# REPORT TO THE CONGRESS



# Further Action Needed To Make All Public Buildings Accessible To The Physically Handicapped

Department of Defense
Department of Health, Education, and Welfare
Department of Housing and Urban Development
General Services Administration

Enactment of the Architectural Barriers Act in 1968 was a step toward making sure that public buildings are accessible to the physically handicapped. A basic problem is that implementing action is discretionary with the agencies. GAO's main concern relates to section 1 of the act which defines the term "building." This report recommends additional legislation by the Congress and further action by Federal agencies to correct shortcomings uncovered by GAO's review.

*BY THE COMPTROLLER GENERAL OF THE UNITED STATES*

FPCD-75-166

JULY 15, 1975

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-182030

To the President of the Senate and the
Speaker of the House of Representatives

The Architectural Barriers Act of 1968 was enacted to insure that federally financed public buildings are designed and constructed to be accessible to the physically handicapped. This report discusses the need for certain legislative and administrative actions if the act's purpose is to be fulfilled.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67). During our review, we received several requests from Members of Congress to review the implementation and administration of the act. Their concerns were addressed in our review.

We did not obtain formal comments from officials of the agencies discussed in the report because they generally agreed with its contents when we discussed the report with them informally. The officials said several actions had been or would be taken to implement our recommendations.

We are sending copies of this report to the Director, Office of Management and Budget; the Administrator, General Services Administration; the Secretary of Health, Education, and Welfare; the Secretary of Housing and Urban Development; the Secretaries of Defense, the Army, the Navy, and the Air Force; the Chairman, Architectural and Transportation Barriers Compliance Board; the President's Committee on Employment of the Handicapped; interested congressional committees; Members of Congress; and other interested parties.

Comptroller General
of the United States

# Contents

ABBREVIATIONS

| | |
|---|---|
| ANSI Standard | American National Standard Specifications for Making Buildings and Facilities Accessible to, and Usable By, the Physically Handicapped |
| DOD | Department of Defense |
| FPMR | Federal Property Management Regulations |
| GAO | General Accounting Office |
| GSA | General Services Administration |
| HEW | Department of Health, Education, and Welfare |
| HUD | Department of Housing and Urban Development |

COMPTROLLER GENERAL'S REPORT TO THE CONGRESS

# FURTHER ACTION NEEDED TO MAKE ALL PUBLIC BUILDINGS ACCESSIBLE TO THE PHYSICALLY HANDICAPPED

Departments of Defense; Health, Education, and Welfare; Housing and Urban Development; and the General Services Administration

## D I G E S T

The Congress should amend existing legislation to:

--Impose a clear statutory mandate that Federal agencies named in the Architectural Barriers Act insure that public buildings are made accessible to the physically handicapped.

--Include within the coverage of the act all Government-leased buildings and facilities intended for public use or in which the physically handicapped might be employed as well as all privately owned buildings leased to the Government for public housing.

--Require that agencies named in the act establish a system of continuing surveys and investigations to insure compliance with prescribed standards.

--Remove the present exemption of the U.S. Postal Service from coverage by the Architectural Barriers Act. (See pp. 36 to 37.)

Specific language for clarifying the Federal laws is provided in this report. (See pp. 37 to 39.)

The act authorized the General Services Administration and the Departments of Housing and Urban Development and Defense, in consultation

with the Department of Health, Education, and Welfare, to prescribe standards which would result in buildings being accessible to the physically handicapped.

These Departments agreed to adopt the American National Standard Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped, A117.1-1961, as criteria to be followed in achieving barrier-free buildings. (See pp. 2 and 78.)

Although adoption of the Standard was a great step forward in promoting accessibility, the Standard's range is minimal, and its coverage of buildings, facilities, and situations is limited. (See pp. 30 to 34.) Federal agencies have neither considered the applicability of the Standard to their construction needs nor modified the Standard to cover their particular types of construction. (See pp. 42, 56, 69, and 78.)

The Standard in particular does not cover all portions of residential structures under responsibility of the Department of Housing and Urban Development. (See p. 56.)

Agencies have used the Standard for 6 years with only minor administrative exceptions. (See p. 78.) Efforts to establish new standards have only recently been made.

The Architectural and Transportation Barriers Compliance Board should coordinate the development of standards by those agencies charged with construction responsibility to eliminate all barriers. (See p. 39.)

GAO's findings are based on inspections of 314 federally financed buildings and/or building plans located in 66 geographical areas of 35 States and the District of

Columbia. All buildings inspected were constructed, altered, or leased after enactment of the Architectural Barriers Act in August 1968. (See p. 4.)

GAO's recommendations to each agency are in chapters 4, 5, 6, and 7.

# CHAPTER 1

# INTRODUCTION

Estimates of the number of physically handicapped people in the United States range from 18 to 68 million, depending mainly on how handicapped is defined. Although the severity of their handicaps vary, these individuals all have basic physical disabilities which restrict their daily activities. These disabilities include impairments that confine individuals to wheelchairs or necessitate the use of braces or crutches; blindness or deafness which affects an individual's safe functioning in a public area; or decreased mobility resulting from aging, accident, or disease.

If the handicapped cannot enter and use public buildings, they cannot easily vote, obtain government services, conduct business, or become independent and self-supporting. Efforts to enhance talents and market job skills become meaningless when the job site and usual places of business are inaccessible.

Accessibility of public buildings is essential if the handicapped are to have the same rights and opportunities as the able bodied in obtaining government services and employment outside their homes.

## CONGRESSIONAL MANDATE TO ELIMINATE ARCHITECTURAL BARRIERS

The Vocational Rehabilitation Act, amended in 1965 to expand the public program for rehabilitating the handicapped, authorized the National Commission on Architectural Barriers. The Commission grew out of a congressional desire to eliminate architectural barriers and to establish plans for further action.

The congressional mandate climaxed the efforts of the public and nonprofit groups that had worked to secure voluntary compliance with the American National Standard Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped, A117.1-1961 (ANSI Standard).

The ANSI Standard was developed by the President's Committee on Employment of the Handicapped, the National

Society for Crippled Children and Adults, and various Federal and private agencies and was field tested by disabled students from the University of Illinois. On October 31, 1961, the American National Standards Institute, established to coordinate the development of voluntary national standards, issued the ANSI Standard. The Standard was distributed throughout the United States by various organizations, including the National Easter Seal Society for Crippled Children and Adults.

By 1965, 24 States had taken some kind of legislative action to eliminate architectural barriers in public buildings. Much of the legislation, however, was too discretionary and not comprehensive in coverage. Too few public buildings were being constructed barrier free. There had been no concerted local efforts to activate an accessibility program. At the Federal level, no Government-wide order had been issued to insure elimination of barriers in the design and construction of federally assisted projects.

In 1967 the Commission recommended to the Congress legislation requiring accessibility in all buildings leased or owned by the Government or constructed with Federal funds. On August 12, 1968, the Congress enacted Public Law 90-480, known as the Architectural Barriers Act of 1968 (82 Stat. 718, 42 U.S.C. 4151 et seq.). The act's purpose was to insure that certain federally funded buildings were designed and constructed to be accessible to the physically handicapped. (See app. I.)

Included in the act were federally financed buildings in which a physically handicapped person might live or work and buildings intended for public use. Privately owned residential structures and those on a military installation to be used primarily by able-bodied military personnel were specifically excluded.

Sections 2, 3, and 4 of the act authorized the Administrator of the General Services Administration(GSA) and the Secretaries of Housing and Urban Development (HUD) and Defense (DOD), each in consultation with the Secretary of Health, Education, and Welfare (HEW), to prescribe standards for the design, construction, and alteration of buildings. In practice, each agency followed the ANSI Standard, which by that time had been adopted by numerous States and Federal agencies.

Section 6 of the act authorized each agency (1) to make whatever surveys and investigations deemed necessary to insure compliance with the standards and (2) to modify or waive the standards on a case-by-case basis upon application by the head of the agency involved.

The Architectural Barriers Act brought the Federal Government to the level of legislative initiative already reached in 1968 by 34 States.

Public Law 91-205, approved March 5, 1970, amended the Architectural Barriers Act to make it applicable to the Washington, D.C., Metro subway facilities now under construction.

Section 502 of the Rehabilitation Act of 1973 (87 Stat. 391, 29 U.S.C. 792), enacted on September 26, 1973, created an Architectural and Transportation Barriers Compliance Board.

The Board's functions include:

--Insuring compliance with the standards prescribed by GSA, DOD, and HUD pursuant to the Architectural Barriers Act.

--Initiating investigations on the nature of architectural, transportation, and attitudinal barriers confronting the handicapped, particularly with respect to public buildings and monuments, parks and parklands, public transportation systems, and residential and institutional housing.

--Considering the housing needs of the handicapped.

--Determining how and to what extent transportation barriers impede the mobility of the handicapped and considering ways in which their travel expenses to and from work can be met or subsidized.

--Determining the actions being taken by other governmental units and public and nonprofit agencies and preparing proposals for consolidating the efforts of agencies, organizations, and groups whose cooperation is essential for effective and comprehensive action.

--Conducting investigations, holding public hearings, and issuing such orders as it deems necessary to insure compliance with the act's provisions.

--Making recommendations to the President and to the Congress for administration and legislation as deemed necessary or desirable to eliminate architectural, transportation, and attitudinal barriers to the handicapped.

The Board was established as an independent body composed initially of eight agencies--HEW; HUD; GSA; the Departments of the Interior, Labor, and Transportation; the Veterans Administration; and the Postal Service--with no single agency as head. On December 7, 1974, section 502 was amended by section III of the Rehabilitation Act Amendments of 1974 (88 Stat. 1617) to:

--Make DOD a Board member.

--Make the Secretary, HEW, or his designee, Chairman of the Board.

--Give the Board authority to appoint a consumer advisory panel, a majority of whose members would be handicapped, to give the Board guidance, advice, and recommendations.

--Give the Board authority to withhold or suspend Federal funds to any building found not to be in compliance with standards prescribed pursuant to the Architectural Barriers Act, as amended.

By 1974 all 50 States and the District of Columbia had, through legislation, executive directives, or building codes, required the elimination of architectural barriers in public buildings.

## SCOPE OF REVIEW

We inspected 314 federally financed buildings and/or building plans in 66 geographical areas of 35 States and the District of Columbia. (See apps. III and IV.) We tried to achieve regional and agency balance and, as much as possible, buildings were randomly selected.

We performed the inspections from July through December 1974, using a checklist based on the ANSI Standard to judge the buildings. (See app. II.) All inspected buildings were constructed, altered, or leased after enactment of the Architectural Barriers Act in August 1968.

Although more than 30 Federal agencies have construction and leasing authority and authority to fund construction through grants and loans, our review was limited to GSA, HUD, DOD, and HEW, which were given statutory responsibilities under the act.

To determine whether these agencies effectively administered the act, we assessed the

--clarity and adequacy of policy guidance and instructions,

--action taken in prescribing standards for making buildings accessible,

--procedures for modifying or waiving the prescribed standards, and

--procedures for reviewing and evaluating compliance with the prescribed standards.

We discussed the problem of accessibility in public buildings and the ANSI Standard with physically handicapped persons, architects, and representatives of national and local organizations for the handicapped. (See app. V.)

In addition, we developed information on the cost of making buildings barrier free.

## CHAPTER 2

## BARRIERS IN BUILDINGS REMAIN

The Architectural Barriers Act has had only a minor effect on making public buildings barrier free. Specifically:

--No building inspected was completely free of barriers; however, most buildings were in varying stages of compliance with the ANSI Standard.

--Restrooms; controls for heat, air-conditioning, and lighting; identifications of building areas; elevators; parking lots; and doors and doorways most often did not conform to the ANSI Standard.

--Buildings currently being designed and constructed are only slightly more barrier free than buildings designed and constructed within the years immediately after passage of the act.

--Federally owned buildings had better facilities for the physically handicapped than federally leased buildings.

Major barriers found from the parking lots to the building entrances included streets to cross, high curbs to negotiate, and steps to climb. Inside the buildings, major barriers included restrooms with unusable toilet stalls, water fountains that were too high, and elevators with controls beyond the reach of the physically handicapped.

Each agency reviewed had taken some action to make buildings accessible to the physically handicapped before the act was passed. DOD advised the Army, Navy, and Air Force early in 1962 to incorporate ANSI Standard provisions into designs and specifications for new buildings and facilities and into major modifications wherever appropriate and feasible. DOD took no further action after the act was passed because it believed existing criteria, which cited the ANSI Standard, were sufficient to implement the act.

GSA, although its criteria were less comprehensive than the ANSI Standard's, had provided wheelchair access to Federal buildings since the late 1950s. However, not until September 2, 1969, did GSA adopt the ANSI Standard and make it applicable to all construction under its reponsibility.

HEW incorporated the ANSI Standard in its construction manual, making it applicable to all construction under its responsibility as early as 1965. HUD did not make the ANSI Standard mandatory until October 1969, although it had distributed copies of the Standard to Department and regional offices in March 1962.

## RESULTS OF OUR INSPECTIONS

The ANSI Standard sets forth minimum design requirements for 16 different aspects of a building--such as grading, parking lots, walks, entrances, doors and doorways, and restrooms--to make it accessible and functional for the physically handicapped without loss of function or space for the general public.

Using ANSI Standard criteria we measured the progress of GSA, DOD, HUD, and HEW in achieving barrier-free buildings by inspecting 314 buildings constructed, altered, or leased after passage of the act. The following information has been summarized from checklists completed during our inspections. All buildings were not evaluated for every category because certain categories were not applicable to some buildings or undeterminable from building plans. For example, not every building had public telephones, ramps, etc., and some building plans did not show the exact height of every fixture. (See app. II for complete summary data on checklist questions.)

### Site development

Grading:

--8 percent of the buildings did not have proper grading permitting access to normal entrances by the physically handicapped.

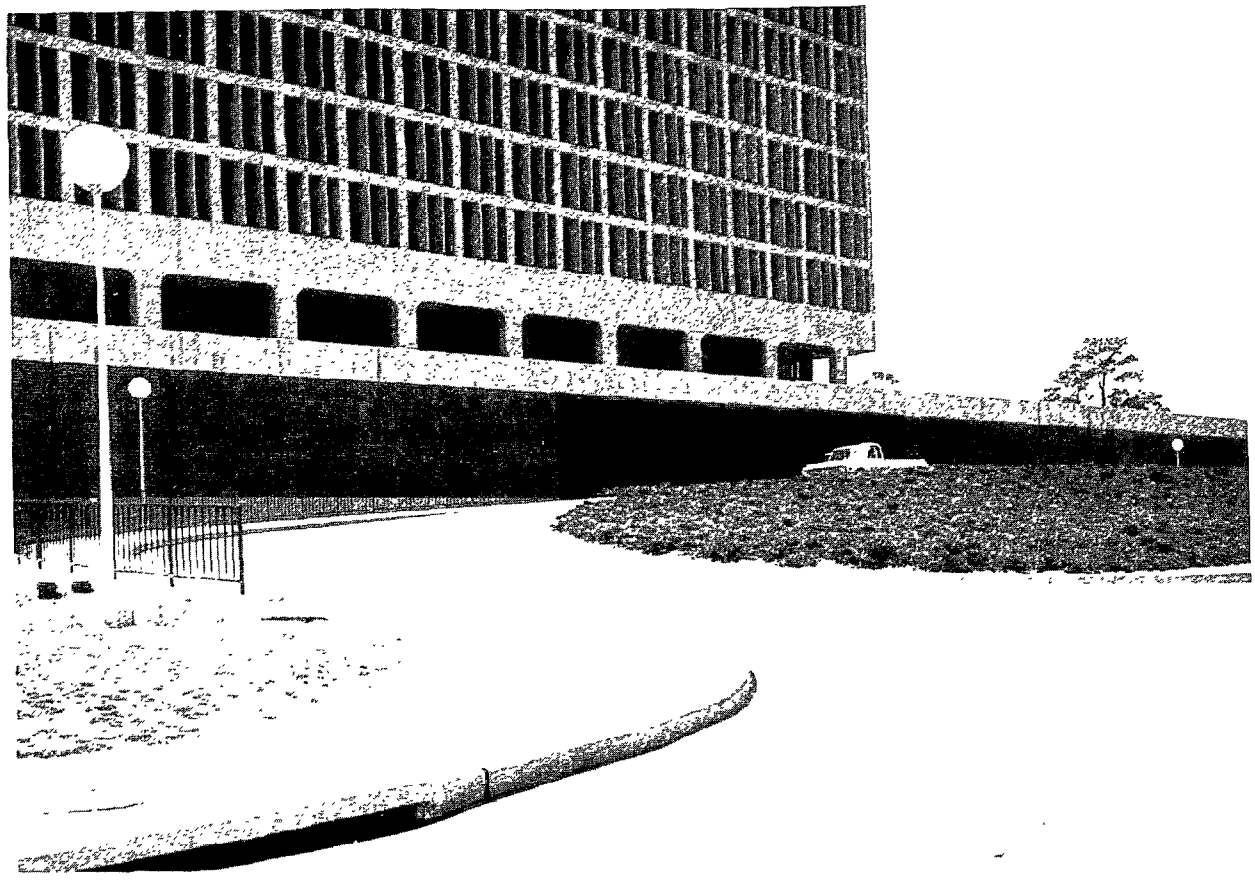
Walks:

--11 percent of the buildings had walks with gradients exceeding 5 percent,

--36 percent of the walks did not blend to a common level whenever they crossed other walks, driveways, or parking lots, and

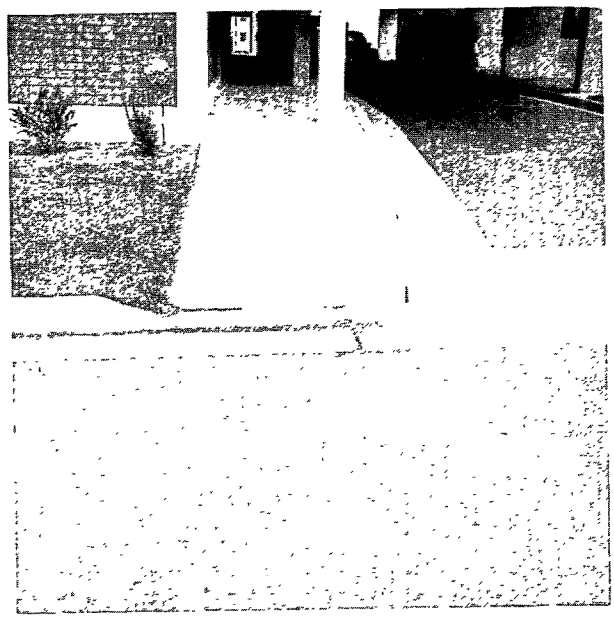
--16 percent of the walks did not have adequate platforms at entrances to buildings.

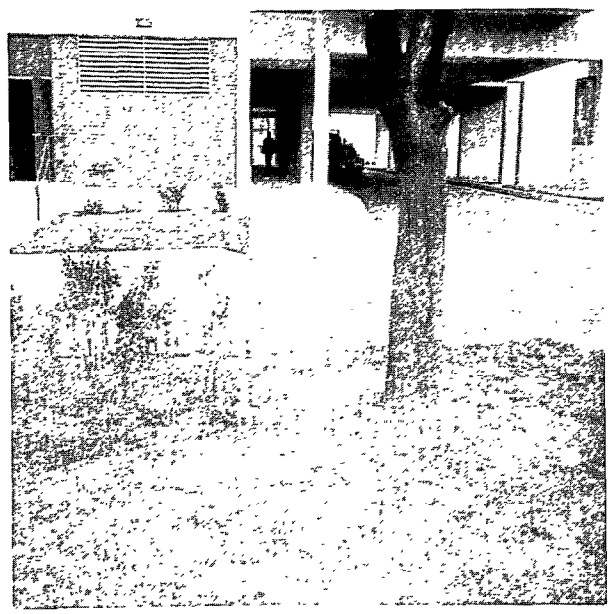
Following are illustrations of typical walk conditions we observed.



NAVAL HOSPITAL--CHARLESTON, S.C.

**Curb and walk at rear of building, serving several thousand outpatients a month, that would limit access to building (elevation of walk exceeds 5 percent).**





GOVAN'S MANOR--HIGHRISE FOR THE ELDERLY--BALTIMORE, MD.
Walk with a 2-inch curb and a gradient exceeding 10 percent precludes wheelchair traffic.

