

A STUDY OF FACILITIES FOR PHYSICALLY DISABLED PEOPLE IN PUBLIC BUILDINGS IN NIGERIA

A. Soyngbe¹, A. M. Ogundairo¹ and O. A. Adenuga¹

¹*Department of Building, Faculty of Environmental Sciences
University of Lagos, Akoka, Lagos, Nigeria.*

Email:dodoaliu123@yahoo.com

Abstract:

Human beings are physically disabled some time in their lives. Those who remain healthy and without disability all their lives are few. Thus, public buildings should be accessible and barrier-free to both able and disabled people. Disabled people find it difficult to gain access into and operate freely without assistance in many public buildings in Nigeria. The study took inventory of facilities available for disabled people in public buildings. The inventory covered the identification and ascertaining the functional state of the facilities. A total of 257 public buildings were studied. The results show that major facilities required by disabled people are lacking in many public buildings. Some of the facilities identified in few public buildings are in poor state of operation. However, absence of these key facilities restricts the activities of people with physical disability. Hence, they cannot work and become productive as tax-paying members of the nation. Due to shortfall or perhaps total neglect in provision of these facilities, their movement, competence and talents are being restricted. These equally constitute a barrier in the development of their abilities. The society at large is deprived of the abilities and talents in people with disabilities.

Keywords:

Barrier-Free Building, Facilities, Physically Disabled, Public Buildings

1. Introduction

Nigeria is a fast growing nation with population figure estimated at over 140 million. This figure comprised of able and disabled men. It is obvious that people with physical disabilities are part of every community. The acceptance and integration of the physically disabled people into the society in order to take an active part in the society and live a normal life is important. The year 1981 was declared the International Year for Disabled Persons (IYDP) and was marked in Nigeria with seminars, exhibitions, conferences, symposia and debates to sensitise the general public on matters related to the welfare of the people with disabilities in the society (Igwe, 1998).

Public buildings should be accessible and barrier free to able and disabled people. It should also be adapted to fulfill the needs of all people equally. Many documents have been produced on the access and facilities for physically disabled people particularly in UK and America. The documents set guidelines for accessibility to places of public accommodation and commercial facilities by people with disabilities. Provisions of the documents are incorporated in Building regulations, which is considered as the most suitable medium for enforcement of legislation. In international communities, provisions of access and facilities for disabled people have been in practice as early as 1970 particularly when Chronically Sick and Disabled Persons Act, 1970 was enacted in UK and the provisions were contained in Building Regulations (Smith and Billington, 1991).

The objectives of the study are to identify the facilities available for disabled people in public buildings and ascertaining the functional state of the facilities. The result will be useful to the local authorities in charge of enforcing the Building Regulations and designers in Nigeria and developing countries in Africa and the rest of the world.

2. Literature Review

2.1 Physical Disability

Man is known with physical disability at sometime in life. The disability may be permanent or temporary. In Ward (1979) disability means to have an impairment that takes away certain abilities that the sufferer would otherwise have enjoyed. The disabled people include, those confined to wheel chair, people with limited walking abilities (i.e. only able to move with the aid of sticks or crutches), the sightless, the partially sighted, downs syndrome, the deaf or epileptic. It could be temporary disability such as broken limbs, strained muscles, pregnancy or old age (Ward, 1979 and United Nations, 2003-04). Bayes and Franklin (1971) stressed that the essence of precise definitions of human conditions is to enhance understanding the possibility of help.

The social model of disability has the following contributions:

“Impairment- Lacking part or all of a limb or having a defective limb, organ or mechanism of the body”.

“Disability- The disadvantage or restriction of activity caused by a contemporary social organization which takes little or no account of people who have physical impairments and thus excludes them from participation in the mainstream of social activities. Physical disability is therefore a particular form of social oppression” (Barking & Dagenham, 2001).

Taking into consideration the conceptual framework of the draft International Classification of Impairments, Disabilities and Handicaps (ICIDH), a physical disability may be identified as a disability associated with a physical impairment (Physical Disability Council of Australia (PDCA), 2004). Furthermore, physical activity limitations could be used to identify physical disability which should be defined as limitations in performing simple activities that are associated with physical abilities. In other words a physical disability becomes a handicap only where it constitutes an obstacle to attainment of specified goals (Goldsmith, 1976).

2.2 Public Buildings

Public buildings are regarded as buildings without obstructions. Public buildings must be accessible to both physically able and disabled people. In most cases, public buildings are regarded as barrier free buildings or sustainable buildings. Building types that fall under public buildings are among others: office buildings, commercial buildings, assembly halls, hospitals and health facilities, libraries, sports buildings, public transit buildings, religious buildings, government administrative buildings, educational buildings, religious buildings, banks etc. (United Nations, 2003-04, and Ghaem 1991).

In most cases, people find it difficult to gain access into these buildings simply because of their physical disability. The barriers could be in form of restricted access and narrow doorways, steps and staircases (Ward, 1979). Therefore, disabled people become frustrated and handicapped only by the way in which their environment emphasises their disability. Architectural and urban barriers have prevented people with disabilities to partake in social activities and this equally has a negative effect on the society at large (Ghaem, 1991).

2.3 Architectural Design Criteria for the Disabled

It is imperative to integrate people with disabilities into society so that they can play an active role in the society (United Nations 2004-04). Furthermore, provision of a barrier-free environment is broadly grouped into 4 complementary domains which are:

- a) inside the buildings,
- b) in the immediate vicinity of buildings
- c) on local roads and paths and
- d) in open spaces and recreational areas.

