase in the aeronautical operation on the airport may require enlarging the fire station to accommodate an expanded aircraft fire and rescue service. Therefore, consideration should be given, during the planning stage, for the fire station to economically accommodate any increase in aircraft fire and rescue service generated by the addition of aeronautical operations.

## 5. SITE SELECTION.

- a. The time involved in responding to an emergency is the primary factor affecting the operating effectiveness of the aircraft firefighting and rescue service. Accordingly, use the utmost care in selecting an advantageous location for the fire station to provide for:
  - (1) Direct access to the terminal aprons without crossing active runways or taxiways.
  - (2) Unimpeded access routes to runways, taxiways, and aircraft parking areas in this order of importance.
  - (3) Maximum surveillance of all aircraft movement areas.
  - (4) Expansion of the fire station, due to an increase in the aeronautical operations, without:
    - (a) Creating emergency runs of excessive length.
    - (b) Limiting airport surveillance.
    - (c) Blocking fire traffic lanes.
    - (d) Impinging on adjacent roads, buildings, aprons, and runway or taxiway clearances.
- b. Some airports man their aircraft fire and rescue trucks with volunteers or auxiliary personnel employed by the airport or the airlines. When this type of access operation is considered, compromise between accessibility of equipment to personnel and location factors described in paragraph 5a based on minimizing overall emergency response time.
- c. Typical examples of acceptable site location are shown in Appendix 1, Figures 2 and 3.

6. TYPES OF FIRE STATIONS.

- a. Space requirement for fire stations has been correlated with airport indexes established in AC 150/5210-6 as shown in Appendix 1, Figure 1.
- b. Typical fire station floor plans for single- and multiple-stall stations are shown in Appendix 1, Figures 4 and 5.
- c. Airport fire stations are provided primarily to house the aircraft fire and rescue trucks and personnel as stated in AC 150/5210-6 and AC 150/5210-8. However, when the airport operator provides ambulance service and structural fire protection, he may elect to house these vehicles and the necessary operating personnel in the fire station. When this condition is contemplated, determine the type of station needed to support the aeronautical operations and then add the space required to house the additional equipment and operating personnel. For example, an Index VI airport may, in addition to the four aircraft fire and rescue trucks as suggested in AC 150/5210-6 to support the aeronautical operations, provide an ambulance and a structural fire pumper. Include in the fire station space to house these two additional trucks and dormitory space to accommodate the operating personnel.

7. BASIC ELEMENTS OF THE FIRE STATION. The basic elements of the fire station building should include:

- a. An apparatus room in which the aircraft fire and rescue trucks are housed. It should provide:
  - (1) Side-by-side parking of the trucks. Tandem parking is not recommended because an unforeseen mechanical failure in the lead truck would delay response by the rear truck in answering an alarm.
  - (2) Space for each truck as shown in Appendix 1, Figure 1. This space is considered sufficient to permit free movement of the crews around the trucks.
  - (3) Exit doors of the size shown in Appendix 1, Figure 1. Use doors of the counterbalanced overhead type, mechanically or electrically operated. Use overrides on electrically operated doors to preclude delay in case of power failure and provide stops to prevent closing in case an obstruction is encountered during closing operation.

- (4) A floor having sufficient strength to support the heaviest loaded truck. Four-wheel trucks grossing 45,000 pounds are not uncommon. The floor should be smooth, easily cleaned concrete with sufficient drains to permit flushing with a hose.
  - (5) A wall finish which is washable or otherwise easily cleaned. The finish should be selected for maintenance free characteristics rather than initial low cost.
  - (6) Good, natural light and ventilation.
  - (7) Artificial light at the illumination level as shown in paragraph 7j. If fluorescent light fixtures are provided, use "instant start" units.
  - (8) Convenient electrical outlets on each wall for trouble lights. Locate these outlets approximately 24 inches above the floor and on 8-foot centers of the usable wall area.
- b. A hose drying rack located adjacent to one of the side walls of the apparatus room. An incline rack is recommended as an economical method, and it occupies relatively little space.
- c. An alarm room with a watch desk and with the communication facilities as specified in AC 150/5210-7. Locate the necessary controls to operate the apparatus room doors and traffic lights in the vicinity of the fire station in this room. The alarm room should be of the size specified in Appendix 1, Figure 1, and be located:
- (1) On the field side of the fire station for maximum surveillance of the aeronautical operation.
  - (2) Close to the principal entrance to the building.
  - (3) Adjacent to the apparatus room with a glass partition for observation and control of apparatus room activities.
- d. A fire department office of the size specified in Appendix 1, Figure 1, with the necessary space for storing fire department records and for a work area for the fire chief. Locate it at an exterior wall and have an adjacent toilet room, if possible.