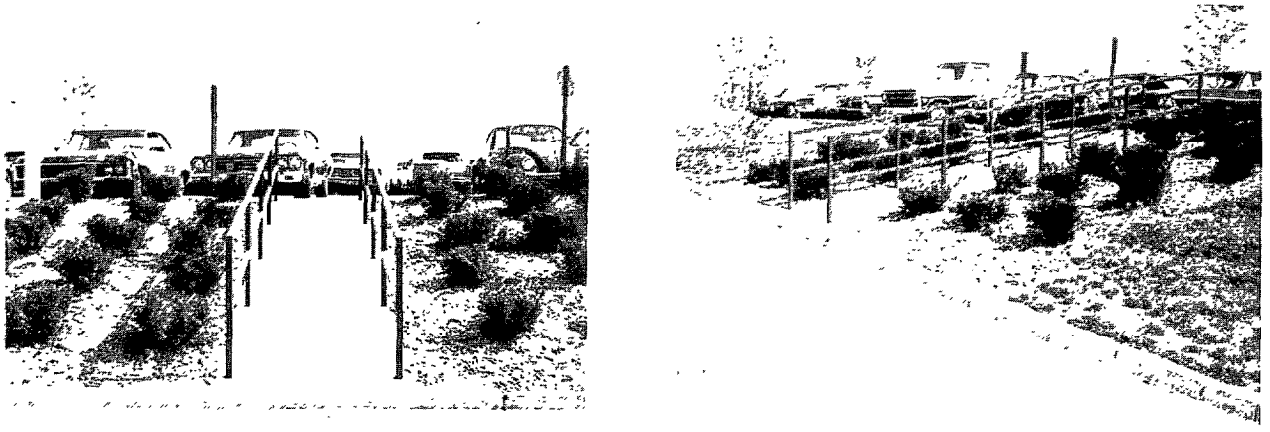
Parking lots:

--79 percent of the buildings did not have parking with spaces designated for the physically handicapped,

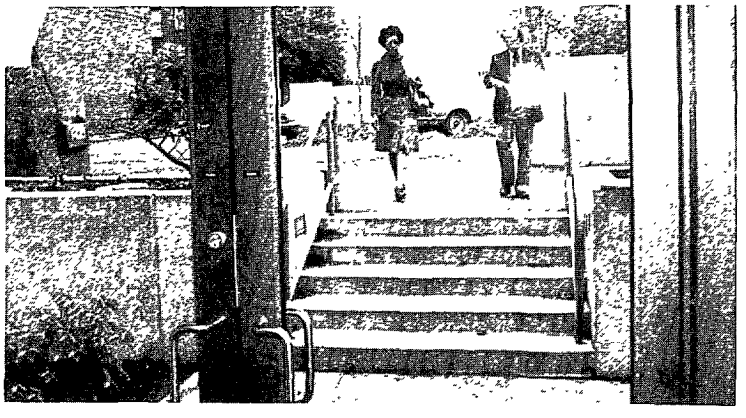
--79 percent of the parking was located where the physically disabled had to wheel or walk behind parked cars, and

--51 percent of the parking did not have a clear, level path (void of curbs) from the parking lot to the building entrance.

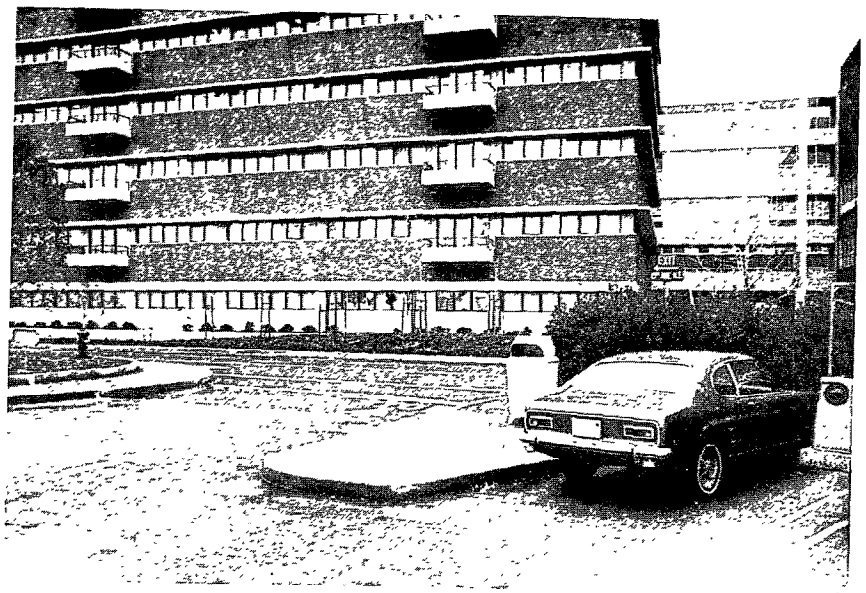
The following photographs depict typical parking lot conditions.

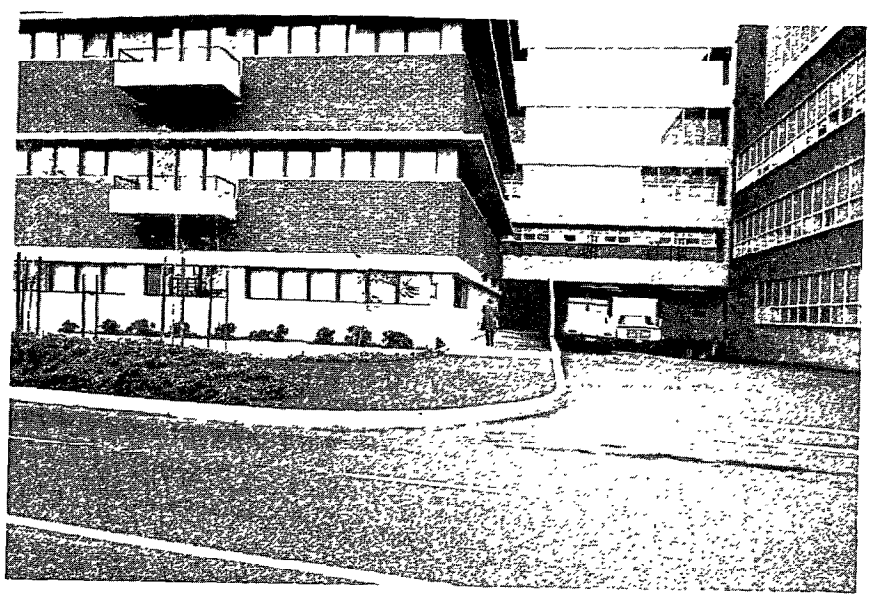


**NAVAL HOSPITAL--NEW LONDON, CONN.**
**Ramp with curb from parking lot to building emergency entrance.**



**HARBORVIEW COMMUNITY MENTAL HEALTH CENTER--SEATTLE, WASH.**
**Steps preclude access from rear parking lot to rear entrance.**





HEALTH SCIENCES BUILDING–SCHOOL OF DENTISTRY–UNIVERSITY OF WASHINGTON–SEATTLE, WASH.

A three-lane road and a 9-inch curb preclude access to the building from the parking lot.

Buildings

Ramps:

--26 percent of the buildings had ramps with a slope exceeding 8.33 percent,

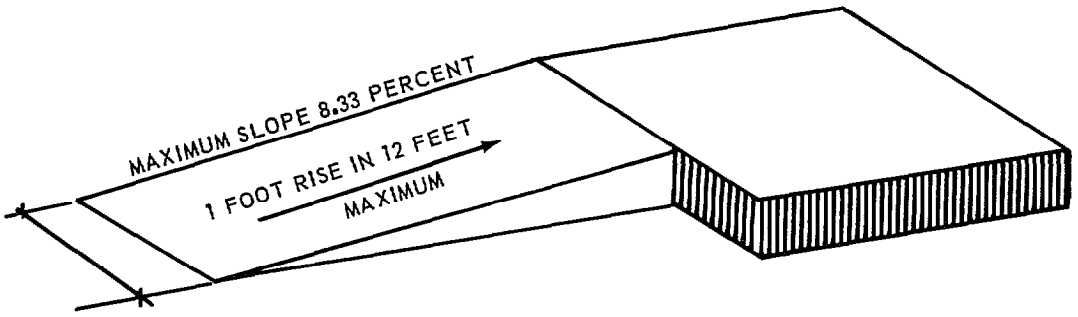
--where the gradient exceeded 5 percent, 35 percent of the ramps did not have handrails on on at least one side,

--of the 65 percent providing handrails, 67 percent were not at the proper 32 inch height,

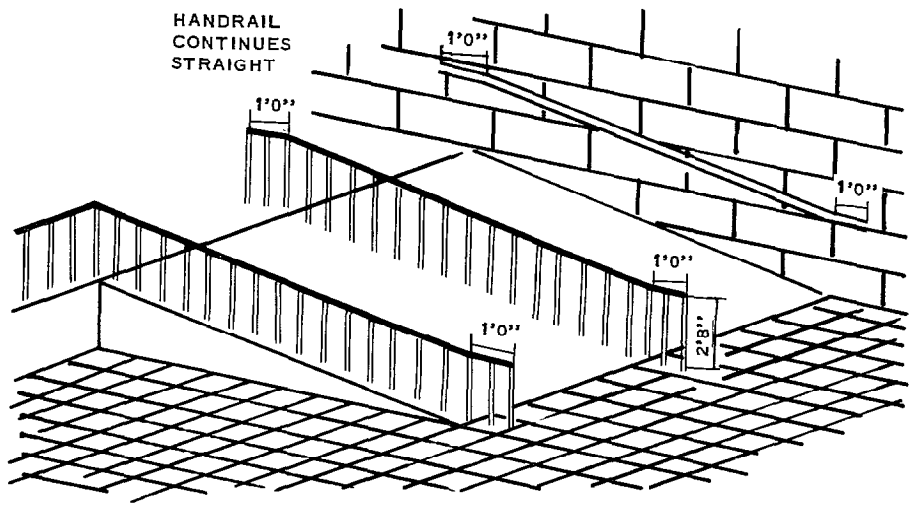
--73 percent of the handrails did not extend 1 foot beyond the top and bottom of the ramp, and

--61 percent did not provide rest areas at 30-foot intervals when the grade exceeded 5 percent.

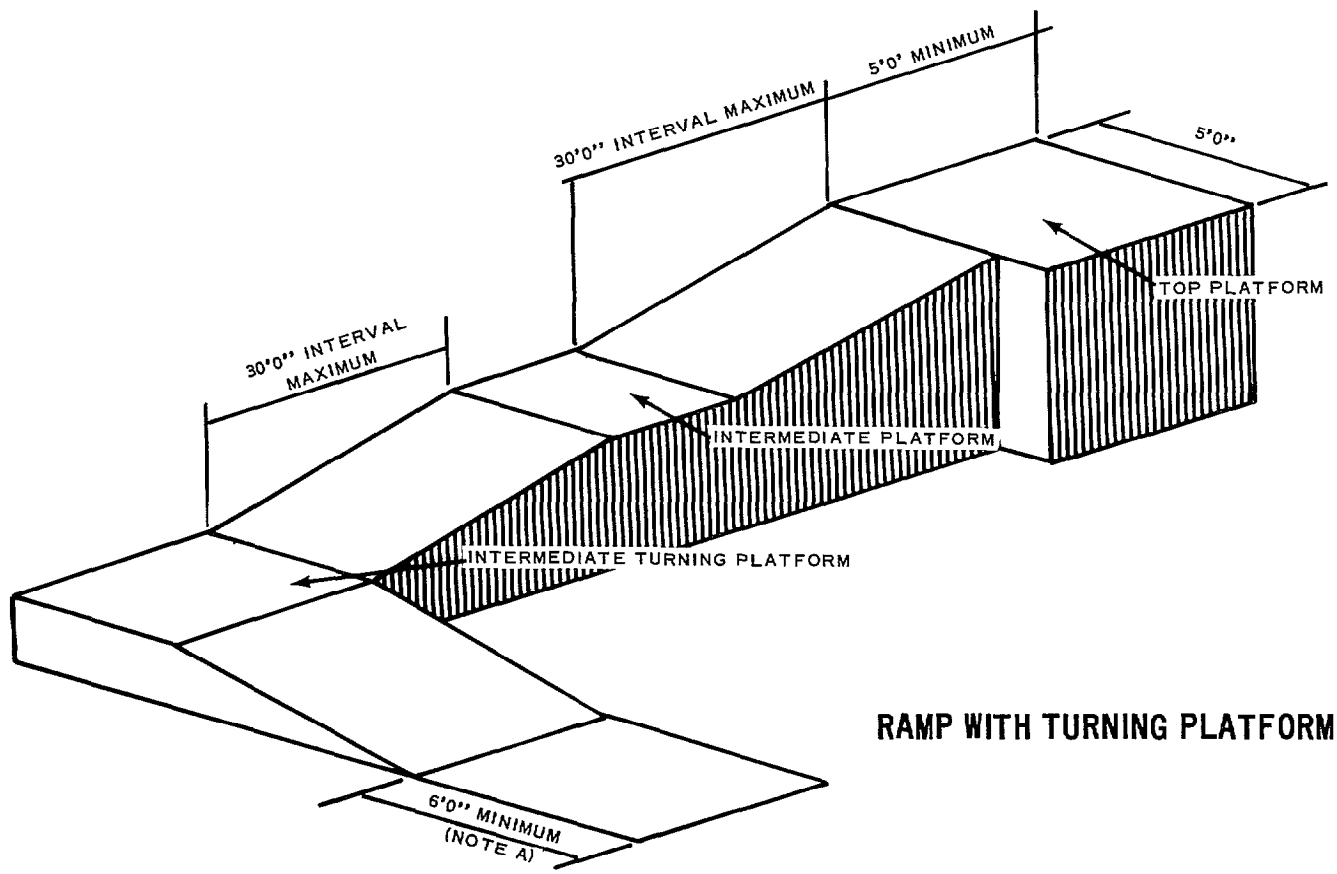
Following are illustrations of ramps that comply with the ANSI Standard.




RAMP WITH CORRECT SLOPE




## RAMP WITH APPROPRIATE HANDRAILS




## RAMP WITH TURNING PLATFORM

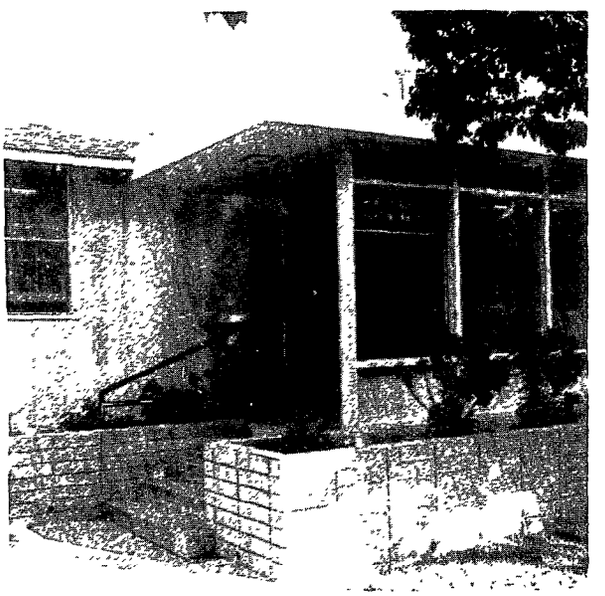
FROM "AN ILLUSTRATED HANDBOOK OF THE HANDICAPPED SECTION OF THE NORTH CAROLINA STATE BUILDING CODE." ILLUSTRATIONS COPYRIGHT 1974 BY RONALD L. MACE. PERMISSION GRANTED FOR USE IN THIS REPORT.

A THE NORTH CAROLINA BUILDING CODE REQUIRES 5' 0" MINIMUM CLEARANCE AT THE BOTTOM OF THE RAMP, WHEREAS THE ANSI STANDARD REQUIRES 6' 0" MINIMUM CLEARANCE.

Entrances:

--24 percent did not have at least one entrance usable by persons in wheelchairs.

The following photographs show unusable entrances.



**PHARMACY/IMMUNIZATION CENTER--FORT MACARTHUR--SAN PEDRO, CALIF.**
**Steps at front entrance and the absence of a level platform at rear entrance preclude access to building.**

**U.S. POST OFFICE--FT. GORDON, GA.**
**Entrance not usable by persons in wheelchairs because of steps.**

Doors and doorways:

--26 percent of the buildings had doors with less than a 32-inch clear opening.

--16 percent had doors that were not operable by a single effort, and

--12 percent had doorsills with sharp inclines or abrupt changes in level.

Stairs:

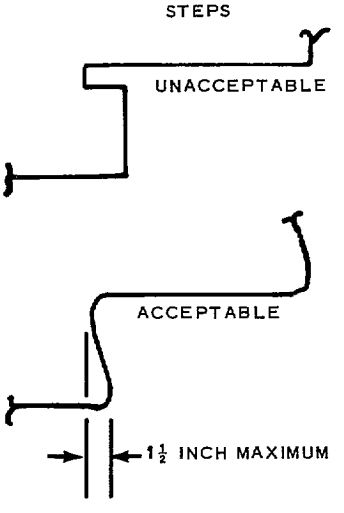
--27 percent of the buildings had steps with abrupt nosing,

--64 percent had steps without 32 inch high handrails, and

--20 percent had steps exceeding 7 inches in height.

Steps must be designed to preclude abrupt nosing which can trip individuals with artificial legs, long leg braces, or comparable restrictions.

The following illustrates acceptable and unacceptable steps.



Floors:

--17 percent of the buildings had floors with slippery surfaces and

--4 percent had floors where there was a difference in level between the corridor and adjacent rooms.

Restrooms:

--35 percent of the buildings did not have a least one restroom for each sex on each floor with facilities for the physically handicapped,

--38 percent had restrooms that did not have ample turning space of 60-by-60 inches at door entrances for wheelchair traffic.

--36 percent had restrooms that did not have toilet stalls at least 3 feet wide,

--18 percent had restrooms that did not have toilet stalls at least 4 feet, 8 inches deep,

--62 percent had restrooms with toilet stall doors less than 32 inches wide that did not swing out,

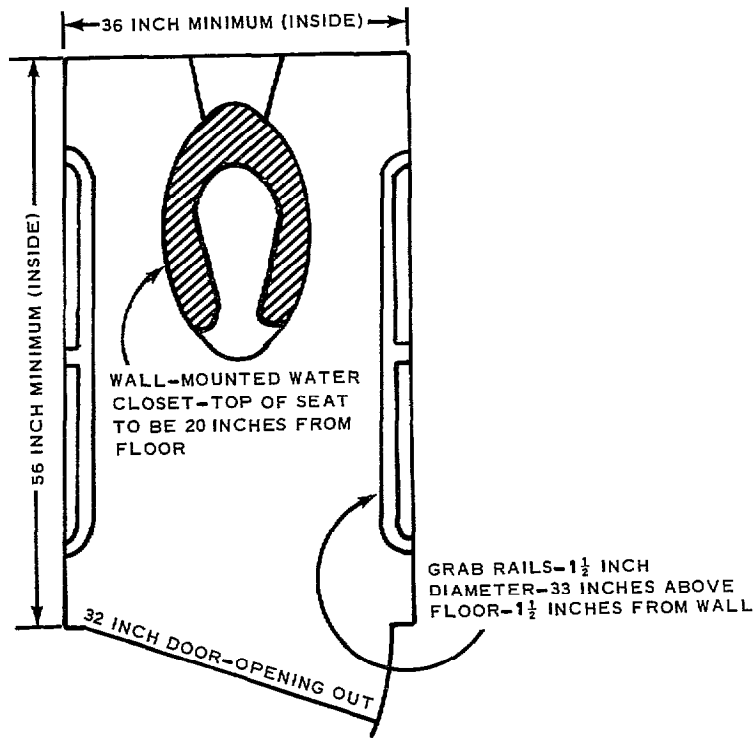
--58 percent had toilet stalls with incorrectly mounted grab bars,

--69 percent had toilets with water closet seats that were not 20 inches from the floor,

--76 percent did not have lavatories usable by individuals in wheelchairs, and

--74 percent did not have restrooms with at least one mirror mounted no higher than 40 inches; 64 percent did not have a least one shelf in the restroom mounted as low as 40 inches; and 90 percent did not have a towel dispenser mounted no higher than 40 inches from the floor.

The following illustrates a toilet stall for use by the handicapped that complies with the ANSI Standard.




Water fountains:

--34 percent of the buildings did not have at least one accessible water fountain on each floor and

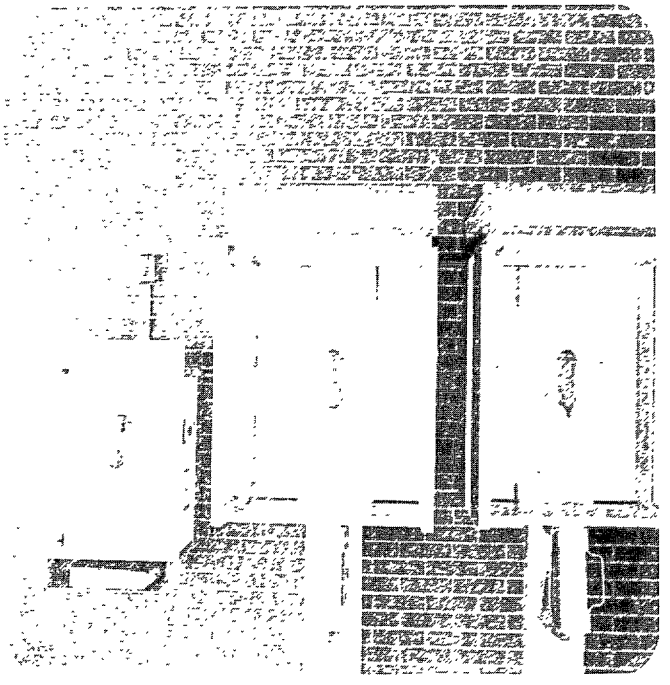
--77 percent had wall-mounted water fountains higher than 36 inches.

Public telephones:

--63 percent of the buildings did not have at least one accessible public telephone in each bank of telephones and

--99 percent did not have telephones equipped for persons with hearing disabilities.

An example of an accessible telephone equipped for persons with hearing disabilities is shown below.



**UNIVERSITY OF NORTH FLORIDA--JACKSONVILLE, FLA.**
**Lowered telephone equipped for persons with hearing disabilities.**

Elevators:

--5 percent of the multiple-story buildings did not have elevators,

--73 percent had elevators with call buttons higher than 48 inches from the floor,

--95 percent had elevators with control buttons inside the elevators higher than 48 inches, and

--47 percent had elevators with a cab size less than 60-by-60 inches.

Controls:

--73 percent had controls (switches, fire alarms, thermostats, etc.) located more than 48 inches above the floor.

