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ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

SUBJECT: AIRPORT TERMINALS AND THE PHYSICALLY HANDICAPPED

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1. PURPOSE. This advisory circular discusses the problems of the physically handicapped air traveler and suggests features that can be incorporated in the modification or new construction of airport terminal buildings and surrounding areas to help such travelers in movement and the use of facilities.
 2. REFERENCE. American Standard Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped, dated October 31, 1961, may be obtained from the American Standards Association, Inc., 10 East 40th Street, New York, New York 10016.
 3. BACKGROUND. The speed and comfort of air travel have, over the past several years, become more and more appealing to people who are physically handicapped. Airport terminal facilities, as the point of transition between air and surface transportation, have not, with a few notable exceptions, kept pace with the convenience offered by the airplane. It is in these areas that the handicapped may experience the greatest degree of discomfort and inconvenience. Even among those physically handicapped persons who are ambulatory, such as the blind, people with cardiovascular ailments, or the aged, the problems in making that transition can be uncomfortable and may be dangerous. The situation can be alleviated at little extra cost, however, by thoughtful consideration of their special needs, especially if the problem is faced in the planning stage. The United States Public Health Service has estimated that one American out of every twelve has some degree of ambulatory limitation, and concern for his welfare is not only humanitarian but leads to the increased good will of the handicapped person, his family, and his friends.
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4. ENDORSEMENT. These recommendations have been reviewed and are strongly supported by the President's Committee on Employment of the Handicapped. The Committee points out that many of the so-called functional limitations generally attributed to persons with ambulatory impairments would largely disappear if their architectural environment were designed to accommodate their special needs. Architectural barriers, according to the Committee, are a primary deterrent to employment of the handicapped. The Committee, accordingly, considers the elimination of such barriers essential to its ultimate goal.
5. CIRCULATION. Movement about the terminal area, from surface transportation to aircraft or vice versa, is generally planned with the able-bodied person in mind. As more physically handicapped people adopt air travel, it becomes more important that some provision should be made in as central a location as possible to minimize distance to be traveled and energy expended.
 - a. Vehicular Loading and Unloading Areas. Preferential treatment is often given to taxicabs and limousines in the assignment of curb lanes for loading and unloading, and the assignment is generally rigidly enforced. Physically handicapped persons arriving by other types of vehicles find it difficult to move the greater distance from lanes assigned to private cars and to cross one or more lanes of traffic plus one or more "safety islands." Consideration should be given to reserving one or two unloading spaces, properly indicated by signs and separated from the main flow of traffic, for the use of cars with handicapped passengers and adjacent to the airport terminal building entrance. If possible, attendants should be provided to assist with baggage.
 - b. Parking Areas. Since persons with serious physical disabilities may drive to airports in their own cars, the assignment of special parking areas should be considered. There are those who can drive safely but experience considerable discomfort if required to walk the long distances between parking lot and terminal building found at some airports. At larger airports, the establishment of a shuttle bus service between the two would not only help the handicapped but would find favor with able-bodied passengers who have to carry luggage.
 - c. Exterior Ramps and Stairways. Persons who propel themselves in wheel chairs will find ramped building entrances essential, and those who are ambulatory but require crutches or other supports find ramps helpful. Ramp gradients should not exceed 8 percent,

and ramps should have nonslip surfaces with a handrail on at least one side. Canopies or radiant heating to prevent slipperiness are recommended. Where steps are unavoidable, it is preferable that exterior stairway risers should not exceed 5-3/4 inches high and tread not less than 14 inches wide. Handrails for both ramps and stairways should be 32 inches high.

- d. Exterior Doors. To accommodate wheel chairs, clear openings of doors should be at least 36 inches wide. Doors should be activated mechanically by a pressure-sensitive treadle device that will hold the door open as long as the treadle is occupied on either side of the door; time-lapse devices that close doors after a prescribed delay should be avoided as dangerous to those who move slowly.
- e. Interior Stairways. Risers should not exceed 7 inches in height, and 6 inches is preferred. Treads should be of nonskid material, and nosings should be avoided because they pose difficulties for persons who have artificial legs or use leg braces. A landing midway in the stair run is desirable for those who have heart disease or suffer from dizziness. Stairs should be well lit and fitted with handrails on both sides. Handrails should be 32 inches high and extend 18 inches beyond the top and bottom risers. Ramps should be provided where minor changes in floor level occur.
- f. Interior Doors. The pressure required to open a door should not exceed 8 pounds, and a maximum of 5 pounds is preferable. Approaches to doors used by the physically handicapped should be level for a distance of 5 feet. Attention should be given to the direction of swing so that wheel chair occupants can open doors without complex maneuvering. Knurled knobs, handles, and panic bars are preferred and should be not more than 3 feet 6 inches above the floor level. Thresholds more than 3/4 inch high cannot be negotiated by wheel chairs. Revolving doors are useless to wheel chair users and are difficult for the blind or for persons on crutches.
- g. Elevators. The movement of persons in wheel chairs from floor to floor, whether attended or unattended, can only be done effectively by an elevator. The elevator cab should be sufficiently large to accommodate a wheel chair and one or two standing persons. The average wheel chair requires a floor area of 42 inches by 25 inches. The minimum interior space required to turn a wheel chair around inside is 61 inches deep by 66 inches wide. If the elevator is automatically operated, the controls should be placed at a height that can be reached by a seated person, and the cab should be self-leveling. Doors should be adjusted to remain open at least 8 seconds, to close slowly, and to respond to both a sensitive safety edge and photoelectric cell door openers. Directional signs to the elevator should be placed at various points about the building.

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- b. Warning Signals. Signals used to indicate a hazardous condition, such as the opening of a door onto an area used by baggage trucks, should be both audible and visual to protect both the blind and the deaf.
- c. Curbs. Any change from an area reserved for pedestrian movement to a roadway for vehicles should be marked by a curb, which serves as a warning to a blind person using a cane. Where curbs are constructed, a ramp wide enough to accommodate a wheel chair should be provided for those wheel chair occupants who propel themselves.

8. OTHER CONVENIENCES.

- a. Drinking Fountains. Occasional drinking fountains should be positioned at such height above the floor that they can be used by occupants of wheel chairs but placed high enough that the arm of the wheel chair can be moved under the drinking fountain. Small children and their parents will also find this of benefit.
- b. Telephones. Telephone booths are useless to persons in wheel chairs unless specially designed. Some hand-set type telephones should be placed at a height at which wheel chair occupants can reach the dial comfortably. A small open-fronted enclosure lined with acoustical material will help with the noise problem.

- 9. HOW TO OBTAIN THIS PUBLICATION. Additional copies of this advisory circular, AC 150/5200-11, Airport Terminals and the Physically Handicapped, may be obtained from the Department of Transportation, Distribution Unit, TAD-484.3, Washington, D.C. 20590.



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