- e. A training room for teaching firefighting techniques; showing training films; and displaying bulletins, notices, and charts indicating configurations of various aircraft. The area specified in Appendix 1, Figure 1, is based on 30 square feet per man on a duty shift and on the manning recommendations shown in AC 150/5210-8. One portion of the room should be set aside for dining purposes with sufficient tables and chairs to accommodate the men on one duty shift. Provide wall space for displaying bulletins, notices, maps, and charts. The room should have the maximum amount of natural light and ventilation possible.
- f. A kitchen area of the size specified in Appendix 1, Figure 1, located adjacent to the training room with connecting door to training room or as an alcove in the office. Provide space for cooking areas which are separate from the office and with a doorway leading to the exterior.
- g. A dormitory with sleeping quarters for one duty shift of personnel when the airport fire department utilizes a 24-hour work shift. When site conditions permit, locate the dormitory on the ground floor, adjacent to the locker and toilet rooms. Normally, the number of beds for which provision will be made in the dormitory will be one bed per man on a duty shift. In some instances, local regulations may require a bed for each firefighter. The floor area recommended for each bed is shown in Appendix 1, Figure 1. Provide a partitioned area within the dormitory for the captain or fireman-in-charge, if deemed desirable.
  - (1) Provide closet space for the storage of linens, blankets, and cleaning equipment either in or adjacent to the dormitory area.
  - (2) If the dormitory is located on the second floor, additional showers and toilet facilities on that level should be considered.
- h. Locker and toilet facilities for all fire and rescue buildings. Types A and B fire stations should have one shower, one urinal, one lavatory, and one water closet. Types C and D fire stations should have two showers, two urinals, two lavatories, and two water closets. The room should be well heated and ventilated. Lighting should be in accordance with the level specified in paragraph 7j. Provide a ventilated locker for each man of the firefighting force. These facilities are the FAA recommended minimums; however, local health regulations may require a greater number of facilities.

1. A storage room of the size specified in Appendix 1, Figure 1, located adjacent to the apparatus rooms and provided with a minimum door opening of six feet. This room provides space for storing a reserve supply of foam liquid concentrate, dry chemical, other extinguishing agents, and fire department supplies. A floor drain in this room is recommended.
- j. Lighting of the levels shown below for the various rooms of the fire station:

Apparatus room	100-foot candles
Alarm room	150-foot candles
Fire department office	150-foot candles
Training room	150-foot candles
Kitchen	70-foot candles
Dormitory	50-foot candles
Locker and toilet rooms	50-foot candles
Storage room	50-foot candles

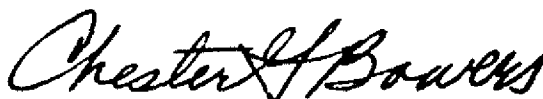
8. BUILDING CONSTRUCTION. Building construction should be in accordance with local codes of the political subdivision having jurisdiction.
  - a. Construction of the building should be as fire resistant as possible. Give special consideration to fireproofing if the dormitory is on the second floor. Materials enclosing the apparatus room should have at least a two-hour fire resistance rating. Openings between apparatus room and dormitories should be provided with either a vestibule or double acting double doors.
  - b. Floors of areas in the building adjacent to the apparatus room should be approximately six inches higher than the floor of the apparatus room. It is suggested that stairs leading to second floor areas be of a straight-line design without landings and a minimum width of six feet provided with safety treads.
  - c. Materials throughout the building should be selected with the object of keeping maintenance costs to a minimum. Allow generous provision for storage space in all areas of the building. Design the rooms to make cleaning easy. Avoid dust collecting alcoves, corners, and trim projections.
  - d. Construction of the building should include soundproofing to reduce the noise level below 112 PNDBS (Perceived Noise Decibels) in all living or work areas, except apparatus and storage rooms. This is particularly important at airports served by multi-engine turbine aircraft.