Identification:

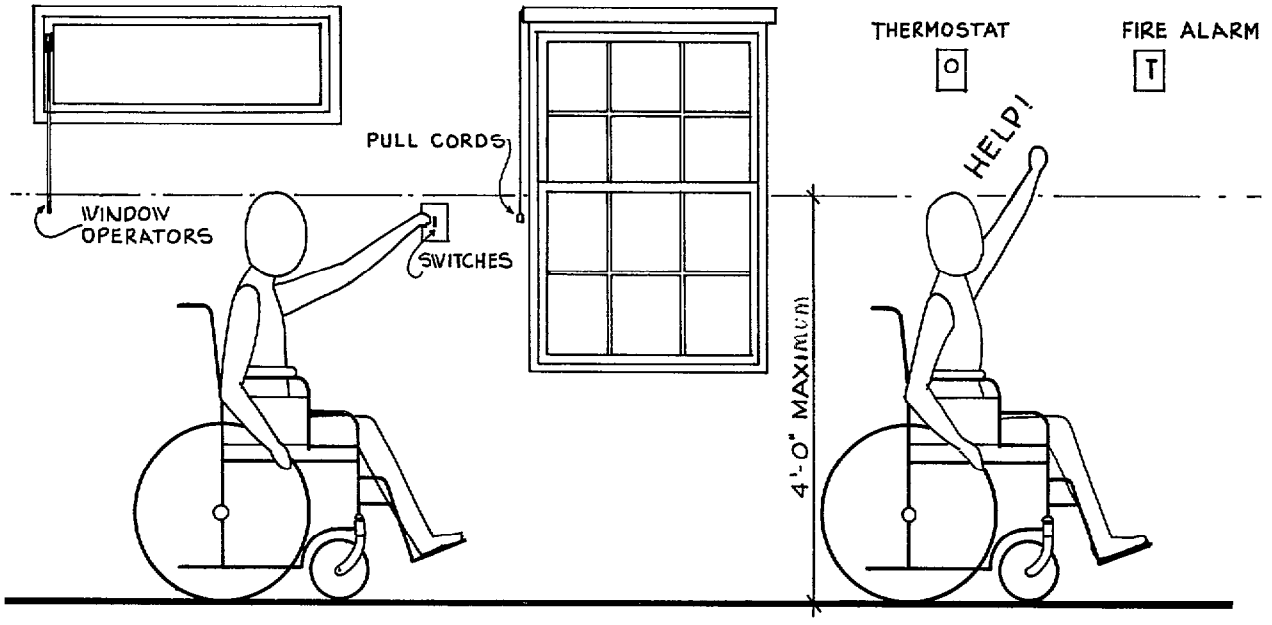
--42 percent did not have raised or recessed letters or numbers to identify offices or rooms for the blind.

Warning signals:

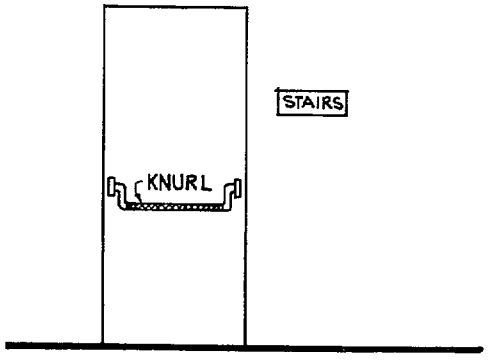
--89 percent did not have simultaneous audible and visual warning signals.

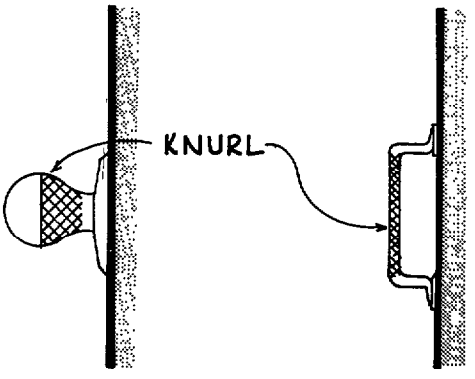
Hazards:

--86 percent did not have knurled door knobs to warn blind persons of dangerous areas.




## ILLUSTRATIONS OF APPROPRIATE CONTROLS, IDENTIFICATION, AND WARNING OF HAZARDS



NONCOMPLIANCE BY ACCESSIBILITY CATEGORY

Buildings and building plans inspected were in varying stages of compliance with the ANSI Standard. For our analysis, if any particular feature within a given accessibility category in a building did not comply with the Standard, the total category was judged in noncompliance. For example, we judged a restroom in noncompliance if toilet stalls and lavatories did not conform with the ANSI Standard, even though the restroom had complying towel dispensers, disposal units, mirrors, and shelves. The following table shows the percentage of noncompliance by accessibility category.

Percentage of Noncompliance by
Agency and Accessibility Category (note a)

| Category | All agencies (note b) | GSA | DOD | HEW | HUD |
|---|---|---|---|---|---|
| Restrooms | 98 | 100 | 96 | 100 | 100 |
| Controls | 93 | 90 | 94 | 96 | 82 |
| Identification | 93 | 100 | 100 | 88 | 72 |
| Elevators | 93 | 80 | 89 | 98 | 100 |
| Parking lots | 91 | 97 | 88 | 91 | 100 |
| Doors and doorways | 91 | 81 | 87 | 99 | 95 |
| Warning signals | 90 | 94 | 97 | 77 | 100 |
| Public telephones | 89 | 73 | 100 | 82 | 89 |
| Stairs and steps | 86 | 81 | 87 | 86 | 89 |
| Water fountains | 79 | 74 | 88 | 73 | 69 |
| Ramps | 65 | 74 | 67 | 57 | 75 |
| Walks | 54 | 46 | 60 | 44 | 68 |
| Hazards | 35 | 56 | 37 | 29 | 26 |
| Entrances/exits | 26 | 23 | 37 | 12 | 28 |
| Floors | 21 | 26 | 22 | 19 | 21 |
| Grading | 8 | - | 9 | 10 | 10 |

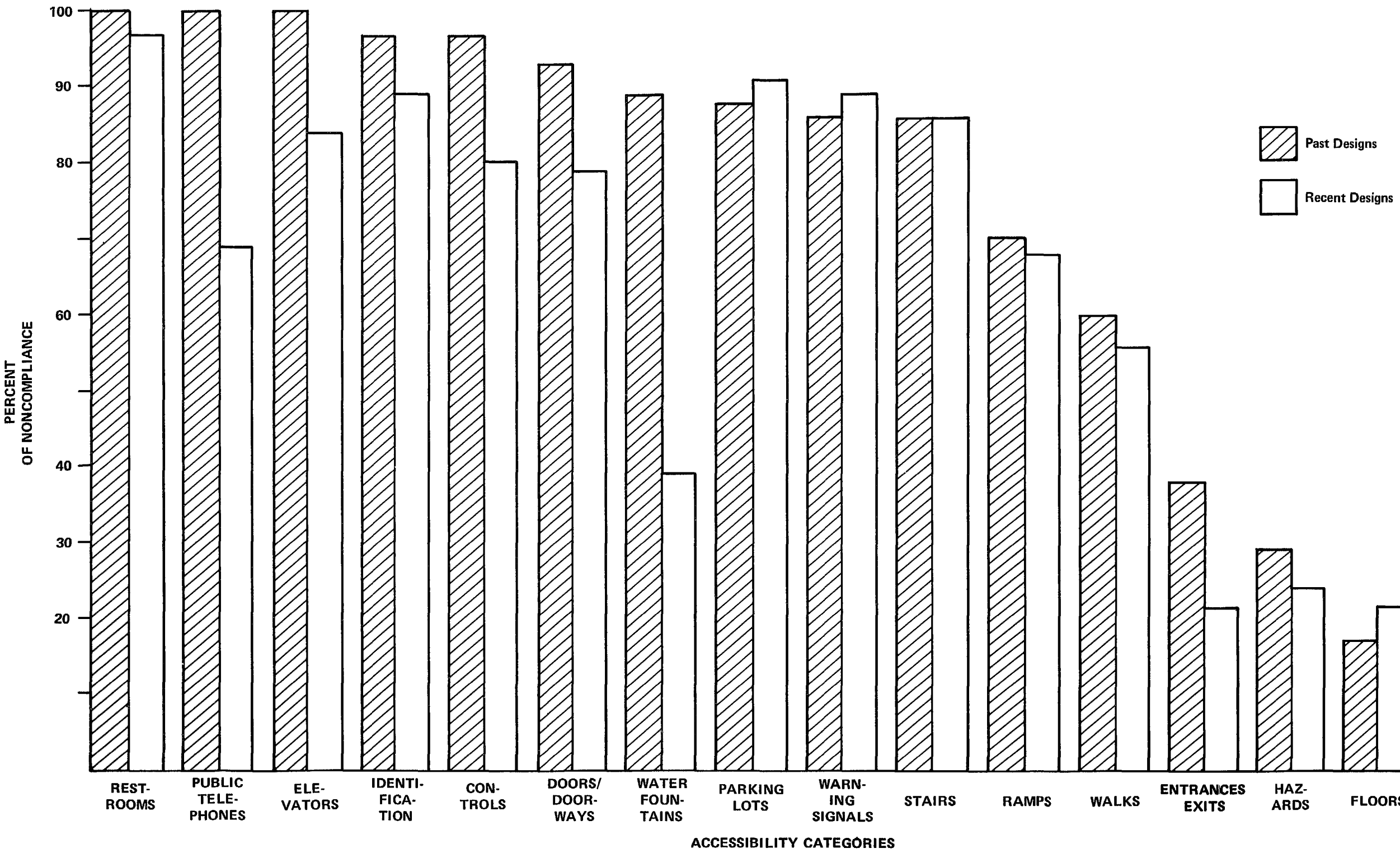
[a]Total number of buildings is not the same for each category because all accessibility categories did not exist in each building inspected.

[b]Accessibility categories ranked in descending order by frequency of noncompliance.

## NONCOMPLIANCE WITH ANSI STANDARD BEFORE AND AFTER DECEMBER 1971

We analyzed data for 58 buildings where design was completed before December 31, 1971, and compared their compliance statistics with equivalent statistics of 34 buildings where design was started after December 1971. We found that there had been about a 10-percent decrease in overall noncompliance with the ANSI Standard since the act was passed in August 1968. The percent of noncompliance increased for parking lots, warning signals, and floors; noncompliance for stairs remained about the same. However, there were substantial decreases in the percent of noncompliance for public telephones and water fountains. The following graph shows the percentage changes in noncompliance for each accessibility category.

## ANALYSIS OF NONCOMPLIANCE: A COMPARISON OF BUILDINGS DESIGNED BEFORE AND AFTER DECEMBER 1971



## FEDERALLY OWNED BUILDINGS MORE IN COMPLIANCE THAN LEASED BUILDINGS

Although no building was completely barrier free, leased buildings were consistently more inaccessible and posed the most serious problems to the handicapped.

In comparing accessibility of Government-owned buildings with Government-leased buildings, we used the percentage of noncompliance in three accessibility categories. This distinction was necessary because not all Government-leased space is required to conform to all 16 areas of the ANSI Standard. Government-leased space is acquired through GSA's solicitation for offers, which requires that leased space comply with ANSI Standard criteria pertaining to access, restrooms, and drinking fountains. A comparison of these areas follows.

Comparative Analysis of Leased and Owned Facilities

| Category/question | Percent of noncompliance: Leased space | Owned space |
|---|---|---|
| Entrances: | | |
| --Is at least one primary entrance to the building usable by individuals in wheelchairs? | 32 | 4 |
| Restrooms: | | |
| --Is there at least one toilet for each sex on each floor with facilities for the physically handicapped? | 44 | 4 |
| --Do toilet rooms have at least one toilet stall that: | | |
| (a) is 3 feet wide? | 54 | 8 |
| (b) is at least 4 feet, 8 inches deep? | 31 | 13 |
| (c) has a door that is 32 inches wide and swings out? | 85 | 44 |
| (d) has grab bars on each side, 33 inches high and parallel to the floor? | 80 | 9 |
| (e) has water closet with seat 20 inches from the floor? | 86 | 28 |
| --Do toilet rooms have lavatories with narrow aprons which when mounted at standard height are usable by individuals in wheelchairs? | 83 | 62 |
| Water fountains: | | |
| --Is there at least one drinking fountain on each floor usable by the physically handicapped? | 50 | 18 |
| --If coolers are wall mounted are they hand operated, with basins 36 inches or less from the floor? | 85 | 42 |

## CHAPTER 3

## ARCHITECTURAL BARRIERS ACT AND ANSI STANDARD HAVE NOT BEEN EFFECTIVE

The Architectural Barriers Act has not effectively insured the design and construction of barrier-free buildings. Generally, we found no major legal infirmities in the agencies' implementation of the act; however, several problems in the language of the act and the ANSI Standard have adversely affected the act's implementation.

### DEFICIENCIES OF THE ACT

For an act to be effective its requirements must be clearly stated. The Architectural Barriers Act and its implementing regulations have several language deficiencies which have lessened their effectiveness.

The act left implementing action of the named agencies to their discretion. It authorized the agencies to prescribe whatever standards were necessary to assure access to handicapped persons, to waive the standards on a case-by-case basis, and to make surveys and investigations deemed necessary to assure compliance with established standards. These provisions amounted to a delegation of authority to carry out the congressional intent of the act rather than a statutory mandate. The determination of the standards' content, waiver of the established standards, or nature or number of surveys is purely discretionary. We believe that the lack of success by GSA, HUD, DOD, and HEW in removing architectural barriers has resulted at least in part from the permissiveness of the act's terms.

Another deficiency in the act is its definition of "building." Section 1 defines "building" as:

> "* * * any building or facility (other than (a) a privately owned residential structure and (b) any building or facility on a military installation designed and constructed primarily for use by able bodied military personnel) the intended use for which either will require that such building or

facility be accessible to the public, or may result in the employment or residence therein of physically handicapped persons, which building or facility is:

(1) to be constructed or altered by or on behalf of the United States:

(2) to be leased in whole or in part by the United States after the date of enactment of this Act after construction or alteration in accordance with plans and specifications of the United States; or

(3) to be financed in whole or in part by a grant or a loan made by the United States after the date of enactment of this Act if such building or facility is subject to standards for design, construction, or alteration issued under authority of the law authorizing such grant or loan."

This definition specifically excludes any privately owned residential structure. Therefore, privately owned buildings leased to the Government for public housing are not covered. HUD regulations, issued pursuant to section 3 of the act, also exclude privately owned residential structures leased for public housing.

Section 1(2) excludes from coverage those buildings and facilities leased by the Government which have not been constructed or altered pursuant to U.S.-drafted plans and specifications. Since the Government leases many existing buildings without substantial alteration, the act's coverage is incomplete to the extent that those buildings are excluded.

Section 1(3) states that the Architectural Barriers Act is applicable only where the statutory authority for the grant or loan in question imposes standards on the recipient for the design, construction, or alteration of Government-financed buildings or facilities. Therefore, buildings and facilities designed, constructed, or altered with revenue sharing funds appear to be exempt from the act, since the authorizing statute (State and Local Fiscal Assistance Act of 1972, 86 Stat. 919) does not impose any of the above-mentioned conditions.

In addition, many buildings and facilities whose construction is financed through Federal grant-in-aid programs are exempted from the act by section 1(3) since the statutes authorizing the grants do not require the recipients to adhere to standards for the design, construction, or alteration of buildings and facilities. For example, the Housing and Community Development Act of 1974 (88 Stat. 633) authorizes the Secretary of HUD to make grants to States and local governments to help finance community development programs. Section 105 of the act provides that a program may include "(5) special projects directed to the removal of material and architectural barriers which restrict the mobility and accessibility of elderly and handicapped persons." The act does not require, however, that buildings financed by such grants be subject to any particular standard for promoting accessibility to handicapped persons or to any other Government-required design or construction standards; hence, the Architectural Barriers Act does not apply.

The United States Postal Service, established after passage of the Architectural Barriers Act, is also exempted. The legislative history of the act indicates a congressional intent that buildings and facilities of what was then the Post Office Department be covered. However, the Postal Reorganization Act of 1970 exempted the newly created Postal Service from application of any Federal law dealing with public or Federal contracts and property except for those specifically enumerated in 39 U.S.C. 410(b). Section 410(b) does not list the Architectural Barriers Act.

The Postal Service has issued a regulation requiring compliance with the ANSI Standard. This administrative action is commendable; however, because post offices are so frequently used by the public, they should be subject to a statutory, rather than merely a regulatory, requirement.

Finally, section 5 of the act requires that alterations conform to the standards prescribed under the act; however, the act does not require alterations to be made specifically to accommodate the handicapped. There is no requirement for making the total building or area under alteration accessible pursuant to the act's standards.

## DEFICIENCIES OF ANSI STANDARD

Even though the ANSI Standard was prescribed by each Federal agency and represents an important step toward promoting accessibility in public buildings, it is generally considered an incomplete, minimum standard.

--It defines the various categories of accessibility but lacks specificity in certain important areas, which results in varying interpretations of its specifications.

--It does not specify what facilities are to be covered and to what extent its specifications should be followed.

--It does not cover residential housing.

--It contains very few descriptive drawings.

Most of these inadequacies have been recognized and actions are in process to update or arrive at new standards. However, almost 7 years after passage of the Architectural Barriers Act, the ANSI Standard is still being followed with only minor administrative exceptions.

### Comparison of ANSI Standard with North Carolina standard

North Carolina is like the other 49 States and the District of Columbia in that, through legislation, executive orders, or building codes, it requires public buildings to be barrier free.

The North Carolina State Building Code, amended in December 1973, incorporated mandatory requirements for making buildings accessible to the physically handicapped. These requirements (standards) are concise, definitive, and better illustrated than the ANSI Standard and contain provisions for administration and enforcement.

Comparatively, the ANSI Standard is largely prescriptive and requires interpretation to implement. For example, paragraph 1.1.1 states, "This standard applies to all buildings

and facilities used by the public* * *." The words "used by the public" are ambiguous.

In contrast, the North Carolina Code, under section (11x)1a (scope), states, "This standard applies to all buildings and facilities regulated by the North Carolina State Building Code, with the exception of single and two-family detached dwellings in accordance with the following: * * *." It then defines exactly what structures are subject to the code.

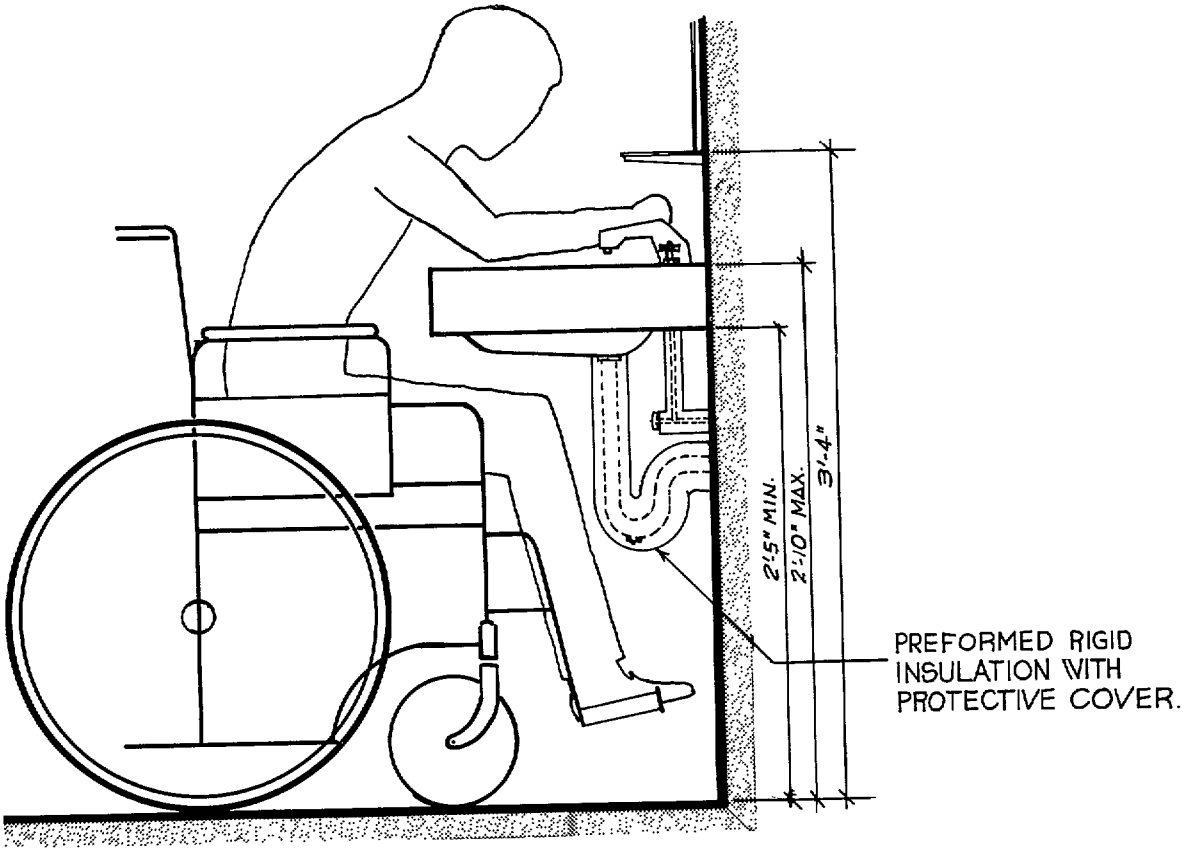
The ANSI Standard makes frequent reference to "appropriate number" concerning, for example, toilet facilities, drinking fountains, towel racks, towel dispensers, public telephones, hearing devices on telephones, and similar equipment. The word "some" is used to denote numbers for mirrors and shelves. Inferences are made that all equipment of certain types must be suited to the handicapped. In each case a judgmental decision is necessary as to what constitutes "appropriate number" and "some." Federal agency guidelines do not clarify these terms.

The North Carolina Code, on the other hand, provides clear instructions for toilet room facilities. For example,

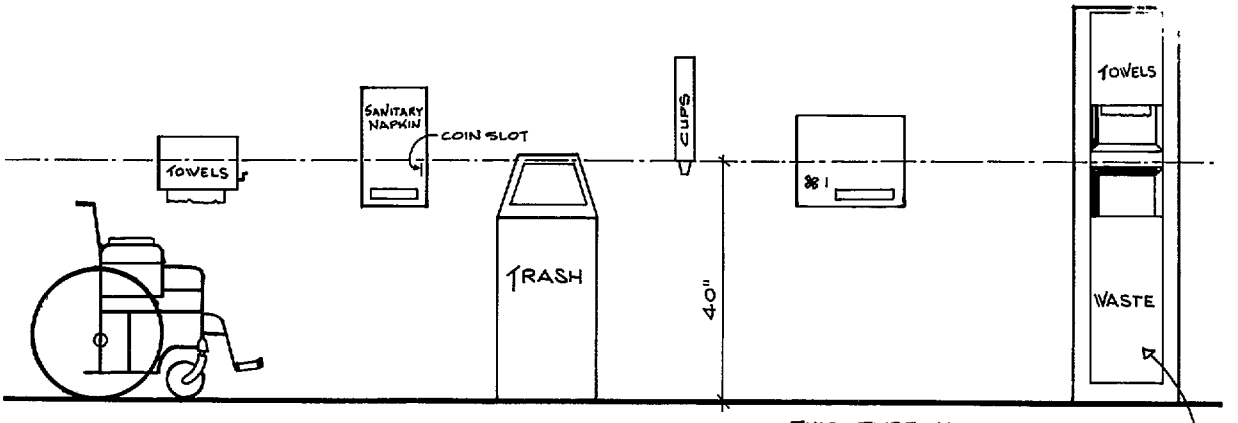
> "On every floor where toilet rooms are planned, in every building to which Section 1.1 applies, one toilet room for men and one toilet room for women shall have at least one fixture of each type provided, to meet the requirements of this Section (4.6)."

The North Carolina Code also provides diagrams with specific measurements that clearly demonstrate what is necessary to comply with the code and show problems associated with improper installation.

The North Carolina Code provides definitive instructions for required facilities for the handicapped in residential and institutional buildings, complete with illustrations further clarifying the instructions. The ANSI Standard does not contain requirements for making bedrooms, kitchens, living areas, classrooms, or dining halls of public housing accessible.




IF HOT WATER EXCEEDS 120° SUPPLY AND DRAIN LINES MUST BE INSULATED TO PREVENT BURNING PERSONS WITH NO SENSATION IN THEIR LEGS.




WHERE TOWEL RACKS, DISPENSERS, DISPOSAL UNITS, VENDING MACHINES AND APPLIANCES ARE PROVIDED IN TOILET ROOMS, ONE OF EACH TYPE SHALL BE MOUNTED WITH ALL OPERATING MECHANISMS AND ITEMS THEMSELVES NO MORE THAN 40" ABOVE THE FLOOR.

The difference between these two standards is that judgmental factors, insofar as the design architect is concerned, have been eliminated in the North Carolina version. If doubt exists as to the code's applicability, a ruling can be obtained from the North Carolina Department of Insurance, whose commissioners have statutory administrative and enforcement responsibilities for the code.

The above comparisons are not intended to imply that buildings in North Carolina were more barrier free than buildings in other States. We did not inspect any State buildings to determine the code's effectiveness because it has not been in effect for a sufficient period.

Views of handicapped persons and advocacy groups

Most of the handicapped individuals and advocacy organization officials interviewed expressed dissatisfaction with the ANSI Standard. Some of their criticisms are summarized below:

--Lack of descriptive drawings in the Standard.

--Height of water closet in toilet rooms should be lowered 1 inch.

--Width of toilet rooms should be wider than the 3 feet specified by the ANSI Standard.

--Urinals should be lowered 4 inches.

--Specific minimums should be established for the term "appropriate number."

--A 5-by-5 foot platform at door entrances does not provide enough maneuvering space for wheelchairs.

--The width and depth of a wheelchair is improperly specified.

--The maximum gradient of ramps should not exceed 4 percent--a 52-percent decrease from the 8.33-percent gradient specified.

--The Standard does not specify the number of handicapped parking spaces that should be designated.

A representative of the Minnesota State Society for Crippled Children and Adults, Inc., in a June 1974 letter said of the ANSI Standard:

> "We believe the ANSI Standard is an excellent starting point for drafting a code on accessibility and usability of buildings for the physically disabled when it is fully understood that ANSI is intended to present only minimum requirements. Although ANSI is recommended for use in the construction of all buildings and facilities, it notably lacks any specific standards for residential structures such as apartment buildings, hotels, and motels. Even though it provides excellent basic standards, it is not comprehensive enough to rely on entirely in order to construct a building with good design features for the handicapped. It is outdated in that it consistently refers to Codes which no longer exist.
>
> "I have personally felt for many years that ANSI should be updated and was quite disappointed last year [1971] when it was reconfirmed just as it was written in 1961. In 1961, it was a badly-needed document which has served a real purpose. Everything contained in ANSI you will also find in the Minnesota Code (enclosed) plus much more. When government agencies and building code officials adopt ANSI per se, I feel it is a big 'cop out.'"

## Recent efforts to revise and develop accessibility standards

Following are some of the studies planned or underway to develop standards for making buildings accessible to the physically handicapped.

--HUD has contracted for revision and expansion of the ANSI Standard, including development of specifications for residential housing. The contract was let to Syracuse University and is expected to be completed by June 1976.

--GSA has contracted for interim standards to replace the ANSI Standard in its Federal Property Management Regulations (not a revision of ANSI) until more complete standards can be developed.

--Building Officials and Code Administrators International, Inc., developed and added standards to its building code to make buildings accessible to the physically handicapped.

--An HEW draft handbook, published in October 1974 and issued to HEW's agencies and regional offices, embodies the ANSI Standard and expands its requirements.

--The Veterans Administration published a supplement to the ANSI Standard to govern its construction programs.

## CONCLUSIONS

Enactment of the Architectural Barriers Act was a significant step toward insuring the accessibility of public buildings to the physically handicapped. Although we found no major legal infirmities in the act or its implementing regulations, we believe certain legislative changes are needed to fulfill the act's intended purpose.

A basic problem is that implementing action is discretionary with the agencies. The act's provisions amount to a delegation of authority rather than a congressional mandate. We recognize that the recently established Architectural and Transportation Barriers Compliance Board, discussed in chapter 1, will help resolve this problem. Nevertheless, we believe the Congress should clarify the Architectural Barriers Act itself.

Our main concern relates to section 1 of the act, which defines "building." Under the present definition most Government-leased buildings and all privately owned buildings leased to the Government for public housing are excluded from coverage. Although section 1 also excludes many buildings and facilities financed through grants or loans by the United States (e.g., revenue sharing and grant-in-aid programs) we have not recommended any change to this

provision because the Congress has expressed a desire that in these programs more administrative responsibility be placed at State and local levels. Therefore, as few "strings" as possible are attached to the expenditure of Federal funds granted under these programs, particularly with respect to revenue sharing funds. We understand that Federal grantor agencies require grantees under many grant-in-aid programs to adhere to the ANSI Standard without regard to the Architectural Barrier Act's applicability. Also, State and local governments are increasingly adopting their own standards to insure accessibility of public buildings.

Although the Congress intended that Post Office Department buildings and facilities be covered by the act, the United States Postal Service is presently exempt from its provisions. We believe legislative action should be taken to remove this exemption, particularly since Postal Service buildings are probably used more frequently by the public than any other Government buildings.

Although adoption of the ANSI Standard was a positive action by agencies in initially implementing the act, we believe the act's legislative history and its language evidence a congressional intent that each agency develop standards for barrier removal unique to its particular type of construction. Moreover, evidence suggests that the Congress planned to rely on the agencies cited in the act to update, modify, or otherwise revise the prescribed standards as needed. In creating the Architectural and Transportation Barriers Compliance Board in September 1973, the Congress delegated broad overview responsibilities to insure compliance with the Architectural Barriers Act. We believe it appropriate for the Board to coordinate the development of standards applicable to the various agencies' construction responsibilities that would eliminate all barriers in federally financed buildings.

## MATTERS FOR CONSIDERATION BY THE CONGRESS

We recommend that the Congress amend existing legislation to:

--Impose a clear statutory mandate that the named agencies are to insure accessibility of public buildings to the physically handicapped.

--Include under the Architectural Barriers Act all Government-leased buildings and facilities intended for public use or in which the physically handicapped might be employed as well as all privately owned buildings leased to the Government for public housing.

--Require the named agencies to establish a system of continuing surveys and investigations to insure compliance with prescribed standards.

--Remove the present exemption of the Postal Service from coverage under the Architectural Barriers Act.

Proposed statutory amendments

Sec. 1. The first sentence of section 1 of the Architectural Barriers Act (82 Stat. 718) is amended to read as follows:

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that as used in this Act, the term 'building' means any building or facility (other than (A) a privately owned residential structure not leased by the Government for subsidized housing programs and (B) and building or facility on a military installation designed and constructed primarily for use by able bodied military personnel) the intended use of which either will require that such building or facility be accessible to the public, or may result in the employment or residence therein of physically handicapped persons, which building is--* * *."

Sec. 2. Section 1(2) of the Architectural Barriers Act of 1968 is amended to read as follows:

"(2) to be leased in whole or in part by the United States after the date of enactment of this Act."

Sec. 3. Section 2 of the Architectural Barriers Act is amended to read as follows:

"Sec. 2. The Administrator of General Services, in consultation with the Secretary of Health, Education,

and Welfare, shall prescribe standards for the design, construction, and alteration of buildings (other than residential structures subject to this Act and buildings, structures, and facilities of the Department of Defense subject to this Act) to insure whenever possible that physically handicapped persons will have ready access to, and use of, such buildings."

Sec. 4. Section 3 of the Architectural Barriers Act is amended to read as follows:

"Sec. 3. The Secretary of Housing and Urban Development, in consultation with the Secretary of Health, Education, and Welfare, shall prescribe standards for the design, construction, and alterations of buildings which are residential structures subject to this Act to insure whenever possible that physically handicapped persons will have ready access to, and use of, such buildings."

Sec. 5. Section 4 of the Architectural Barriers Act is amended to read as follows:

"Sec. 4. The Secretary of Defense, in consultation with the Secretary of Health, Education, and Welfare, shall prescribe standards for the design, construction, and alteration of buildings, structures, and facilities of the Department of Defense subject to this Act to insure whenever possible that physically handicapped persons will have access to, and use of, such buildings."

Section 6. Section 6 of the Architectural Barriers Act is amended to read as follows:

"Sec. 6. The Administrator of General Services, with respect to standards issued under section 2 of this Act, and the Secretary of Housing and Urban Development, with respect to standards issued under section 3 of this Act, and the Secretary of Defense, with respect to standards issued under section 4 of this Act, is authorized to modify or waive any such standards, on a case-by-case basis, upon application made by the head of the department, agency, or instrumentality of

the United States concerned, and upon a determination by the Administrator or Secretary, as the case may be, that such modification or waiver is clearly necessary."

Sec. 7. The Architectural Barriers Act is amended by adding thereto the following section:

"Sec. 7. The Administrator of General Services, with respect to standards issued under section 2 of this Act, and the Secretary of Housing and Urban Development, with respect to standards issued under section 3 of this Act, and the Secretary of Defense, with respect to standards issued under section 4 of this Act, shall establish a system of continuing surveys and investigations to insure compliance with such standards.

Sec. 8. Section 410(b) of the Postal Reorganization Act of 1970 (84 Stat. 719) is amended by adding thereto the following subparagraph:

"(7) Public Law 90-480, as amended"

RECOMMENDATION TO THE ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD

We recommend that the Board coordinate the development of standards by each agency charged with such responsibility, to insure that such standards are adequate to eliminate barriers to the physically handicapped in federally financed buildings.

## CHAPTER 4

## EFFECTIVENESS OF GSA'S IMPLEMENTATION AND ADMINISTRATION

The Federal Property and Administrative Services Act of 1949, as amended (40 U.S.C. 490), and Executive orders issued pursuant to the act direct the Administrator of General Services to initiate and maintain plans and programs for effectively and efficiently acquiring buildings for Federal agencies. Buildings are acquired by Federal construction, purchase contract, or lease. The act specifically authorizes the Administrator to enter into leases, not to exceed 20 years, for accommodating Federal agencies in buildings in existence or to be erected by lessors. As of December 31, 1974, GSA managed about 242 million square feet of space, exclusive of parking space.

GSA's responsibilities under the Architectural Barriers Act of 1968 are contained in sections 2, 5, and 6.

### GSA'S COMPLIANCE WITH SECTION 2

Section 2 states that:

> "The Administrator of General Services, in consultation with the Secretary of Health, Education, and Welfare, is authorized to prescribe such standards for the design, construction, and alteration of buildings (other than residential structures subject to the Act and buildings, structures, and facilities of the Department of Defense subject to the Act) as may be necessary to insure that physically handicapped persons will have ready access to, and use of, such buildings."

GSA's implementation of section 2 was originally established in subpart 101-17.703 of its Federal Property Management Regulations (FPMR), [superseded by 101-19.6, June 1974] dated July 1969, entitled "Accommodations for the Physically Handicapped." It stated:

> "* * * every building designed, constructed, or altered after September 2, 1969, shall be designed, constructed,

or altered in accordance with the minimum standards contained in the 'American Standard Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped, Number A117.1-1961,' approved by the American Standards Association, Inc. (subsequently changed to United States of America Standards Institute)."

FPMR 101-17.704 specified certain exceptions to the applicability of the ANSI Standard, as follows:

"The standards established in 101-17.703 shall not apply to:

(a) The design, construction, or alteration of any portion of a building which need not, because of its intended use, be made accessible to, or usable by, the public or by physically handicapped persons;

(b) The alteration of an existing building if the alteration does not involve the installation of, or work on, existing stairs, doors, elevators, toilets, entrances, drinking fountains, floors, telephone locations, curbs, parking areas, or any other facilities susceptible of installation or improvements to accommodate the physically handicapped;

(c) The alteration of an existing building, or of such portions thereof, to which application of the standards is not structurally possible; and

(d) The construction or alterations of a building for which bids have already been solicited or plans and specifications have been completed or substantially completed on or before September 2, 1969, provided however, that any building defined in 101-17.702(a) (4) shall be designed, constructed, or altered in accordance with the standards prescribed in 101-17.703 regardless of design status or bid solicitation as of September 2, 1969."

GSA's FPMR 101.17.7 was developed in consultation with HEW; however, there is no indication that GSA verified that the ANSI Standard was relevant in satisfying its construction responsibilities. It has contracted for the development of a new, more adaptable standard to replace the ANSI Standard in its FPMR.

Before the act was passed, GSA's policy regarding providing of facilities for the handicapped in the design of new buildings was contained in its architectural criteria handbook. It provided for access for wheelchairs from the street or sidewalk to every reasonable subdivision of space where physically handicapped persons may visit or work and for accessible entrance ramps, toilet facilities, drinking fountains, elevators, and public telephones. GSA's policy regarding repair and improvements to existing buildings was to provide entrance ramps and accessible toilet facilities. Since passage of the act, the ANSI Standard has become the mandatory requirement imposed on architect-engineers for new construction, alterations, and leased space when new construction or alteration is involved.

We were told that GSA's administrative approval procedures and coordination with HEW caused the delay (slightly over 1 year) in adopting the ANSI Standard.

## GSA'S COMPLIANCE WITH SECTION 5

Section 5 of the act states that:

> "Every building designed, constructed, or altered after the effective date of a standard issued under this Act which is applicable to such buildings, shall be designed, constructed, or altered in accordance with such standards."

GSA has a twofold responsibility to insure compliance with the ANSI Standard. It must

--see to it that its own building program complies and

--insure the compliance of other Federal agencies whose facilities are subject to section 2.

To carry out its responsibilities, GSA reviews plans for new construction, repair, and alteration work before advertising for bids. This review is part of the normal review process by architects of the Construction Management Division, Public Buildings Service, in each of the 10 GSA regional offices. Most design work is performed by private architect-engineering firms; however, most minor repairs and alteration design are done by in-house architects and engineers.

Guidance concerning GSA's architectural criteria and drawing requirements is given to private and in-house architects and engineers through a variety of handbooks, directives, design data drawings, standard detail drawings, and guide specifications.

On October 15, 1968, GSA briefed its regional office directors on how the new law and its revised regulations would effect the regions. GSA stated the law would require a revision to the FPMR to incorporate standards required by section 2 and to enlarge its coverage to include not only GSA designed, constructed, leased, and managed buildings but also buildings, such as schools and hospitals, financed in part by Federal funds. GSA stated that each Federal agency would be responsible for implementing its own program, including the handling of individual complaints, and would report to GSA.

In transmitting the revised FPMR to its regional offices, GSA stated that Federal agencies and GSA regions would not be required to make annual reports to the Administrator as discussed at the October briefing; however, they would be required to keep a documented file of significant actions relative to each project which would be available to the Administrator on request.

Determination of act's applicability not made for buildings under design on effective date of standards

GSA, in FPMR 101-17.704(d), took the position that the prescribed standards would not apply to:

"The construction or alteration of a building for which bids have already been solicited or plans and

specifications have been completed or substantially completed on or before September 2, 1969."

To implement this position, GSA would have to determine whether the act applied to buildings under design as of September 2, 1969. Discussions with a GSA official and a review of project files disclosed no evidence that such determinations had been made.

At our request, GSA provided a list of 105 projects in process since July 1, 1970; design was in process for 30 of these buildings on September 2, 1969. We examined several of these buildings and found they were not barrier free. For example, one building requiring an interpretation of the law is the new Department of Labor building, in Washington, D.C. Design began in October 1966 and was completed in October 1971. A GSA Acting Assistant General Counsel told us that the building would not have to comply with the ANSI Standard because the 50-percent design completion date preceded the Standard's effective date. He subsequently said he knew of no accepted definition of "substantially complete" as it related to design. Therefore, the act's applicability to the Labor building is uncertain.

The building has ramps, automatic doors, water fountains, and a specially installed elevator for the handicapped; however, the ANSI Standard has not been met in the following areas:

--Toilet stall doors are less than 32 inches wide.

--Grab bars in toilet stalls are not 1-1/2 inches from the wall.

--Urinals are mounted too high and equipped with foot-operated flushers.

--Raised thresholds at the entrance to toilet rooms cause an entry problem for persons in wheelchairs.

--Drains and hot water pipes in the restrooms are not insulated.

--Towel dispensers and disposal units are mounted higher than the required 40 inches.

--Handrails are not provided on at least one side of all ramps.

--Handrails do not extend 18 inches beyond the top and bottom step of stairways.

Officials of Labor's Safety and Health Division inspected the building and also found that the ANSI Standard has not been completely followed. Based on their findings and consultation with us regarding our findings, Labor has requested GSA to correct the noncomplying areas.

Altered buildings not completely accessible

GSA's policy on alterations is stated in its Public Buildings Service handbook, "Repair and Improvement Program Management," PBS P 6800.1, chapter 3, paragraph 3.M., "Facilities for the physically handicapped." The policy includes walks, ramps, parking lots, doors, stairs, floors, toilet rooms, water fountains, public telephones, and elevators as facilities that should be made accessible to the physically handicapped * * * wherever feasible." PBS P 6800.1 does not require alterations to be designed in accordance with the ANSI Standard.

There are no written procedures for regions to follow in carrying out the policy but a GSA headquarters official said that regions have received verbal instruction from headquarters on how to interpret the policy. Generally, these interpretations have been that:

--Priority attention should be given to building entrances before providing interior facilities.

--Any alterations should be made in accordance with PBS P 6800.1.

Our inspection of the main post office in Ft. Worth, Texas, where the second floor women's restroom was altered to accommodate the handicapped, showed that the alteration work was negated by the absence of a ramp and the presence of revolving doors, which made the building unusable by persons in wheelchairs.

We believe that GSA's alteration policy is unclear and subject to interpretation by regional officials. Accordingly, alterations are being made which result in

--piecemeal removal of architectural barriers and

--accessibility in one area being negated by barriers in another.

A program incorporating accessibility features into buildings scheduled for alteration was added shortly after passage of the Architectural Barriers Act of 1968. Regional engineers inspect buildings periodically and determine the cost of improving facilities. Projects costing over $50,000 for removing architectural barriers are fed into the Repair and Improvement Computer Oriented System. In January 1975 the system's workload inventory was $965.9 million, of which $6.2 million was categorized as aids for the handicapped.

For fiscal year 1975, $98 million was authorized to make repairs and alterations. This included $400,000 for aids for the handicapped.

Most Government-leased space not required to comply with standards

Section 1(2) of the act includes within the definition of the term "building" any building or facility whose intended use will require it to be accessible to the public, or may result in the employment or residence therein of physically handicapped persons, which is:

> "(2) to be leased in whole or in part by the United States after the date of enactment of this Act after construction or alteration in accordance with plans and specifications of the United States;"

Buildings and facilities falling within this category must conform to the applicable standards prescribed by the designated agencies, as required by section 5 of the act, unless a modification or waiver is authorized pursuant to section 6. On the other hand, those Government-leased buildings and facilities not constructed or altered pursuant to Government plans and specifications are excluded from the

category "buildings" and therefore need not conform to prescribed accessibility standards. Most space is leased without construction or alteration pursuant to Government plans and specifications.

However, GSA established a policy in March 1968 requiring certain aspects of leased space to be accessible under any of the following circumstances:

--Space acquired involved new construction.

--Space being considered for lease acquisition was under construction.

--Space in an existing building required alteration to adapt it for Government use.

--Requesting agency specified a need for handicapped facilities in its request for space.

This policy provided that, under the above circumstances, the solicitation for offers should comply with portions of the ANSI Standard in the areas of access to the building, restrooms, and water fountains. Handicapped facilities were not required for parking lots, stairs, floors, controls, identification, warning signals, and hazards.

Our inspection of leased space showed that GSA was not enforcing its policy although one or more of the above circumstances were present. A regional official indicated that the Space Management Division did not make inspections to insure that facilities for the physically handicapped were provided.