9. FIXTURES.

- a. Fixtures, such as, built-in shelves, racks, cabinets, lockers, sinks, water fountains, and toilet facilities, which after installation cannot be removed without renovation or rehabilitation of the building or part thereof, are considered as part of the fire station.
- b. Fixtures, such as, free-standing shelves, racks, cabinets, lockers, plug-in or piped-connected refrigerators, ranges, air conditioners, and water fountains or servicing equipment, even if permanently installed but not necessary for routine servicing or operating, are not considered as part of the building.
- c. Special fixtures required for efficient fire department operation should include:
  - (1) A raceway from the building exterior to facilitate the installation and maintenance of alarm, power, and communication equipment.
  - (2) A 2-inch water standpipe connection in the apparatus room valved and equipped with 2½-inch National Standard Fire Hose Threaded outlet.

10. UTILITIES. Utility transmission equipment for such items as telephone, electricity, gas, heat, sewage, and water, normally required, should be considered a part of the building.

11. COMBINATION FIRE STATION AND MAINTENANCE BUILDING. At airports in Indexes III and IV of AC 150/5210-6, it is sometimes convenient to house fire apparatus in a part of a building otherwise used to house equipment for maintenance purposes. This is an economical and satisfactory arrangement provided that necessary personnel and equipment facilities are available and that the site is in accordance with the conditions established in this circular. The space so provided should be separated by a partition to prevent tampering with the fire trucks and unauthorized use of component assemblies and hand tools.



Chester G. Bowers, Director  
Airports Service

Type Station	Index No. ●	No. of Stalls	APPARATUS ROOM					ROOM AREA (SQ. FT.) PROVIDED FOR					
			Stall		Door		Ceiling	Alarm	Office	Training	Kitchen	Dormitory (Per Man)	Storage
			Depth (Ft.)	Width (Ft.)	Height (Ft.)	Width (Ft.)	Height (Ft.)						
A	III-IV	1	35	14	15	12	17	Note 1	100		Note 2	70	100
B	V	2	40	14-16	15	12	17	100	125	150	100	70	150
C	VI-VII	4	40	14-16	15	12	17	100	125	300	125	70	200
D	VIII	5	40	14-16	15	12	17	100	125	350	125	70	250

NOTES: 1. Combine with office space.

2. Alcove in office.

- Housing for aircraft fire and rescue equipment is not normally required at Index I and Index II airports.