The following example is typical of the architectural barriers found in our inspection of leased space. In December 1972 GSA leased about 15,000 square feet for an Internal Revenue Service Office in the Circle East Building, Norfolk, Virginia. This office processes income tax returns and provides tax assistance to persons in the Norfolk, Portsmouth, Newport News, Chesapeake, and Virginia Beach areas. During fiscal year 1974, over 37,000 persons voluntarily visited the office and an average of 20 to 30 made required visits each day for audits and other business.

Individuals in wheelchairs could not enter the building without assistance because of curbing around the building and a walk leading to the entrance that was interrupted by three steps. Also, there were no restrooms or water fountains for the physically handicapped.

The Internal Revenue Service did not request GSA to provide space accessible to the physically handicapped. GSA included such requirements in its solicitation for offers; however, it did not require the lessor to comply with the terms of the contract requiring the facilities when it accepted the leased space.

Architects not required to use ANSI Standard until May 1971

GSA's handbook, "Architectural Criteria," provided to architects and engineers for use in designing new buildings and altering existing ones, was not revised to include the ANSI Standard until May 1971. GSA officials said the ANSI Standard was not incorporated earlier because the handbook was being completely revised.

Our inspection of the Federal building in Rome, Georgia, designed from October 1969 through April 1971 to house the Postal Service, U.S. Courts, and other Federal agencies, disclosed major barriers in 11 of the 16 accessibility categories. A GSA regional official said the handbook furnished the architect did not specifically refer to the ANSI Standard and the architect probably had been unaware that Federal buildings had to be designed in accordance with it. An official of the architect-engineering firm that designed the building said that GSA did not tell him to follow the ANSI Standard.

Supplemental criteria furnished architects conflicts with ANSI Standard

GSA's design data and various other standard guide specifications furnished to architects and engineers conflict with some portions of the ANSI Standard.

For example, the design data for toilet rooms, although revised twice after the Architectural Barriers Act was enacted,

does not clearly show adequate turning space for wheelchairs. The ANSI Standard specifies an average turning space of 60-by-60 inches.

Guide specifications described various acceptable door hardware sets but did not discuss the knurled handles and knobs required by the ANSI Standard on doors leading to areas that might be dangerous to blind persons. The specifications also omit the ANSI Standard requirement for simultaneous audible and visual warning signals and raised letters and numbers.

A member of a private architect-engineering firm used by GSA said he always considered GSA guidance to have priority over the ANSI Standard.

Design review does not insure compliance

GSA staff reviews the design work of private architect-engineer firms to insure compliance with required architectural criteria, including the ANSI Standard. However, a checklist outlining required design criteria has not been developed. GSA regional officials indicated they had neither the time nor staff to require that every detail be checked for compliance with design criteria. Some design reviewers apparently review for compliance with safety features and functional utility and only make cursory reviews of other compliance requirements. The officials added that design reviewers generally rely on the architects to incorporate the appropriate design criteria in the building plans.

Barriers must be eliminated during the building-design phase. GSA's construction inspections and supervision are designed to insure that buildings are completed according to GSA-approved plans and specifications. GSA regional inspectors said that they were not well informed about the ANSI Standard and did not receive special training on how to use it or on how to identify architectural barriers. One construction inspector said the inclusion of facilities for the physically handicapped and the elimination of architectural barriers must be a design function because construction supervision required considerable training just to insure compliance with plans and specifications.

## GSA'S COMPLIANCE WITH SECTION 6

This section states:

> "Sec. 6. The administrator of General Services, with respect to standards issued under section 2 of this Act, * * * is authorized--
>
> (1) to modify or waive any such standard on a case-by-case basis, upon application made by the head of the department, agency, or instrumentality of the United States concerned, and upon a determination by the Administrator * * * that such modification or waiver is clearly necessary, and
>
> (2) to conduct such surveys and investigations as he deems necessary to insure compliance with such standards."

### Architectural barriers are not the result of waivers

GSA incorporated the provisions of section 6(1) in FPMR 101-17.705 in July 1969, as follows:

> "The applicability of the standards set forth in this subpart may be modified or waived on a case-by-case basis, upon application to GSA made by the head of the department, agency, or instrumentality of the United States concerned, only if the Administrator of General Services determines that such waiver or modification is clearly necessary."

In July 1973 the Acting Commissioner, Public Building Service, sent a reminder letter to all regional offices emphasizing that only the Administrator, GSA, had authority to grant waivers of the ANSI Standard.

The Administrator has granted only two waivers. One request was from the Department of the Interior involving the Chevak Day School in Chevak, Alaska. A waiver was granted

to preclude building a ramp 85 feet long to meet slope requirements. Interior officials believed that, in addition to other factors, such a ramp could be hazardous during inclement weather.

The second request was from HUD and involved a neighborhood facility sponsored by the East Baton Rouge, Louisiana, Recreation and Park Commission. The waiver was granted to preclude installing an elevator to service the second floor which contained a few small rooms and a storage area. The Administrator granted the waiver to avoid jeopardizing the construction of the badly needed neighborhood facility.

Thus, architectural barriers are clearly not the result of waivers. Individuals responsible for the design of buildings as well as GSA regional officials were aware that only the Administrator could waive or modify the prescribed standards.

## Survey and investigation system was not established to insure compliance with ANSI Standard

GSA has not established a system to survey and investigate compliance with the ANSI Standard; however, it issued FPMR 101-17.706 requiring each administering agency to maintain a file on each contract or grant for the design, construction, or alteration of a building as defined in subpart 101-17.702. GSA made each agency head responsible for implementing the file documentation requirement and required that it be available to the Administrator upon request.

We found that GSA and HEW, as well as DOD where its building projects are covered by GSA regulations, had not established the required file. A GSA official stated that GSA has neither the manpower nor the desire to police other Federal agencies, and that each agency should conduct its own surveys and investigations to insure compliance with the ANSI Standard. Another GSA official questioned whether the Administrator had authority to require cabinet-level departments to comply with GSA regulations.

In August 1971, upon request of the President's Committee for the Employment of the Handicapped, GSA completed

a survey of 30 Federal agencies to determine the act's effectiveness and how each agency was implementing it. The agencies were requested to provide:

--A tabulation for each building subject to section 2 of the act.

--Information issued to grantees and borrowers concerning design criteria to eliminate architectural barriers.

--The internal safeguards established to assure compliance with the act.

All agencies reported that the buildings under their jurisdiction subject to the act were in compliance. However, GSA found some discrepancies which it brought to the attention of the agencies involved and later found that some data had been reported erroneously. Also, GSA's analysis of the data highlighted many interpretive differences of the act.

The executive secretary of the Governor's Committee on the Employment of the Handicapped in Iowa questioned the validity of the survey data. This prompted the Governor's Committee, the State Easter Seal Society, and the State chapter of the American Institute of Architects to survey the accessibility of Federal buildings to the physically handicapped in Iowa.[1] This survey disclosed that none of the 29 federally funded buildings they inspected met the ANSI Standard.

GSA, in June 1974, amended FPMR 101-17.7 (changed to subpart 101-19.6) to require each administering agency to submit a report to the Administrator every 6 months covering all projects subject to ANSI Standard compliance. These reports, according to GSA, will be used to satisfy the act's survey and investigation requirement.

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[1] Accessibility--The Law and the Reality; A Survey to Test The Application and Effectiveness of Public Law 90-480 in Iowa, Iowa Chapter, American Institute of Architects, etc., May 4, 1974.

## CONCLUSIONS

GSA's efforts to carry out the congressional intent of the Architectural Barriers Act have not been successful for a number of reasons.

Although GSA prescribed the ANSI Standard, it took about 13 months to amend its regulations to require Federal agencies to comply with the Standard and about 33 months to incorporate the Standard in handbooks used by architects and engineers in designing buildings. Several inconsistencies, omissions, and ambiguities exist in the supplemental governing criteria furnished to architects and engineers.

Policy statements restrict application of the ANSI Standard in altered and leased buildings. It is not always clear that the ANSI Standard must be followed in all buildings constructed, altered, and acquired through lease agreements.

Specific design review procedures and systems of surveys and investigations have not been established to insure compliance with the act.

## RECOMMENDATIONS TO THE ADMINISTRATOR, GSA

We recommend that the Administrator:

--Clarify and improve the ANSI Standard making it more relevant to GSA's construction responsibilities.

--Reaffirm in all guidance statements (handbooks, drawings, specifications, directives, etc.) the policy statement that the prescribed standard (ANSI Standard) must be followed in all buildings constructed, altered, or leased after construction or alteration in accordance with plans and specifications of the United States.

--Clarify the alteration policy to preclude interpretations that result in the accessibility of an altered area being negated by barriers left in other building areas.

--Enforce lease contract provisions requiring leased buildings to be accessible to the physically handicapped.

--Establish appropriate controls during design review to insure that buildings are barrier free.

--Establish a survey and investigation system as authorized by section 6(2) of the act to enforce compliance with the prescribed standards.

# CHAPTER 5

# EFFECTIVENESS OF HUD'S IMPLEMENTATION AND ADMINISTRATION

The Department of Housing and Urban Development Act, approved on September 9, 1965 (79 Stat. 667; 42 U.S.C. 3531), created HUD and consolidated a number of related activities previously performed by other agencies. HUD administers a wide range of programs designed to provide a decent home and a suitable living environment for every American. Its functions and responsibilities are carried out on a decentralized basis through regional and area offices. In the renewal and housing areas, its assistance activities are channeled through local housing authorities and public agencies.

HUD's responsibilities for eliminating architectural barriers in residential structures are contained in sections 3, 5, and 6 of the Architectural Barriers Act.

## HUD'S COMPLIANCE WITH SECTION 3

Section 3 states:

> "Sec. 3. The Secretary of Housing and Urban Development, in consultation with the Secretary of Health, Education and Welfare, is authorized to prescribe such standards for the design, construction, and alteration of buildings which are residential structures subject to this Act as may be necessary to insure that physically handicapped persons will have ready access to, and use of, such buildings."

HUD's implementation of section 3 was established in 24 C.F.R. Part 40, dated October 24, 1969, entitled "Standards for Design, Construction, and Alteration of Publicly Owned Residential Structures." It states:

"Sec. 40.4 Standards

(a) Residential structures subject to this part shall be designed, constructed, or altered to insure that physically handicapped persons will have ready

access to, and use of, such structures. This requirement shall be satisfied by using the specifications contained in the American Standard Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped, Number A117.1-1961, approved by the American Standards Association, Inc. (subsequently changed to United States of America Standards Institute), herein referred to as the 'American Standard Specifications.' Except as otherwise provided in paragraph (b) of this section, the standards shall be applicable to the extent provided in the American Standard Specifications.

(b) Application of the American Standard Specifications is modified as follows:

(1) The specifications in section 5.6 are applicable to toilet rooms which are provided for the public. Although no specifications are prescribed in section 5.6 for bathrooms in individual housing units, consideration shall be given to the need for access by the physically handicapped in connection with the design, construction, or alteration of such bathrooms.

(2) The specifications in section 5.10, 'Controls,' and 5.11 'Identification,' are recommended specifications but not mandatory."

All portions of residential structures not covered by ANSI Standard

HUD adopted a standard which did not completely cover all aspects of residential structures. Just how effective the ANSI Standard could be in effecting barrier removal in these areas, even if scrupulously followed, is questionable. The ANSI Standard states in section 1.1.1 that it does not apply to private residential structures. Specifications are not included for kitchens, private bathrooms, and residential living space.

Even though HUD's regulation, 24 C.F.R. section 40.4, established that the ANSI Standard should be followed in designing residential structures, the regulation is not clear

as to the extent it should be followed. Section 40.4 excludes restrooms in individual housing units; controls for heat, air-conditioning, and lighting; and identification of building areas from mandatory compliance with the ANSI Standard. With regard to other building areas, section 40.4 states that the ANSI Standard "shall be applicable to the extent provided" in the standard. Since the ANSI Standard does not apply to residential structures, the above statement suggests that HUD's regulations establish no binding requirement to follow it.

Our visit to a HUD area office indicated that architects have been reluctant to certify that housing is accessible to the physically handicapped when design was based on the ANSI Standard.

In testimony before the Senate Special Committee on Aging in October 1971, a HUD official, when asked if HUD was collecting information or attempting to determine from its experience whether the ANSI Standard was adequate for residential housing, testified that HUD cooperated in developing the ANSI Standard and felt it was complete and adequate at the time. He said HUD's experience indicated a need to study and improve the Standard.

In June 1972 the President's Committee on Employment of the Handicapped asked HUD to develop standards for making residential structures accessible to the physically handicapped. HUD, in June 1974, awarded a contract to Syracuse University to develop and test a standard for making dwelling units accessible to the physically handicapped and to evaluate and update the existing ANSI Standard. HUD expects the contract to be completed by June 1976.

HUD'S COMPLIANCE WITH SECTION 5

Section 5 requires buildings to comply with prescribed standards. (See p. 42.)

HUD's implementing regulation, 24 C.F.R. Part 40, which adopted the ANSI Standard, applied it to publicly owned residential structures as follows:

"Section 40.2 Definition of 'residential structure,'

(a) As used in this part, the term residential structure means a residential structure (other than a privately owned residential structure and a residential structure on a military reservation):

(1) Constructed or altered by or on behalf of the United States;

(2) Leased in whole or in part by the United States after August 12, 1968, if constructed or altered in accordance with plans and specifications of the United States; or

(3) Financed in whole or in part by a grant or loan made by the United States after August 12, 1968, if such residential structure is subject to standards for design, construction, or alteration issued under authority of the law authorizing such grant or loan.

(b) As used in this part, residential structure includes the following:

(1) Any residential structure which, in whole or in part, is intended for occupancy by the physically handicapped or designed for occupancy by the elderly;

(2) All elevator residential structures;

(3) Any residential structure which contains 25 or more housing units; and

(4) Nonresidential structures appurtenant to a residential structure covered under this part."

HUD amended its "Low-Rent Housing Preconstruction Handbook (RHA 7410.1)" in November 1969 and its "College Housing Handbook (RHA 7830.1)" in September 1969 to incorporate the above regulations.

In 1966 HUD issued standards for elderly housing mortgage insurance programs, including excerpts from the

ANSI Standard. These standards, entitled "Minimum Property Standards-Housing for the Elderly with Special Provisions for the Handicapped (HUD PG-46)," were extended to all HUD elderly housing programs in May 1970. Compliance with the ANSI Standard was made mandatory for only those areas dealing with access to the residential structure.

The minimum property standards for the elderly were combined in 1973 into a three-volume series of minimum property standards and a manual of acceptable practices containing design criteria for the various portions of a residential structure. Specific criteria for the elderly were highlighted and these criteria, in some instances, were based on the ANSI Standard. Also, as required in the 1966 minimum property standards, 10 percent of the housing for the elderly was required to have bathroom fixtures to accommodate persons in wheelchairs.

Because the low-rent public housing program was the only active program subject to HUD regulation 24 C.F.R. Part 40 at the time of our review, the following deals primarily with that program.

The Technical Services Branch in each HUD area office is responsible for reviewing low-rent public housing plans prepared by architects under contract to project owners. HUD provides guidance, architectural criteria, and drawing requirements to the local agency responsible for public housing (local housing authority), the architect engaged in its design, and its own architectural and engineering personnel through handbooks and minimum property standards.

HUD requires architects who design low-rent public housing to certify that plans and specifications comply with (1) the criteria in the "Low-Rent Public Housing Preconstruction Handbook," (2) the appropriate minimum property standards, (3) all Federal, State, and local laws, codes, and regulations, and (4) the specific provision for accessibility by the physically handicapped contained in the "Low-Rent Preconstruction Handbook."

The local housing authority submits the plans for HUD's review and approval. This submission contains the architect's certifications that the drawings and specifications comply with handbooks, standards, codes, ordinances, etc., including

standards for accessibility by the physically handicapped. The Technical Services Branch in the HUD area office uses a copy of the schematic design document, applicable handbooks, and minimum property standards in reviewing the architect's construction documents. Discrepancies are documented and submitted to the housing authority and architect for corrective action.

Handicapped facilities limited to housing for the elderly

Title 24 C.F.R. sec. 40.2(b) includes within the meaning of "residential structure" a structure which, in whole or in part, is intended for occupancy by the physically handicapped or designed for occupancy by the elderly; all elevator residential structures; any residential structures containing 25 or more housing units; and nonresidential structures appurtenant to a residential structure covered by the standards. Also, 24 C.F.R. sec. 40.3(b) states that the standards established by 24 C.F.R. Part 40 are not applicable to, among other things:

> "Any portion of a residential structure or its grounds which need not, because of its intended use, be made accessible to, or usable by, the public or by physically handicapped persons * * *." (Emphasis added)

In the case of publicly owned residential structures, literal application of section 1 of the act (see app. I) would seem to include all publicly owned residential structures since every such structure could potentially house a handicapped person. The HUD regulation, on the other hand, defines residential structure in such a way that the standards adopted in 24 C.F.R. Part 40 would only apply to residential structures of the types enumerated in 24 C.F.R. sec. 40.2(b), including "any residential structure which * * * is intended for occupany by the physically handicapped * * *." In this regard, HUD's apparent position is that residential structures other than those enumerated in 24 C.F.R. 40.2 are not "intended," as that term is used in section 1 of the act, for uses which could result in the residence therein of physically handicapped persons.

We cannot conclude that HUD's position is unreasonably restrictive in view of the apparent legislative intent that barrier removal not be unduly expensive or time consuming. Clearly, the design construction or alteration of every publicly owned residential structure would be unnecessary since only a relatively small percentage of the occupants at any given time will, in fact, be handicapped. Therefore, HUD's regulation would seem to provide sufficient leeway to accommodate the handicapped without requiring all residential structures to be barrier free.

However, HUD interpreted its own regulation strictly so that only buildings designed for the elderly--elevator buildings comprised of efficiency or one-bedroom apartments--are designed without barriers. Thus, single family dwellings or multifamily dwellings with more than one bedroom per unit are generally not barrier free, thereby effectively excluding handicapped persons with family situations requiring larger accommodations from eligibility for HUD-subsidized housing. Accordingly, even though 24 C.F.R. Part 40 can be interpreted as not unduly restricting section 1 of the act, it would benefit by being clarified to insure that HUD predetermines which publicly owned single family or multifamily dwellings with more than one bedroom per unit will be "intended for occupancy by the physically handicapped" so that those dwellings may be designed without barriers.

Standards applied only to 10 percent of elderly housing

Minimum property standards for multifamily housing include variations, additions, and exceptions to the basic standards which are applicable "* * * to housing designed for occupancy by the elderly or handicapped * * *." For example, when a residential structure is intended for the elderly, the minimum property standards require that fixtures in bathrooms of at least 10 percent of the living units be arranged to permit access by a person in a wheelchair.

HUD regional and area offices have interpreted this to mean that handicapped accessibility standards should be applied only to 10 percent of the elderly housing units. This interpretation unduly limits the number of living units which are made accessible to the physically handicapped.

Minimum property standards and handbooks conflict with ANSI Standard

The private architects who design HUD-financed housing projects are instructed to follow HUD minimum property standards and handbooks. However, the minimum property standards and handbooks conflict with the ANSI Standard. For example:

--The ANSI Standard states that no ramps shall have a slope exceeding 8.33 percent; the HUD minimum property standards state that, although a maximum slope of 8.33 percent is required, ramps less than 1 foot in length may have a slope as great as 10 percent.

--The ANSI Standard requires toilet seats to be 20 inches in height; HUD's "Manual of Acceptable Practices" recommends a toilet seat height of 15 inches to permit the use of a toilet chair, making the overall height 17 inches.

--The ANSI Standard requires steps to be no more than 7 inches high; HUD's minimum property standards, until February 1973, required 7-3/4-inch steps and currently specify 7-3/4-inch interior steps and 7-1/2-inch exterior steps.

--The ANSI Standard specifies that handrails should be no more than 32 inches high; a HUD handbook in 1966 specified handrails between 30 and 36 inches and current handbooks specify 30- to 34-inch-high handrails.

A HUD architect was not sure which standard should be followed.

Lack of adequate design review procedures

Plans and specifications prepared by architects under contract to owners of HUD-financed low-rent housing projects are reviewed by the Technical Services Branch; however, no specific review is made to insure that architectural barriers are eliminated.

Area office employees stated:

--Design review is made to insure compliance with HUD minimum property standards.

--No formal procedure is used to review drawings.

--Staffs rely on private architects to incorporate all design criteria in plans and only scan drawings for conflicts with minimum property standards.

--Reviewers have been told to use their judgment in applying the minimum property standards.

Mounting heights for water fountains, telephones, control switches, bathroom fixtures and accessories; door-closing speeds, door opening pressures; etc., are not always shown in design drawings. Therefore, HUD has no assurance that these features will be constructed so as to be usable by the physically handicapped.

The inspections HUD does make during construction are to determine that approved plans are being followed.

HUD'S COMPLIANCE WITH SECTION 6

Section 6 states that:

> "Sec. 6. * * * the Secretary of Housing and Urban Development, with respect to standards issued under section 3 of this Act, * * * is authorized--
>
> (1) to modify or waive any such standard, on a case-by-case basis, upon application made by the head of the department, agency, or instrumentality of the United States concerned, and upon a determination by the Administrator or Secretary, as the case may be, that such modification or waiver is clearly necessary, and
>
> (2) to conduct such surveys and investigations as he deems necessary to insure compliance with such standards."

HUD incorporated the provisions of section 6(1) in 24 C.F.R. sec. 40.5, as follows:

> "The applicability of the standards set forth in this part may be modified or waived on a case-by-case basis upon application to the Secretary of HUD or, with respect to the college housing program under title IV of the Housing Act of 1950 (12 U.S.C. 1749) and the low-rent public housing program under the United States Housing Act of 1937 (42 U.S.C. 1401), to the Assistant Secretary for Housing Production and Mortgage Credit, made by the head of the department, agency, or instrumentality of the U.S. concerned only if the Secretary or the Assistant Secretary, as appropriate, determines that such waiver or modification is clearly necessary and consistent with the purpose of Public Law 90-480 (42 U.S.C. 4153)."

HUD, in carrying out its section 6(2) responsibilities, implemented the following in 24 C.F.R. sec. 40.6:

> "The administering agency's file on each contract, grant, or loan involving the design, construction, or alteration of a residential structure shall include appropriate documentation indicating: (a) That the standards prescribed in section 40.4 are applicable to and have been or will be incorporated in the residential structure, or (b) that the grant or loan has been or will be made subject to the requirement that the standards are applicable and will be incorporated in the residential structure. The file should also indicate any modification or waiver of the standards which has been issued by the Secretary of HUD."

Headquarters not notified of waivers

A HUD headquarters official stated that the authority to waive standards has not been delegated to regional or area offices. Also, waivers have not been requested of or granted by the Secretary of HUD or his designee, the Assistant Secretary for Housing Production and Mortgage Credit.

Area office staffs told us they interpreted 24 C.F.R. sec. 40.2(b) to require only housing for the elderly to

comply with the act. Therefore, they do not consider it necessary to obtain waivers of the standards for housing other than that designated for the elderly.

An area office reviewed 22 projects for compliance with Public Law 90-480 and found that at least 3 waivers had been granted. The following statements pertained to those waivers.

--Project contains no elderly-type dwelling units; therefore, drawings and specifications do not include provisions for accessibility by the physically handicapped.

--Housing authority requests that the requirement for ramp access to units be waived; if handicapped persons move into any of these units the housing authority will construct the necessary ramps.

System to monitor compliance not established

HUD did not establish a survey and investigation system. It did instruct its offices to maintain documentation in each file indicating

--that the standards prescribed in section 40.4 are applicable and have been or will be incorporated,

--that the grant or loan has been or will be made subject to the requirement that the standards are applicable and will be incorporated in the residential structure, or

--that modification or waiver has been issued by the Secretary of HUD or his designee.

Our review showed that HUD regional and area offices were not determining the act's applicability for each low-rent housing project or maintaining appropriate files to permit surveys and investigations.

## CONCLUSIONS

HUD has not developed policy criteria that realistically reflect the act's intent and the needs of potential handicapped residents. The prescribed standard HUD adopted states that it does not apply to residential structures; however, HUD regulations state that they apply only to the extent provided in the standard. This raises a question as to whether HUD regulations established any binding requirements regarding barrier removal in publicly owned residential structures. In this regard, HUD offices were granting waivers without the proper authority.

Essential to a barrier-free housing policy is the need for clearly worded regulations which leave little doubt as to the operating procedures. HUD's regulations define residential structures for the handicapped in such a way that the standards adopted to make buildings barrier free would only apply to buildings designed for the elderly and then only to 10 percent of those units. The result has been that the number of accessible living units is limited and multifamily dwellings with more than one bedroom per unit are constructed without regard to barrier removal. Handicapped persons with families, therefore, are effectively excluded regardless of their financial eligibility.

Also, criteria furnished to architects and engineers conflicted with the ANSI Standard, and there were no controls and procedures in the design of buildings to insure compliance with the act. HUD seems to be overly dependent on private architects to insure barrier-free design.

HUD area offices have not maintained required project files pertaining to compliance with the act. As a result, determinations of publicly owned housing intended for occupancy by the physically handicapped were not being made and appropriate files to permit surveys and investigations did not exist.

## RECOMMENDATIONS TO THE SECRETARY, HUD

We recommend that the Secretary:

--Expedite the development of a standard clearly applicable to all portions of the design, construction,

and alteration of publicly owned residential structures.

--As an interim measure, require architects to comply with the ANSI Standard for those building areas it addresses and with those portions of the minimum property standards that specifically relate to the physically handicapped.

--Revise 24 C.F.R. Part 40 to clearly establish a binding requirement for barrier-free design, construction, or alteration of residential structures covered by the regulation, and to require advance determinations of publicly owned dwellings intended for occupancy by the physically handicapped so that those dwellings may be designed, constructed, or altered to be barrier free.

--Revise minimum property standards and other guidance to eliminate conflicts with ANSI Standard specifications.

--Establish appropriate procedures to insure that the standards prescribed to eliminate barriers are incorporated in plans and specifications during design.

--Develop a system of data gathering, verification, and followup to insure compliance with the act.

## CHAPTER 6

## EFFECTIVENESS OF DOD'S IMPLEMENTATION AND ADMINISTRATION

The Army Corps of Engineers and the Naval Facilities Engineering Command are responsible for designing and constructing military projects in the United States and its possessions. Although the military departments can select either of the agencies, the Army and Navy primarily use their own construction agencies. The Corps, and at times the Command, provides most of the design and construction services for Air Force projects. The Air Force is responsible for designing and constructing its own research and test facilities and family housing.

DOD's responsibilities under the Architectural Barriers Act are contained in sections 4, 5, and 6.

### DOD'S COMPLIANCE WITH SECTION 4

Section 4 states:

> "The Secretary of Defense, in consultation with the Secretary of Health, Education, and Welfare, is authorized to prescribe such standards for the design, construction, and alteration of buildings, structures, and facilities of the Department of Defense subject to this Act as may be necessary to insure that physically handicapped persons will have ready access to, and use of, such buildings."

Before the act passed in 1968, DOD had established a policy requiring compliance with the ANSI Standard to permit access to its buildings by the physically handicapped.

In 1962 DOD advised the Army, Navy, and Air Force to incorporate the provisions of the ANSI Standard into designs and specifications for new buildings and facilities and into major modifications wherever appropriate and feasible. In November 1967 DOD incorporated the ANSI Standard into its "Construction Criteria Manual, DOD 4270.1-M."

DOD believed its November 1967 action constituted appropriate implementation of the act and, by letter dated

November 7, 1968, advised HEW that no further implementing action would be taken. In December 1968 HEW advised DOD that it had complied with the act.

Applicability of ANSI Standard

Although the ANSI Standard is intended to make public buildings and facilities accessible, it is a general standard and does not provide for every detail to be considered in every building. DOD specified that the ANSI Standard would be applied to various types of buildings, such as air terminals, chapels, administrative facilities, theaters, hospitals, schools, dispensaries, auditoriums, exchange facilities, and other religious, welfare, and recreation facilities. However, it did not determine the relevancy of the Standard or adapt it to cover aspects of DOD buildings not specifically addressed by the Standard. For example, the ANSI Standard does not contain design criteria concerning chapel and theater seating.

DOD'S COMPLIANCE WITH SECTION 5

Section 5 of the act requires buildings to be accessible. (See p. 42.)

DOD Instruction 4270.1, dated November 17, 1967, established the "Construction Criteria Manual," DOD 4270.1-M, which contains the criteria governing military construction. Section 5-1.6 reads as follows:

"5-1.6 PROVISIONS FOR PHYSICALLY HANDICAPPED:

Increasing numbers of physically handicapped persons are being employed by industry and many physically handicapped civilian specialist and professional persons are being employed by the Military Departments. Military structures such as air terminals, chapels, administrative facilities and theaters likely to be used by the physically handicapped shall, therefore, be designed in accordance with the provisions of the latest edition of the American National Standards Institute (ANSI) A117.1 to facilitate access. Normally, such compliance is not mandatory for barracks,

BOQ's, family housing, hazardous activities, and facilities in remote and inaccessible locations. However, many of the handicapped type access features are worthy of consideration for incorporation in most types of structures and should be included where feasible. Unless otherwise required for a particular function, passenger elevators shall not be provided expressly for the physically handicapped."

DOD 4270.1-M was distributed to the military services after its publication in March 1968. As directed, the services implemented the manual in their construction programs.

To insure compliance with the ANSI Standard, construction and alteration plans are reviewed by Corps of Engineers and Naval Facilities Engineering Command architects during the design phase as part of a normal review process. Private architects perform most of DOD's design work. These architects and DOD architects receive guidance and architectural criteria through regulations, manuals, various published standards, directives, engineering instructions, and booklets.

Regulations do not clearly specify buildings required to comply

Section 1 of the act states in part that the term "building" means any building or facility other than a building or facility on a military installation designed and constructed primarily for use by able-bodied military personnel.

DOD's "Construction Criteria Manual," paragraph 5-1.6, states in part:

"* * * Military structures such as air terminals, chapels, administrative facilities and theaters likely to be used by the physically handicapped shall, therefore, be designed in accordance with the provisions of the latest edition of the American National Standards Institute (ANSI) A117.1 to facilitate access." (Underscoring added.)

The manual does not clearly specify all buildings "likely to be used by the physically handicapped." At our request, DOD's Office of General Counsel provided the following opinion concerning the act's applicability to nonappropriated fund activities.

> "Nonappropriated fund (NAF) activities serve a variety of morale, welfare and recreational needs for military personnel, dependents, and under certain circumstances, civilian employees and military retirees. They are authorized support from funds appropriated by the Congress (DODD 1330.2) although, particularly with regard to resale activities, much of the construction may be financed by the NAF activities themselves. NAF activities are considered instrumentalities of the United States for most purposes with the associated benefits and burdens. Their construction program is under strict DOD supervision (DODD 7700.18). In view of their purpose and sponsorship, it could be argued that NAF buildings and facilities are in the class of structures intended to be subject to this Act * * *."

The opinion discussed the possibility that nonappropriated fund buildings and facilities might not be subject to the act, but it stated in closing:

> "* * * even though not clearly required by the Act, it is recommended that as a policy matter we continue to design all buildings and facilities used by dependents, retirees, and the general public to accommodate the needs of the physically disadvantaged."

DOD has not determined or clearly defined in its criteria all the types of buildings that should be designed in accordance with the ANSI Standard. However, DOD is revising the "Construction Criteria Manual" to more clearly define buildings subject to the act.

## Navy regulations do not incorporate a concept of barrier-free design

The Naval Facilities Engineering Command has not established regulations incorporating a barrier-free design concept.

Navy policy regarding facilities for the physically handicapped is stated in "NAVDOCKS Design Manual, DM-1." It reads:

> "Section 8. Facilities for the Physically Handicapped
>
> 1. Policy. Where appropriate and feasible within the limits of cost, space, and other controlling criteria, the designs should comply with the provisions of the American Standards Association American Standard Specifications for Making Buildings and Facilities Accessible to, and Usable by, the Physically Handicapped, ASA A117.1.
>
> 2. Specific Applications. Buildings appropriate for modification to permit use by the physically handicapped are primarily administrative-type structures, hospitals, schools, dispenseries, auditoriums, and chapels, where the ASA Standard drinking fountains, toilet stalls, telephone booths, and ramps can be provided without significantly increasing the cost of construction. It is not considered that the Standards should be applied to barracks, BOQ's, industrial and shop type of buildings, or to any building which would require the addition of an elevator to make the Standard effective."

In response to our review, the Naval Facilities Engineering Command headquarters issued a notice in June 1974 to all engineering field divisions reemphasizing the need for complying with the act. This notice stated that (1) our review had disclosed instances of noncompliance, (2) this noncompliance was partly caused by a lack of clarity in the Navy's design criteria, and (3) applicable design manuals would be revised to clarify Command policy with regard to making facilities accessible to the physically handicapped.

Discussions with Navy divisional staff indicated that:

--Architects have not been required to design buildings in compliance with the ANSI Standard because of the nonmandatory nature of the Navy design manual's language.

--The design manual is unclear as to how and to what extent the ANSI Standard should be applied.

--Handicapped facilities were considered luxuries in view of budget restraints.

--The design manual begins in a negative tone and architects tend to ignore its requirements for barrier-free design.

The Naval Facilities Engineering Command issued a revised regulation, effective April 18, 1975, clarifying much of its criteria.

Controls have not been established to insure compliance

DOD organizations have not established specific procedures for advising architects of the need to comply with the ANSI Standard or for reviewing the plans and specifications to determine ANSI Standard compliance.

The base, or using, organization requesting the construction of a building is required to prepare design instructions and DD Form 1391, "Military Construction Project Data," which describes and justifies the project. These documents have generally not referenced the need to design a building in compliance with the ANSI Standard. During our review, Corps staff expressed a need for the using organization to specify whether a building should comply with the ANSI Standard.

Corps and Navy officials, upon receipt of approved request for projects, determine whether a design should be contracted or done in-house. When the design work is contracted, the architect is furnished a package containing Federal design criteria, including DOD 4270.1-M. The same

material is also available to in-house architects. Corps and Navy staffs told us that initially neither the architectural contractor nor the in-house architect is instructed to incorporate accessibility features into the design of a particular building. They believe the reference to the ANSI Standard in DOD 4270.1-M is sufficient to alert architects to the necessity of barrier-free design.

Architects and engineers in the design divisions of the Corps and Command review building plans for compliance with applicable criteria. Specific design review procedures have not been developed to insure that barriers are identified and eliminated. Also, Army and Navy architects and engineers told us that limited staff and time usually do not permit complete and thorough reviews, particularly to insure compliance with the ANSI Standard.

The Logistical Materials Processing Facility at Tinker Air Force Base, Oklahoma, designed during August 1972 through February 1973, was not designed in compliance with the ANSI Standard. Construction is scheduled for completion in July 1975. Plans provide for it to operate 24 hours a day with more than 900 employees, 277 of whom are expected to be administrative and support personnel. Most employees will be civilians. In addition, approximately 100 visitors are expected each day.

The project design included few features to accommodate the handicapped. Architectural barriers were found in the parking area, on entrance ramps, on exterior steps, through interior doors, and in restrooms.

The Air Force Project Development Booklet and DD Form 1391, "Military Construction Project Data," prepared to justify the project, did not show the need to provide accommodations for the handicapped. The architect who designed the facility said he could not recall having initially received specific instructions to comply with the ANSI Standard; however, in a questionnaire presented to DOD officials, he raised the possibility of barrier-free design.

DOD officials advised the architect that handicap provisions would include mainly entrance ramp requirements and certain minor revisions in the restroom areas. No reference

was made of the need to comply completely with the ANSI Standard. Later Air Force design review correspondence permitted construction of an entrance ramp with a slope in excess of specifications. Neither Air Force nor Corps design review comments recognized lack of compliance with specifications.

## DOD'S COMPLIANCE WITH SECTION 6

Section 6 of the act states:

> "* * *the Secretary of Defense with respect to standards issued under section 4 of this act, is authorized--
>
> (1) to modify or waive any such standard, on a case-by-case basis, upon application made by the head of the department, agency or instrumentality of the United States concerned, and upon a determination by the * * * Secretary * * * that such modification or waiver is clearly necessary, and
>
> (2) to conduct such surveys and investigations as he deems necessary to insure compliance with such standards."

### Procedure for requesting waivers not established

Although the Secretary of Defense is empowered by section 6(1) to waive the ANSI Standard with respect to DOD facilities, no waivers have been requested or granted. DOD said this indicates its intention to eliminate architectural barriers to the handicapped.

No procedure for requesting waivers of the ANSI Standard has been established. DOD officials said that regulations setting forth the ANSI Standard and other accessibility criteria were so vaguely stated, broad, and discretionary that waivers were not necessary. Most believed that a special waiver request was unnecessary.

## Self-monitoring to insure compliance not required

DOD has not established a survey and investigation system to determine compliance with the act. The military departments have not been required and have not conducted any surveys or investigations on adherence to the ANSI Standard. In addition, DOD had not required the services to establish compliance records on buildings subject to the act.

In 1971 the President's Committee on Employment of the Handicapped requested the Secretary, DOD, to make a special survey to determine whether buildings subject to the act had been designed in accordance with the ANSI Standard. The Assistant Secretary of Defense, Installations and Logistics, told the Committee that he believed the value of information obtained from such a study would not be commensurate with the effort involved in its collection. He said the study would require DOD to individually review the plans or inspect each constructed building subject to the act. As an alternative, he suggested an exchange of views with the military departments together with a reaffirmation of DOD's determination to make the barrier-free concept a realistic and meaningful program.

## CONCLUSIONS

DOD's implementation of the act has generally been limited to issuing its policy statement, adopting the ANSI Standard in its construction criteria manual, and instructing the military services to incorporate provisions of the Standard into design and specifications for new buildings and facilities.

DOD has not obtained reports on the implementation of its instructions nor made reviews of the services' compliance with the Standard and was unable to readily supply the information requested by the President's Committee on Employment of the Handicapped.

The construction agencies in DOD, the Corps, and the Navy have not required that architects appropriately consider

the Standard, and the existence of barriers in plans and specifications has not been detected during the review and approval phase.

The Navy's policy before April 18, 1975, was ambiguous, giving the impression that compliance with the Standard was at most a secondary consideration.

RECOMMENDATIONS TO THE SECRETARY, DOD

We recommend that the Secretary:

--Modify and amplify the ANSI Standard in the "Construction Criteria Manual, DOD 4270.1-M," to make it more adaptable to applicable military buildings.

--Clarify the manual to clearly identify those buildings that should comply with the act.

--Require the Secretaries of the military services to indicate in design instructions and in DD Form 1391, whether buildings in a particular construction project should be accessible to the physically handicapped.

--Establish appropriate controls over the design of buildings to insure compliance with standards prescribed to eliminate barriers.

--Establish procedures for obtaining a waiver of the prescribed standard.

--Establish a survey and investigation system, as authorized by section 6(2) of the act, to insure compliance with prescribed standards.

# CHAPTER 7

# EFFECTIVENESS OF HEW'S IMPLEMENTATION AND ADMINISTRATION

## HEW'S ROLE AS CONSULTANT

Sections 2, 3, and 4 of the act authorize the Secretary of HEW to consult with the Administrator of GSA and the Secretaries of HUD and DOD in prescribing standards for the design, construction, and alteration of buildings to insure accessibility to the physically handicapped.

HEW formed a task force to carry out its responsibilities. The task force, meeting with representatives of GSA and HUD to develop standards to satisfy the act, promoted the adoption of the ANSI Standard which had been cited by the National Commission on Architectural Barriers in its December 1967 report, "Design for all Americans."

During meetings with the HEW task force, GSA expressed a desire for a standard that went beyond the ANSI Standard. HUD, however, maintained that the ANSI Standard was adequate to satisfy its responsibilities and that the Standard was the maximum it wished to impose on its housing programs. Agreement was subsequently reached that the ANSI Standard would be adopted to implement the act.

DOD in November 1968 advised HEW that it had already adopted the ANSI Standard in its "Construction Criteria Manual" and no further action would be taken in prescribing standards. HEW advised DOD in December 1968 that it was in compliance with the act. (See pp. 68 to 69.)

### ANSI Standard not relevant to all federally financed buildings

Some 6 years after the adoption of the ANSI Standard, it is still being used with only minor administrative exceptions by Federal agencies; however, GSA, HUD, and HEW actions since they adopted the Standard in 1969 indicate that it did not completely satisfy their needs. HEW, because of its role as consultant, must share responsibility for standards being used that are not relevant to all federally financed buildings subject to the act.

HUD, as of March 1975, was studying and revising the ANSI Standard, GSA plans to establish a new standard, broader in scope and more specific in language, to replace the ANSI Standard in its FPMR. (See pp. 34 to 35 and 41.) HEW will consult with GSA in amending the FPMR to embody the new standard. HEW is acting in a review capacity with HUD to assist it in evaluating reports from its Syracuse University contract to update and expand the ANSI Standard.

HEW published part 4, section 4.12, to its "Technical Handbook for Facilities Engineering and Construction Manual" in October 1974. This part, entitled "Design of Barrier Free Facilities," contains standards not contained in the ANSI Standard to make buildings accessible to the physically handicapped. The new standards include

--passenger arrival,

--dining areas,

--spectator spaces,

--laboratories,

--libraries,

--audio-visual control rooms, and

--bedrooms in dormitories and similar occupancies.

HEW requested numerous Federal agencies, including GSA, to review and comment on its new standards.

HEW'S IMPLEMENTATION OF SECTION 5

Section 5 requires applicable buildings to comply with the act's prescribed standards. (See p. 42.)

HEW looks to GSA- and HEW-developed standards and guide documents to implement the act. The ANSI Standard prescribed in GSA's FPMR 101-19.6 is used in HEW buildings. HEW policy, stated in its "Grants Administration Manual," requires all new construction and renovations supported by HEW grant or loan funds to be accessible to the physically handicapped in accordance with the ANSI Standard. HEW's Office of

Facilities Engineering and Property Management has also formulated and issued policy, standards, manual guides, and memorandums for use by its regional offices.

HEW's construction activities fall into two categories, direct Federal construction and construction assistance. Under Federal construction financed directly and entirely from HEW appropriations, HEW acquires (1) general-purpose buildings, designed and constructed by GSA, and (2) specialized buildings (hospitals, research laboratories, etc.), designed and constructed by HEW. Major programs include

--Social Security Administration district offices,

--Social Security payment centers, and

--Indian Health Service facilities.

HEW's construction assistance program funds the construction of buildings for the

--Office of Education,

--Office of Human Development,

--Public Health Service, and

--Social and Rehabilitation Service.

HEW's Office of Facilities Engineering and Property Management is responsible for overseeing and coordinating the construction activities of the various department bureaus. At each field office there is a facilities engineering and construction staff responsible for construction activities within the regions. The regional staffs have been delegated much of the responsibility for direct and federally assisted construction activities.

The regional engineering and construction offices review plans and specifications for direct Federal construction special-purpose projects and most federally assisted construction projects in order to determine if architects have complied with all building requirements.

HEW informs its own staff and grantees and their architect-engineering firms of design criteria through the "Technical Handbook for Facilities and Engineering Construction Manual," part 2 and 4, which incorporates the requirements of the FPMR. Provisions regarding elimination of architectural barriers were first incorporated in HEW's manual in 1965. Additionally, various HEW programs are required to comply with the act and the ANSI Standard.

Inadequate design review procedures

HEW design controls do not insure that ANSI Standard provisions are included in plans and incorporated in buildings during construction. Controls established for regional offices to insure compliance with the act include:

--References to the ANSI Standard in the "Technical Handbook for Facilities Engineering and Construction Manual," part 2, dated November 1971.