FIGURE 1. AIRPORT FIRE AND RESCUE EQUIPMENT BUILDING ELEMENTS



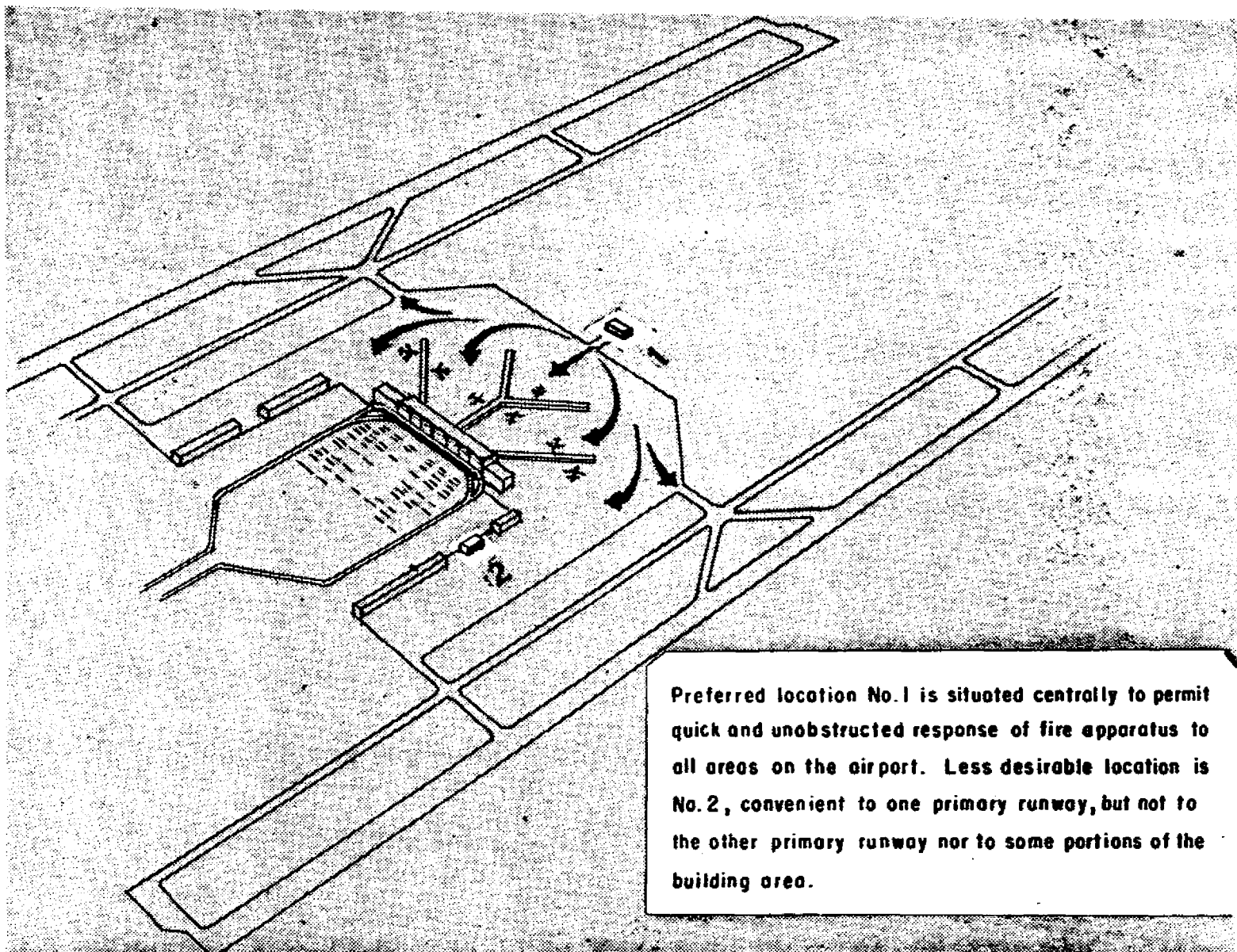


FIGURE 2. TYPICAL FIRE BUILDING SITE LOCATION

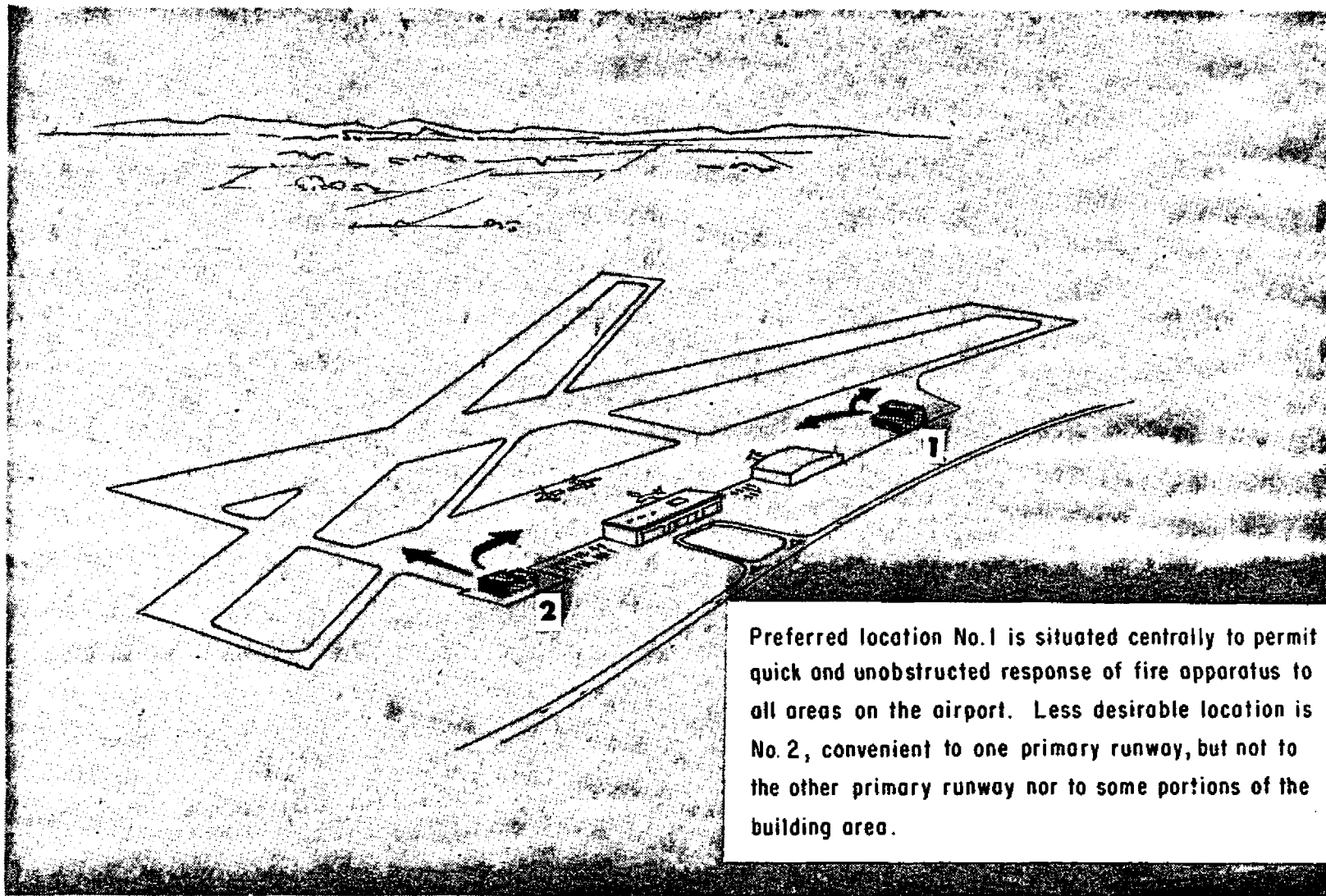