--Requirements that grantees certify in bid applications that the ANSI Standard will be followed.

--Requirements that architects certify that final plans and specifications comply with the ANSI Standard.

--The "Technical Handbook for Facilities Engineering Construction Manual, Design of Barrier Free Facilities," dated October 1974, which contains standards and a checklist used by HEW staff in reviewing plans and an exception letter to grantees noting areas on plans and specifications not conforming with the ANSI Standard.

HEW's design review procedures vary with the type of program under which the project is funded.

Under medical-type programs (hospitals, clinics, etc.) the grantee hires an architect who prepares preliminary plans and submits them to HEW. HEW reviews the plans and returns them to the grantee with its exceptions annotated.

The grantee notes HEW's exceptions and signs a certificate stating that HEW's exceptions will be corrected in the final plans; however, HEW does not review final plans.

The design review procedures are the same under higher-education-type programs (classrooms, libraries, laboratories, etc.), except final plans are submitted to HEW and must be approved before construction.

The design review procedures for schools built on a Federal base are the same as higher-education-type programs, except HEW hires the architect.

HEW does not require strict adherence to the ANSI Standard. Design reviewers are authorized to use their professional judgment regarding whether certain items in the ANSI Standard should be incorporated.

Following are examples illustrating weaknesses in HEW's design and construction reviews.

1. In February 1971, HEW granted a university about $3 million to construct a law school building estimated to cost over $5 million. The architect who designed the library certified that the ANSI Standard had been followed.

   HEW reviewed the plans and advised the grantee that

   --stairs, complying with the ANSI Standard, should be provided for the physically handicapped;

   --a walk, free of curbs, should be provided from the parking lot to the building;

   --the auditorium must have a ramp; and

   --fire alarms should conform to the ANSI Standard.

   On March 1, 1971, HEW gave final approval to the plans and authorized the grantee to advertise for bids.

We inspected the building and found that a ramp was provided for access to the auditorium, but its length, elevation, and the absence of level rest areas made it inaccessible. Also, parking spaces of sufficient width had not been designated for the physically handicapped. An HEW official said corrected plans were probably submitted to HEW and forwarded to the owner. He did not recall further HEW review of the plans.

2. We reviewed a health facility and a college office building classroom and found architectural barriers. HEW officials told us that the discrepancies were not detected because:

   --Drawings submitted by grantees were not required to show (1) heights for control switches or drinking fountains or (2) door-closing speeds and opening pressures.

   --Strict adherence to the ANSI Standard was not required. Design reviewers were authorized to use their professional judgment and were not given a design review checklist.

DESIGN REVIEWERS PERMITTING WAIVER OF STANDARDS

The ANSI Standard is being waived at the regional level, even though section 101-19.605 of the FPMR states that only the Administrator of GSA has waiver authority.

The FPMR requires that the head of the agency request and justify desired waivers of the standard; however, regional officials believe they have implied authority to grant waivers because of the time it would take to process such a request. The following examples illustrate HEW regional staff waivers.

1. HEW design review staff noted that the stairs in an HEW federally assisted college did not comply with the ANSI Standard. HEW's acting regional engineer relayed this information to the grantee. The grantee's architect informed HEW that the

stairs were monumental and were not a required exit; therefore, they were not required to have closed risers in accordance with the ANSI Standard. HEW staff agreed and told the architect not to comply. HEW did not submit the request for a waiver to the Administrator, GSA.

2. HEW regional staff took various exceptions to a university application for funds to renovate its fine arts building. HEW pointed out that the renovation as planned would not eliminate certain architectural barriers. Because of a stipulation in its charter, the university could not tear down the old fine arts building to build a new one and requested a waiver of HEW's exceptions. After inspecting the building, HEW regional officials verbally approved the waiver. The Administrator's concurrence was not obtained.

   A representative of HEW's Field Operations Division said a waiver was not requested because of administrative work involved and shortage of personnel. Requesting a formal waiver might have delayed the building's construction and completion.

FILE DOCUMENTATION SYSTEM NOT ESTABLISHED

The Secretary of HEW is required by the FPMR to maintain a file documentation system providing information in each contract or grant file on compliance with the act. This information is to be made available to GSA upon request.

Such a system was not established; therefore, it would be necessary to inspect each individual plan or completed building to determine the degree of compliance with the act.

For example, in August 1974 HEW requested 3 of its regions to survey 12 federally assisted education facilities. The survey's purpose was to provide HEW with sufficient information for it to report to the Architectural and Transportation Barriers Compliance Board on whether an Iowa study of Federal buildings was representative nationally. In

September 1974 HEW requested all regions to survey HEW owned or occupied facilities to ascertain compliance with the act. These requests necessitated the physical inspection of each building to obtain the necessary data.

HEW's inspection of 219 buildings--139 federally assisted and 80 direct federally constructed--disclosed instances of noncompliance with the ANSI Standard. An HEW official said most were such low-cost items as insufficient heights of identification signs, towel dispensers in restrooms, and elevator controls and absence of designated parking.

CONCLUSIONS

HEW, after passage of the Architectural Barriers Act, helped develop GSA's, HUD's, and DOD's implementing regulations which incorporated the ANSI Standard. However, HEW recognized that the Standard was incomplete and published a handbook in 1974 modifying it. Although HEW's role as consultant to the agencies responsible for prescribing standards is not clearly defined in the act, ineffective standards have continued to be used. HEW is partly responsible for this.

GSA's FPMR require that:

--Buildings be designed in accordance with the ANSI Standard.

--Only the Administrator, GSA, may waive the act's prescribed standards.

--Each agency head establish a documentation system providing certification in each contract or grant file on the project's compliance with the act.

HEW has failed to establish procedures to comply with all of these requirements.

## RECOMMENDATIONS TO THE SECRETARY, HEW

We recommend that the Secretary:

--Take, as intended in the act, a leadership role in revising standards prescribed by agencies when such revisions appear necessary.

--Establish controls during design review to insure that buildings are barrier free.

--Develop specific procedures for obtaining waivers of the prescribed standards and emphasize to design review staff that only the Administrator, GSA, is authorized to waive the standards.

--Establish a recordkeeping system as required by the FPMR 101-19.6.

--Develop a system of compliance reviews to determine whether HEW-financed projects (direct and by grant or loan) are accessible to the physically handicapped.

# CHAPTER 8

# COSTS OF ELIMINATING ARCHITECTURAL BARRIERS

Government, private contractor, and design personnel agree that the cost of accessibility features is negligible when such items are incorporated in the design phase; sometimes, they may even result in cost savings. In addition, although the cost of altering existing inaccessible buildings is more than that of initial barrier-free construction, it is relatively small when compared to total construction cost.

The Acting Commissioner, Public Buildings Service, GSA, stated that barrier-free buildings can be provided at little or no additional cost, and sometimes at less cost, when the architect is aware of the needs of the handicapped and takes them into account in initial plans. He further stated that alterations to existing buildings to eliminate architectural barriers will involve additional cost depending on the extent of the alterations.

HEW's technical handbook "Design of Barrier Free Facilities," contains the following pertaining to cost:

> "In most new construction, the additional cost of making a facility barrier-free is negligible and should not interfere with application of the standards. The remodeling of existing structures does involve additional costs which vary widely. * * * The value to society of having the disabled population more fully independent and usefully employed outweighs the cost of making facilities accessible."

## COSTS TO ELIMINATE BARRIERS INITIALLY AND BY ALTERATION

Although particular items designed for the handicapped cost more than conventional items, cost differences can disappear during construction. For example, a 36-inch-wide door usually costs more than a 30-inch-wide door; however, installing the wider door creates an offsetting decrease

in adjacent partitioning costs. On the other hand, some buildings are constructed with massive entrances on a raised podium with steps. Such an entrance is inaccessible as well as costlier than a level, more accessible entrance.

Detailed cost data can only be determined on a case-by-case basis because it must be related to the requirements and conditions of each project. However, a cost study by the National League of Cities and a discussion with a Government official showed that the additional cost for accessibility features included in the original construction program may only be one-tenth of 1 percent of total construction cost.

Government estimators provided us with the current cost of converting selected buildings to conform to the ANSI Standard, as well as the added cost (that amount which represents cost for accessibility features over and above nonaccessible original construction) if the buildings had originally complied with the Standard.

When compared to total project cost, the current cost of altering buildings to comply with the ANSI Standard is relatively small. The percentages ranged from 2.4 percent to .06 percent of the project cost. However, the cost is even less when accessibility features are incorporated into the original construction program. In all instances, they amounted to less than 1 percent of total project cost.

## Comparative Costs to Remove Barriers by Alteration and Initial Construction

| Agency | Building/location | Project cost | Estimated cost to remove barriers by alteration | Percent of project cost | Estimated added cost to make accessible initially | Percent of project cost |
|---|---|---|---|---|---|---|
| Navy | Chief Petty Officer's Club, Newport, R. I. | $ 1,315,956 | $ 10,800 | .82 | $ 2,880 | .22 |
| Navy | Electronic Weapons Precision and Engineering Facility, Philadelphia Navy Yard, Pa. | 11,696,618 | 282,000 | 2.41 | 65,300 | .56 |
| HEW | Horizon House, Philadelphia, Pa. | 712,500 | 11,130 | 1.56 | 5,315 | .75 |
| HEW | Pennsylvania College of Podiatric Medicine, Philadelphia, Pa. | 9,010,627 | 39,138 | .43 | 10,853 | .12 |
| HUD | Germantown House, Philadelphia, Pa. | 4,808,272 | 3,000 | .06 | 500 | .01 |
| HUD | Compton Towers, Wilmington, Del. | 3,577,398 | 9,000 | .25 | 500 | .01 |
| GSA | Dover Federal office building, Dover, Del. | 1,826,500 | 16,605 | .91 | 2,605 | .14 |

In some cases, there is no added cost associated with original barrier-free construction. The following table presents cost data for selected items.

| Barriers | Cost to remove barriers by alteration | Added cost to make accessible initially |
|---|---|---|
| Lower restroom mirror | $ 36 | - |
| Lower wall rail on stairs | 1,620 | - |
| Lower fire alarm control | 20 | - |
| Lower urinal | 280 | - |

We selected several architectural barriers common to many DOD facilities and asked Army Corps of Engineers' personnel to estimate the cost of eliminating selected barriers. Options are available in some cases, as shown in the following table.

Estimated Average Costs

to Remove Selected Barriers

in DOD Buildings

| Barrier | Cost to remove barrier by alteration | Cost to make accessible initially |
|---|---|---|
| No handicapped parking: | | |
| Designation sign | $ 100 | $ 100 |
| Provide one space | 45 | - |
| Curb cut: | | |
| 4-foot curb cut | 260 | 25 |
| Cost per each additional foot | 50 | - |
| Narrow doors: | | |
| Widen exterior double door (5 feet to 6 feet) | 650 | 25 |
| Widen interior single door | 500 | 15 |
| Provide asymetrical interior double door | 450 | - |
| Provide automatic door (swinging type) | 1,600 | 1,200 |
| Inaccessible watercloset seat: | | |
| Raise existing watercloset seat: | | |
| Floor mounted: with no wallwork | 150 | - |
| with wallwork | 200 | - |
| Wall mounted (includes wallwork) | 200 | - |
| Provide extra thick seat | 110 | 110 |
| Provide dual-purpose seat | 60 | 60 |
| Inaccessible urinal: | | |
| Lower wall mounted urinal | 200 | - |
| No grab bars: | | |
| Provide grab bars in toilet stall | 120 | 120 |
| Improper toilet stall: | | |
| Provide 36-inch-wide toilet stall with 32-inch door that swings out | 300 | 20 |
| Inaccessible restroom lavatory: | | |
| Relocate existing lavatory | 250 | - |
| Replace with handicapped lavatory | 460 | 210 |
| Inaccessible restroom stainless steel shelves: | | |
| Lower existing shelf | 50 | - |
| Purchase and install new shelf | 50 | 50 |
| Purchase and install new shelf in toilet stall | 40 | 40 |
| Lower existing combination mirror and shelf | 60 | - |
| Purchase and install combination mirror and shelf | 80 | 80 |
| Inaccessible restroom mirror: | | |
| Lower existing mirror | 60 | - |
| Purchase and install new mirror | 50 | 50 |
| Inaccessible dispensers: | | |
| Lower existing dispenser | 40 | - |
| Purchase and install new dispenser | 60 | 60 |

The cost data indicates that the greatest increase in total building cost occurs when special equipment must be included to accommodate the handicapped; for example, a special lavatory, toilet stall grab bars, or an automatic door. However, the cost of altering existing facilities is usually greater than the cost of original barrier-free construction.

Corps personnel said the cost of modifying existing facilities could be reduced by as much as 15 to 25 percent under the following conditions:

--Larger volume of work in a single location.

--Larger purchase quantities of material.

--Local purchases when cheaper.

--Use of inhouse labor.

## COST IN LEASED SPACE

GSA officials said they would expect lessors to increase rental charges if extensive alterations were required to make leased space accessible to the physically handicapped. GSA's solicitation for offers specifies that accessibility features such as accessible doors, toilets, and drinking fountains be provided in the leased space. Although these requirements can be enforced, even after the Government occupies the space, GSA has not been enforcing them unless requested to do so by lessees. (See p. 48.)

## CONCLUSIONS

The cost of eliminating architectural barriers is not substantial. Costs are negligible when barriers are eliminated in the initial design and comparatively minor when they are eliminated by altering existing construction. Since the cost of eliminating barriers is not significant, limited progress in eliminating barriers may be due in part to a lack of commitment by Government officials.

Public Law 90-480
90th Congress, S. 222
August 12, 1968

# An Act

To insure that certain buildings financed with Federal funds are so designed and constructed as to be accessible to the physically handicapped.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That, as used in this Act, the term "building" means any building or facility (other than (A) a privately owned residential structure and (B) any building or facility on a military installation designed and constructed primarily for use by able bodied military personnel) the intended use for which either will require that such building or facility be accessible to the public, or may result in the employment or residence therein of physically handicapped persons, which building or facility is— Public buildings. Accessibility to physically handicapped.

82 STAT. 718

82 STAT. 719

(1) to be constructed or altered by or on behalf of the United States;

(2) to be leased in whole or in part by the United States after the date of enactment of this Act after construction or alteration in accordance with plans and specifications of the United States; or

(3) to be financed in whole or in part by a grant or a loan made by the United States after the date of enactment of this Act if such building or facility is subject to standards for design, construction, or alteration issued under authority of the law authorizing such grant or loan.

SEC. 2. The Administrator of General Services, in consultation with the Secretary of Health, Education, and Welfare, is authorized to prescribe such standards for the design, construction, and alteration of buildings (other than residential structures subject to this Act and buildings, structures, and facilities of the Department of Defense subject to this Act) as may be necessary to insure that physically handicapped persons will have ready access to, and use of, such buildings. Standards.

SEC. 3. The Secretary of Housing and Urban Development, in consultation with the Secretary of Health, Education, and Welfare, is authorized to prescribe such standards for the design, construction, and alteration of buildings which are residential structures subject to this Act as may be necessary to insure that physically handicapped persons will have ready access to, and use of, such buildings.

SEC. 4. The Secretary of Defense, in consultation with the Secretary of Health, Education, and Welfare, is authorized to prescribe such standards for the design, construction, and alteration of buildings, structures, and facilities of the Department of Defense subject to this Act as may be necessary to insure that physically handicapped persons will have ready access to, and use of, such buildings.

SEC. 5. Every building designed, constructed, or altered after the effective date of a standard issued under this Act which is applicable to such building, shall be designed, constructed, or altered in accordance with such standard. Applicability.

SEC. 6. The Administrator of General Services, with respect to standards issued under section 2 of this Act, and the Secretary of Housing and Urban Development, with respect to standards issued under section 3 of this Act, and the Secretary of Defense with respect to standards issued under section 4 of this Act, is authorized—

(1) to modify or waive any such standard, on a case-by-case basis, upon application made by the head of the department, agency, or instrumentality of the United States concerned, and Waiver.

APPENDIX I



upon a determination by the Administrator or Secretary, as the case may be, that such modification or waiver is clearly necessary, and

Surveys and investigations.

(2) to conduct such surveys and investigations as he deems necessary to insure compliance with such standards.

Approved August 12, 1968.

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HOUSE REPORTS: No. 1532 accompanying H. R. 6589 (Comm. on Public Works) and No. 1787 (Comm. of Conference).
SENATE REPORT No. 538 (Comm. on Public Works).
CONGRESSIONAL RECORD:
Vol. 113 (1967): Aug. 25, considered and passed Senate.
Vol. 114 (1968): June 17, considered and passed House, amended, in lieu of H. R. 6589.
July 26, House agreed to conference report.
July 29, Senate agreed to conference report.

## CHECKLIST USED TO DETERMINE WHETHER BUILDINGS WERE ACCESSIBLE TO THE PHYSICALLY HANDICAPPED

This checklist is based on the ANSI Standard. In some instances the language of the Standard was modified to quantify data or questions were added to more completely assess a particular aspect of a building. Other Federal, State, and privately developed standards were consulted in making the modifications. The modifications are identified by an asterisk.

Data shown for each question is based on our inspection of 314 buildings and/or building plans. Each question required a "yes," "no," or "not applicable" comment. "Not applicable" comments occurred where the particular building category under inspection was nonexistent or where the adequacy of that building category was impossible to determine from the building plans. Narrative comments and specific measurements requested during the inspections have been deleted to conserve space.

| | | Yes | No | Not applicable |
|---|---|---|---|---|
| **SITE DEVELOPMENT** | | | | |
| | Grading: | | | |
| * | 1. Is the grading of the site, even contrary to existing topography, such that approaches to the building can be provided which are substantially level with building entrances? | 234 | 20 | 60 |
| | Parking lots: | | | |
| * | 1. Is there parking within 200 feet of the building entrance? | 224 | 20 | 70 |

| | Yes | No | Not applicable |
|---|---|---|---|
| a. Is any of this parking identified as reserved for use by individuals with physical disabilities? | 47 | 181 | 86 |
| 2. Are there any parking spaces open on one side, allowing room for individuals in wheelchairs or on braces to get in and out of an automobile? | 52 | 145 | 117 |
| 3. If parking spaces for individuals with physical disabilities are placed between two conventional diagonal or head-on parking spaces, are they at least 12 feet wide? | 19 | 118 | 177 |
| 4. Is it unnecessary for individuals in wheelchairs or those using braces or crutches to wheel or walk behind parked cars? | 46 | 176 | 92 |
| 5. Are the parking spaces located to allow persons to get in or out on a level surface? | 158 | 8 | 148 |
| * 6. Is there clear, level, or ramped path--void of curbs--from the parking lot to the building entrances? | 114 | 121 | 79 |
| Walks: | | | |
| 1. Are walks at least 48 inches wide? | 227 | 16 | 71 |
| a. Is the gradient not greater than 5 percent (1-foot rise in 20 feet)? | 208 | 26 | 80 |

| | | Yes | No | Not applicable |
|---|---|---|---|---|
| | 2. Are walks of a continuing common surface, not interrupted by steps or abrupt changes in level? | 198 | 40 | 76 |
| | 3. Wherever they cross other walks, driveways, or parking lots, do walks blend to a common level? | 144 | 81 | 89 |
| * | 4. Do walks that are elevated have a level platform at the top which is (a) at least 5-by-5 feet if a door swings out onto the platform or toward the walk or (b) 3-by-5 feet if door does not swing onto the platform? | 130 | 24 | 160 |
| * | 5. Does the platform extend at least 1 foot beyond each side (inside and outside) of the doorway? | 134 | 22 | 158 |
| | 6. Do walks have a surface that is nonslip? | 236 | 0 | 78 |
| | BUILDINGS | | | |
| | Ramps: | | | |
| | 1. Do ramps have a slope no greater than 8.33 percent, or a 1-foot rise in 12 feet? | 82 | 29 | 203 |
| * | 2. If ramps have a gradient of more than 5 percent, are handrails provided on at least one side? | 44 | 24 | 246 |

| | | Yes | No | Not applicable |
|---|---|---|---|---|
| 3. | If handrails are provided are they 32 inches in height measured from the surface of the ramp? | 17 | 35 | 262 |
| | a. Are the surfaces smooth? | 50 | 4 | 260 |
| | b. Do they extend 1 foot beyond the top and bottom of the ramp? | 15 | 41 | 258 |
| 4. | Do ramps have a surface that is nonslip? | 105 | 4 | 205 |
| 5. | Do platforms comply with questions 4 and 5 under the category of walks? | 65 | 12 | 237 |
| 6. | Do ramps have at least 6 feet of straight clearance at the bottom? | 105 | 8 | 201 |
| * | a. Are level rest areas--a minimum of 5 feet in length--provided at turns? | 20 | 4 | 290 |
| 7. | Do ramps that exceed a gradient of 5 percent have level platforms--a minimum of 3 feet in length--at 30-foot intervals? | 11 | 17 | 286 |
| * | a. Are level rest areas--a minimum of 5 feet in length--provided at turns? | 15 | 2 | 297 |

APPENDIX II

| | Yes | No | Not applicable |
|---|---|---|---|
| Entrances/exits: | | | |
| 1. Is at least one primary entrance to the building usable by individuals in wheelchairs? (It is preferable that all or most entrances (exits) should be accessible to and usable by individuals in wheelchairs or other forms of physical disability.) | 234 | 74 | 6 |
| 2. Is at least one entrance usable by individuals in wheelchairs on a level that would make the elevators accessible? | 157 | 21 | 136 |
| Doors and doorways (interior and exterior doors): | | | |
| 1. Do doors have a clear opening of no less than 32 inches when open? | 187 | 66 | 61 |
| 2. Are doors operable by a single effort? Note: Two leaf doors are not usable by those with disabilities unless they operate by single effort, or unless one of the two leaves meets the 32-inch width. | 204 | 40 | 70 |
| 3. Is the floor of the doorway level for a distance of 5 feet from the door in the direction it swings? | 217 | 30 | 67 |
| a. Does it extend 1 foot beyond each side of door? | 196 | 52 | 66 |

APPENDIX II

| | Yes | No | Not applicable |
|---|---|---|---|
| b. Does it extend 3 feet in the direction opposite to the door swing? | 240 | 6 | 68 |
| c. Is the floor at least 5 feet wide? | 232 | 16 | 66 |
| 4. Are sharp inclines and abrupt changes in level avoided at doorsills? | 218 | 29 | 67 |
| 5. Does the speed of door closers allow the use of doors by physically disabled persons? | 146 | 58 | 110 |
| Stairs and steps: | | | |
| 1. Do steps avoid abrupt nosing (Nosing is the protruding lip at the front edge of steps)? | 135 | 51 | 128 |
| 2. Do stairs have handrails 32 inches high as measured from the tread at the face of the riser? | 62 | 110 | 142 |
| 3. Do stairs have at least one handrail that extends at least 18 inches beyond the top and bottom step (parallel to floor or landing, and extension preferably secured to wall to avoid creation of a hazard)? | 27 | 139 | 148 |
| 4. Do steps have risers 7 inches or less? | 149 | 36 | 129 |

| | | Yes | No | Not applicable |
|---|---|---|---|---|
| | Floors: | | | |
| | 1. Do floors have a nonslip surface? | 206 | 41 | 67 |
| | 2. Are floors on each story at a common level or connected by a ramp? (There should be no differences in level between corridor and adjacent rooms.) | 225 | 9 | 80 |
| | Restrooms: | | | |
| * | 1. Is there at least one toilet for each sex on each floor with facilities for the physically handicapped? | 197 | 107 | 10 |
| * | 2. Can physically handicapped persons, particularly those in wheelchairs, enter the restroom? | 241 | 65 | 8 |
| | 3. Do toilet rooms have turning space 60-by-60 inches to allow traffic of individuals in wheelchairs? | 186 | 112 | 16 |
| | 4. Do toilet rooms have at least one toilet stall that: | | | |
| | a. is 3 feet wide? | 185 | 106 | 23 |
| | b. is at least 4 feet, 8 inches (preferably 5 feet) deep? | 238 | 53 | 23 |
| | c. has a door that is 32 inches wide and swings out? | 111 | 178 | 25 |

| | | Yes | No | Not applicable |
|---|---|---|---|---|
| | d. has handrails on each side, 33 inches high and parallel to floor, 1-1/2 inches in diameter, with 1-1/2 inches clearance between rail and wall, fastened securely to the wall at the ends and center? If grab bars are other than parallel, describe. | 117 | 159 | 38 |
| * | e. has a clearance of at least 48 inches between the outside wall and the front of the stall entrance? | 177 | 91 | 46 |
| | f. has water closet with seat 20 inches from the floor? | 93 | 208 | 13 |
| * | 5. Do toilet rooms have lavatories (wash basins) with narrow aprons, which when mounted at standard height are no greater than 34 inches at the top and which have a clearance underneath of 29 inches? | 72 | 222 | 20 |
| | 6. Are drain pipes and hot water pipes covered or insulated? | 104 | 179 | 31 |
| * | 7. Is one mirror at a height as low as possible and no higher than 40 inches above the floor? | 74 | 211 | 29 |
| * | 8. Is one shelf at a height as low as possible and no higher than 40 inches above the floor? | 82 | 146 | 86 |

| | | Yes | No | Not applicable |
|---|---|---|---|---|
| 9. | Do toilet rooms for men have wall-mounted urinals with the opening of the basin 19 inches from the floor, or have floor-mounted urinals that are level with the main floor of the toilet room? | 43 | 220 | 51 |
| 10. | Do toilet rooms have towel racks mounted no higher than 40 inches from the floor? | 8 | 45 | 261 |
| 11. | Are towel dispensers mounted no higher than 40 inches from the floor? | 27 | 235 | 52 |
| 12. | Are other dispensers mounted no higher than 40 inches from the floor? | 120 | 116 | 78 |
| 13. | Are disposal units mounted no higher than 40 inches from the floor? | 206 | 54 | 54 |
| * 14. | Are towel racks, towel dispensers and other appropriate disposal units located to the side of the lavatory rather than directly above? | 179 | 105 | 30 |
| | Water fountains: | | | |
| * 1. | Is there at least one drinking fountain on each floor for use by the physically handicapped? | 185 | 96 | 33 |
| * 2. | Can persons in wheelchairs wheel up to the water fountain? | 199 | 66 | 49 |

APPENDIX II

| | Yes | No | Not applicable |
|---|---|---|---|
| 3. Do water fountains or coolers have up-front spouts and controls? | 253 | 3 | 58 |
| 4. Are they hand operated? | 263 | 3 | 48 |
| 5. If coolers are wall mounted, are they hand operated, with basins 36 inches or less from the floor? | 49 | 164 | 101 |
| Public telephones: | | | |
| * 1. Is there at least one public telephone in each "bank" accessible to physically handicapped persons? | 51 | 87 | 176 |
| 2. Is the height of the dial from the floor 48 inches or less? | 21 | 111 | 182 |
| 3. Is the coin slot located 48 inches or less from the floor? | 4 | 122 | 188 |
| 4. Are there telephones equipped for persons with hearing disabilities? | 1 | 127 | 186 |
| a. Are those telephones identified as such? | 1 | 0 | 313 |
| Elevators: | | | |
| 1. If more than a one-story building, are elevators available to the physically handicapped? | 127 | 7 | 180 |

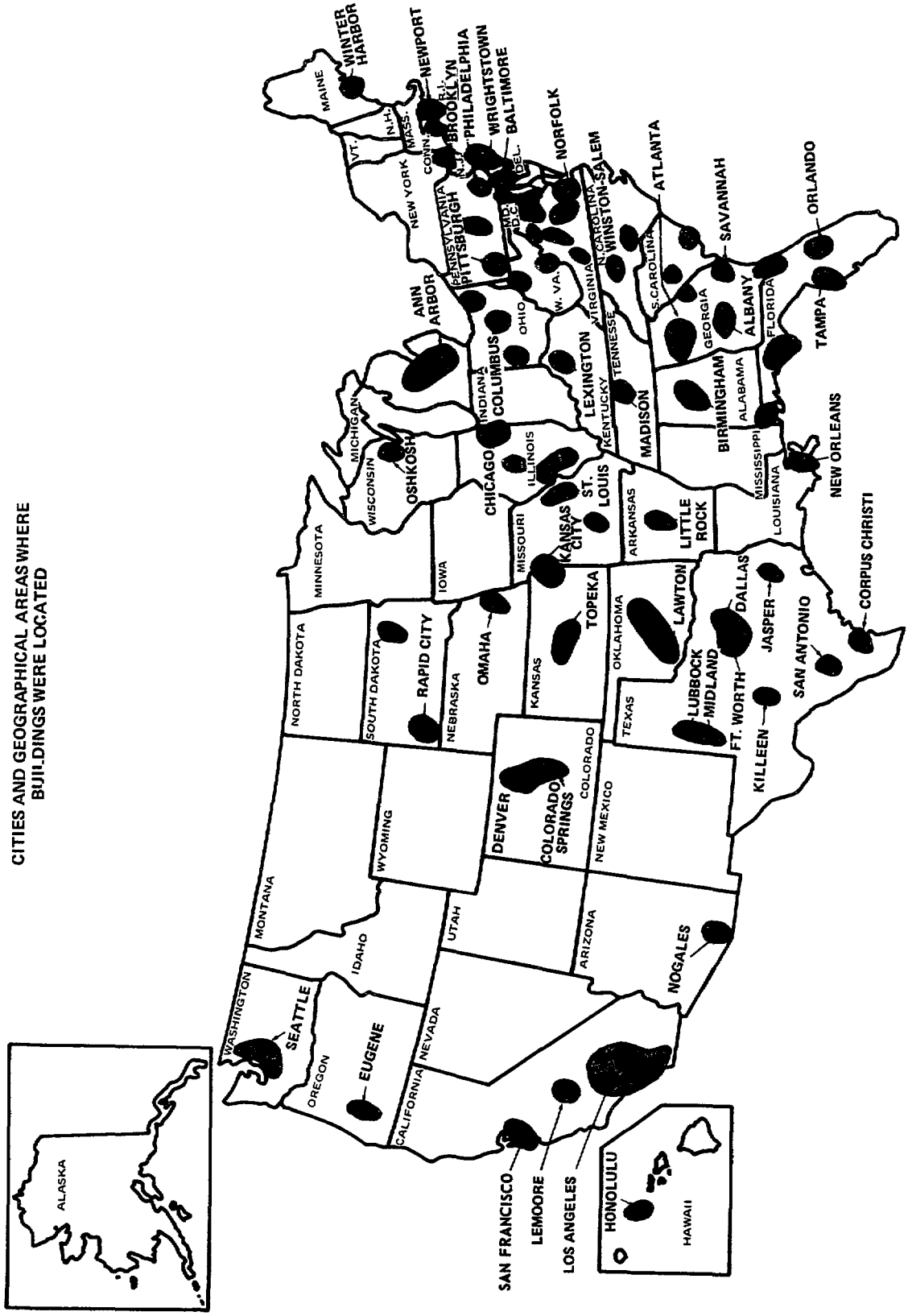
| | | | Yes | No | Not applicable |
|---|---|---|---|---|---|
| | 2. | Can physically handicapped persons, particularly those in wheelchairs, enter elevators? | 124 | 2 | 188 |
| * | 3. | Are outside call buttons 48 inches or less from the floor? | 30 | 81 | 203 |
| * | 4. | Are control buttons inside the elevators 48 inches or less from the floor? | 5 | 98 | 211 |
| * | 5. | Are the buttons labeled with raised (or indented) letters beside them? | 11 | 88 | 215 |
| * | 6. | Are they touch sensitive or easy to push? | 102 | 1 | 211 |
| | 7. | Is the cab at least 5-by-5 feet? | 62 | 54 | 198 |
| * | 8. | Can a person in a wheelchair facing the rear see floor numbers (by mirror or floor identification number at rear of cab)? | 3 | 107 | 204 |
| * | 9. | Are floors announced orally by recorded devices for the benefit of the blind? | 3 | 110 | 201 |
| | Controls: | | | | |
| * | 1. | Are light switches not more than 48 inches above the floor? | 54 | 149 | 111 |
| * | 2. | Are controls for heating, cooling and ventilation not more than 48 inches above the floor? | 18 | 64 | 232 |

| | | Yes | No | Not applicable |
|---|---|---|---|---|
| * | 3. Are controls for fire alarms and other warning signals not more than 48 inches above the floor? | 12 | 173 | 129 |
| * | 4. Are controls for draperies and other items of frequent or essential use not more than 48 inches above the floor? | 57 | 35 | 222 |
| | Identification: | | | |
| | 1. Are raised (*or recessed) letters or numbers used to identify rooms or offices? | 112 | 80 | 122 |
| | 2. Is identification placed on the wall, to the right or left of the door? | 47 | 122 | 145 |
| | a. Is it at a height between 4 feet 6 inches and 5 feet 6 inches, measured from the floor? | 74 | 73 | 167 |
| | 3. Are doors that might prove dangerous to a blind person if he were to exit or enter through them (doors not intended for normal use) made quickly identifiable to the touch by knurled door handles or knobs? | 23 | 144 | 147 |
| | Warning signals: | | | |
| | 1. Are audible warning signals accompanied by simultaneous visual signals for the benefit of those with hearing or sight disabilities? | 24 | 199 | 91 |

| | Yes | No | Not applicable |
|---|---|---|---|
| Hazards: | | | |
| 1. When manholes or access panels are open and in use, or when an open excavation exists on a site, when it is approximate to normal pedestrian traffic, are barricades placed on all open sides at least 8 feet from the hazard, and warning devices installed? | 79 | 14 | 221 |
| 2. Are there no low-hanging door closers that remain within the opening of a doorway, or that protrude hazardously into regular corridors or traffic ways? | 170 | 39 | 105 |
| 3. Are there no low-hanging signs, ceiling lights, fixtures, or similar objects that protrude into regular corridors or traffic ways? (A minimum height of 7 feet, measured from floor is recommended.) | 172 | 38 | 104 |
| 4. Is lighting on ramps adequate? | 109 | 8 | 197 |
| 5. Are exit signs easily identifiable to all disabled persons? | 174 | 35 | 105 |

APPENDIX III

CITIES AND GEOGRAPHICAL AREAS WHERE BUILDINGS WERE LOCATED



## CITIES AND STATES WHERE BUILDINGS WERE LOCATED

Washington, D.C.

Alabama
- Birmingham
- Mobile
- Anniston

Arizona
- Nogales

Arkansas
- Little Rock

California
- Los Angeles
- San Francisco
- Van Nuys
- San Pedro
- Carson
- Tarzana
- San Diego
- Santa Ana
- Santa Rosa
- Lemoore
- Long Beach
- San Bernadino
- Victorville
- Edwards

Colorado
- Denver
- Boulder
- Ft. Collins
- Colorado Springs

Connecticut
- New London

Delaware
- Wilmington
- Dover

Florida
- Tampa
- Orlando
- Milton
- Jacksonville
- Winter Park
- Tarpon Springs
- Pensacola
- Mayport
- Valparaiso
- Tampa

Georgia
- Atlanta
- Savannah
- Athens
- Rome
- Augusta
- Albany
- Griffin

Hawaii
- Honolulu

Illinois
- Chicago
- Woodstock
- Mt. Vernon
- Alton
- Belleville
- Bloomington

Kansas
- Kansas City
- Topeka
- Mission
- Junction City

Kentucky
- Lexington

APPENDIX IV

Louisiana
- New Orleans

Maine
- Winter Harbor

Maryland
- Baltimore
- Laurel

Michigan
- Saginaw
- Ann Arbor

Missouri
- Kansas City
- St. Louis
- Hazelwood
- St. Charles
- Waynesville

Nebraska
- Omaha

New Jersey
- Red Bank
- Wrightstown

New York
- Brooklyn

North Carolina
- Winston-Salem
- Fayetteville

Ohio
- Akron
- Columbus
- Dayton

Oklahoma
- Oklahoma City
- Lawton

Oregon
- Eugene

Pennsylvania
- Pittsburgh
- Philadelphia
- Williamsport
- Mechanicsburg

Rhode Island
- Newport

South Carolina
- Columbia
- Charleston

South Dakota
- Rapid City
- Aberdeen

Tennessee
- Madison

Texas
- Dallas
- Ft. Worth
- San Antonio
- Midland
- Grand Prairie
- Corpus Christi
- Lubbock
- Killeen
- Jasper

Virginia
- Norfolk
- Roanoke
- Yorktown
- Little Creek
- Ft. Belvoir
- Hampton
- Petersburg
- Arlington

APPENDIX IV

Washington
- Seattle
- Evert
- Burien
- Keyport
- Tacoma

West Virginia
- Parkersburg
- Elkins
- Sugar Grove

Wisconsin
- Oshkosh

## ORGANIZATIONS CONTACTED

Federal agencies:

- GSA
- HUD
- HEW
- DOD
- Department of the Army
- Department of the Navy
- Department of the Air Force
- President's Committee on Employment of the Handicapped
- Veterans Administration
- United States Postal Service
- Architectural and Transportation Barriers Compliance Board

State and local agencies:

- Georgia Institute of Technology
- South Carolina Governor's Committee on Employment of the Handicapped
- Georgia Governor's Committee on Employment of the Handicapped
- Texas Governor's Committee on Employment of the Handicapped
- Iowa Governor's Committee on Employment of the Handicapped
- Minnesota Governor's Committee on Employment of the Handicapped
- North Carolina Governor's Committee on Employment of the Handicapped
- Georgia Department of Human Resources
- Texas State Building Commission
- South Western Medical School's Committee for Removal of Architectural Barriers

Others:

- American Institute of Architects, Washington, D.C.
- American Institute of Architects, Dallas chapter
- American Institute of Architects, Atlanta chapter
- American National Standards Institute, New York, N.Y.
- Building Officials and Code Administrators International, Inc.

APPENDIX V

Georgia Easter Seal Society for Crippled Children and Adults, Inc.
North Carolina Rehabilitation Association
Minnesota Society for Crippled Children and Adults, Inc.
Paralyzed Veterans of America, Inc.
Easter Seal Rehabilitation Center, Tampa, Fla.
Baltimore League for Crippled Children and Adults, Inc.
Arthritis Foundation of Eastern Pennsylvania
Philadelphia Hearing Society

APPENDIX VI

## PRINCIPAL OFFICIALS RESPONSIBLE FOR THE ADMINISTRATION OF ACTIVITIES DISCUSSED IN THIS REPORT

| | Tenure of office | |
|---|---|---|
| | From | To |
| **DEPARTMENT OF DEFENSE** | | |
| SECRETARY OF DEFENSE: | | |
| James R. Schlesinger | July 1973 | Present |
| William P. Clements (acting) | May 1973 | July 1973 |
| Elliot L. Richardson | Jan. 1973 | May 1973 |
| Melvin R. Laird | Jan. 1969 | Jan. 1973 |
| Clark M. Clifford | Mar. 1968 | Jan. 1969 |
| DEPUTY SECRETARY OF DEFENSE: | | |
| William P. Clements | Jan. 1973 | Present |
| Kenneth Rush | Feb. 1972 | Jan. 1973 |
| David Packard | Jan. 1969 | Dec. 1971 |
| Paul R. Nitze | July 1967 | Jan. 1969 |
| **DEPARTMENT OF THE ARMY** | | |
| SECRETARY OF THE ARMY: | | |
| Howard H. Callaway | June 1973 | Present |
| Robert F. Froehlke | July 1971 | June 1973 |
| Stanley R. Resor | July 1965 | June 1971 |
| CHIEF OF ENGINEERS: | | |
| Lt. Gen. W. C. Gribble, Jr. | Aug. 1973 | Present |
| Lt. Gen. Frederick J. Clarke | Aug. 1969 | July 1973 |
| **DEPARTMENT OF THE NAVY** | | |
| SECRETARY OF THE NAVY: | | |
| J. William Middendorf II | June 1974 | Present |
| J. William Middendorf II (acting) | April 1974 | June 1974 |
| John W. Warner | May 1972 | April 1974 |
| John H. Chafee | Jan. 1969 | May 1972 |
| COMMANDER, NAVAL FACILITIES ENGINEERING COMMAND: | | |
| Rear Adm. A. R. Marschall | May 1973 | Present |
| Rear Adm. Walter M. Enger | Aug. 1969 | June 1973 |

| | Tenure of office From | To |
|---|---|---|
| **DEPARTMENT OF THE AIR FORCE** | | |
| SECRETARY OF THE AIR FORCE: | | |
| Dr. John L. McLucas | July 1973 | Present |
| Dr. John L. McLucas (acting) | June 1973 | July 1973 |
| Dr. Robert C. Seamans, Jr. | Jan. 1969 | May 1973 |
| **DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE** | | |
| SECRETARY OF HEALTH, EDUCATION, AND WELFARE: | | |
| Caspar W. Weinberger | Feb. 1973 | Present |
| Frank C. Carlucci (acting) | Jan. 1973 | Feb. 1973 |
| Elliot L. Richardson | June 1970 | Jan. 1973 |
| Robert H. Finch | Jan. 1969 | June 1970 |
| Wilbur J. Cohen | Mar. 1968 | Jan. 1969 |
| John W. Gardner | Aug. 1965 | Mar. 1968 |
| UNDER SECRETARY OF HEALTH, EDUCATION, AND WELFARE: | | |
| Vacant | Feb. 1975 | Present |
| Frank C. Carlucci | Feb. 1973 | Jan. 1975 |
| John G. Veneman | Mar. 1969 | Jan. 1973 |
| **DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT** | | |
| SECRETARY OF HOUSING AND URBAN DEVELOPMENT: | | |
| Carla A. Hills | Mar. 1975 | Present |
| James T. Lynn | Feb. 1973 | Feb. 1975 |
| George W. Romney | Jan. 1969 | Feb. 1973 |
| Robert C. Wood | Jan. 1969 | Jan. 1969 |
| ASSISTANT SECRETARY FOR HOUSING PRODUCTION AND MORTGAGE CREDIT AND FHA COMMISSIONER: | | |
| David M. DeWilde (acting) | Nov. 1974 | Present |
| Sheldon B.Lubar | July 1973 | Nov. 1974 |
| Woodward Kingman (acting) | Jan. 1973 | July 1973 |
| Eugene A. Gulledge | Oct. 1969 | Jan. 1973 |
| William B. Ross (acting) | Feb. 1969 | Sept. 1969 |

APPENDIX VI

## GENERAL SERVICES ADMINISTRATION

| | Tenure of office From | To |
|---|---|---|
| ADMINISTRATOR OF GENERAL SERVICES: | | |
| Arthur F. Sampson | June 1973 | Present |
| Arthur F. Sampson (acting) | June 1972 | June 1973 |
| Rod Kreger (acting) | Jan. 1972 | June 1972 |
| Robert L. Kunzig | Mar. 1969 | Jan. 1972 |
| Lawson B. Knott, Jr. | Nov. 1964 | Feb. 1969 |
| COMMISSIONER, PUBLIC BUILDINGS SERVICE: | | |
| Walter A. Meisen (acting) | Oct. 1974 | Present |
| Larry F. Roush | Aug. 1973 | Oct. 1974 |
| Larry F. Roush (acting) | Jan. 1973 | Aug. 1973 |
| John F. Galuardi (acting) | July 1972 | Jan. 1973 |
| Arthur F. Sampson | Mar. 1970 | June 1972 |
| Arthur F. Sampson (acting) | Dec. 1969 | Mar. 1970 |
| Raymond F. Myers | June 1969 | Dec. 1969 |
| William A. Schmidt | Sept. 1966 | June 1969 |

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