FIGURE 3. TYPICAL FIRE BUILDING SITE LOCATION

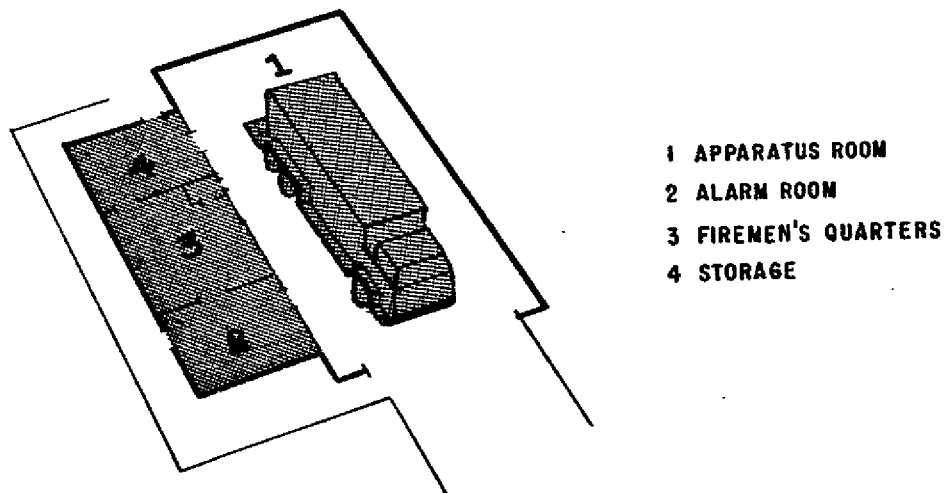
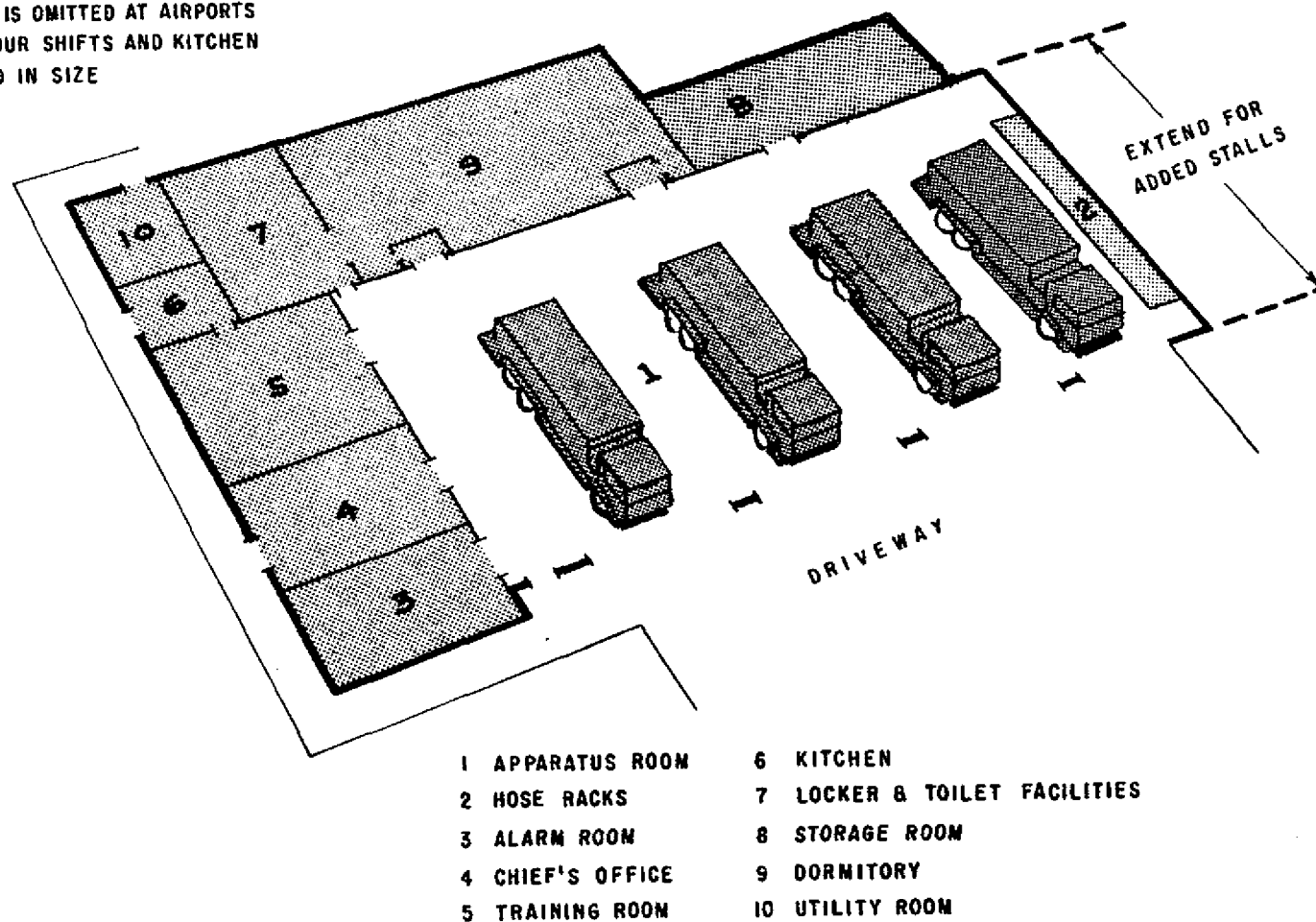


FIGURE 4. ONE-STALL FIRE BUILDING SPACE RELATIONSHIPS

**NOTE**  
DORMITORY IS OMITTED AT AIRPORTS  
USING 8 HOUR SHIFTS AND KITCHEN  
IS REDUCED IN SIZE



**FIGURE 5. THREE-STALL FIRE BUILDING SPACE RELATIONSHIPS**