Several documents have set out guidelines for accessibility to places of public accommodation and commercial facilities by the disabled people. The guidelines

are to be applied in the design, construction and alteration of public buildings. The facilities covered in the documents are substantial and it includes the following: ramps, stairs, elevators, platform lifts, windows, doors, entrances drinking fountains, signage etc. (Code of Federal Regulations 1994, Neufert, 1984 and United Nations, 2003-04).

United Nations (2003-2004) further categorised the facilities into those that will be required for vertical and horizontal access in both new and existing construction and for urban design considerations (i.e. open spaces, recreational centres and pedestrian routes). The document further developed implementation checklists and the target group is composed of wheelchair users, people with limited walking abilities, the sightless, the partially sighted and the hearing impaired people.

2.4 Sustainable Public Buildings

It is obvious that many public buildings are not accessible for the old, the very young and persons with disabilities due to poor design and performance. There is no dependable statistics at present on the number of disabled people in Nigeria. Nevertheless, some estimates put the figure of physically disabled people at 25 million (The Punch, 2006). Recently, the National Population Commission presented a national population figure of 140,003,542 to the Federal Executive Council of Nigeria (Saturday Tribune, 2006). From the two figures above, almost 18% of the population is living with disabilities. Therefore, there is urgent need for organised approach in handling the issue of accessibility for the disabled people in public buildings.

It is acknowledged that people with disabilities could be very competent and talented in other aspects of human endeavours but the environment can help or hinder the realization of their goals (Igwe, 1998). The study further challenged the architects to ensure that designs are barrier- free and sustainable to both able and disabled people.

The Lagos State Government through the Commissioner for Education urged the stakeholders in Education sector to provide accessible buildings to physically challenged (Daily Sun, 2006).

Wards (1979) simply states that:

“Some architects specialize in the design of buildings for the disabled; however, it is important that each and every member of design teams plays his part in appreciating the problems of the disabled, thus minimizing their handicap”

It is worth stressing the need for the contractors in charge of building production to produce buildings that will be accessible to all categories of people.

3. Methodology

A check list was designed based upon literature to obtain information on the facilities for physically disabled people in public buildings and their functional requirements. The check list covers facilities such as ramps, elevators/lifts restrooms, signage, corridors, entrances, stairs, public telephone, water fountains etc. Functional requirements of the facilities were also drawn up for the purpose of the study.

A total of 257 public buildings were observed. The study covered public buildings such as religious buildings, government administrative buildings, educational buildings, hospitals and health facilities, public transit buildings, libraries, office buildings, sports buildings, banks, assembly halls, commercial buildings, hotels, cafeterias and restaurants.

3.1 Types of Public Buildings Observed

The public buildings studied were grouped based on their use. The summary of types and number of buildings studied are shown in Table 1. A total of 257 public buildings were observed.

Table 1: Summary of public buildings studied

| Building Type | Number of buildings |
|---|----------------------------|
| Assembly halls | 16 |
| Hospital and health | 23 |
| Libraries | 18 |
| Sports buildings | 15 |
| Public transit buildings | 14 |
| Hotels, cafeterias and restaurants | 22 |
| Office building | 24 |
| Commercial buildings (stores, shopping malls etc. | 30 |
| Educational buildings | 27 |
| Government administrative building | 20 |
| Religious buildings | 18 |
| Banks | 30 |

3.2 Characteristics of Public Buildings Observed

More than half (164 buildings) of the buildings have above one floor but less than four floors. Fifty five buildings are one-floor (bungalow) while 38 buildings have more than three floors.

4. Observations and Findings

4.1 Ramps

It is required of all buildings above three floors to be provided with elevators. Buildings having less than four floors can be equipped with ramps to provide access for the disabled people. 164 buildings fall into this category. Only 40 have ramps and the functional state of the ramps is shown in Table 2

Table 2: Functional state of ramps

| Facility | Functional Requirements | Number of buildings that conform with the functional requirement | Number of buildings that do not conform with the functional requirement |
|-----------------|---|---|--|
| Ramps | Ramp slope not greater than 1:20 | 40 | - |
| | Steeper ramps comply with requirements | 40 | - |
| | A landing of at least 1.20m length, at 10.00m intervals, at every change in direction and at the top and bottom of every ramp | 40 | - |
| | Ramps with a rise of 0.45 or more protected at both sides | 34 | 6 |
| | Wide ramps (more than 3.00m) provided with an intermediate handrail | 12 | 28 |
| | Width of the ramp at least 0.90m | 40 | - |
| | Surface of ramps non-slip | 34 | 6 |
| | Ramp surface clear of obstructions | 40 | - |
| | Location of the ramps clearly identifiable | 40 | - |

4.2 Elevators

All the 38 buildings having more than three floors are provided with elevators. The functional state of the elevators is shown in Table 3. Major deficiencies identified are position of the control panel and the size of the buttons, opening system, communication and emergency system, and non-skid finish.

Table 3: Functional state of elevators

| Facility | Functional Requirements | Number of buildings that conform with the functional requirement | Number of buildings that do not conform with the functional requirement |
|-----------------|---|---|--|
| Elevators | Accessibility to all levels (floors) generally used by the public | 32 | 6 |
| | Elevator cab provided with handrails on three sides | 32 | 6 |
| | Handrails mounted at a height between 0.80m and 0.85m | 36 | 2 |
| | Maximum tolerance for stop precision 20mm | 34 | 4 |
| | Control panel mounted at a height between 0.90m and 1.20m (not exceeding 1.40m) | 28 | 10 |
| | Control buttons large and provided with embossed numerals | 28 | 10 |
| | Lobby call buttons placed at a height between 0.90m and 1.20m (not exceeding 1.40m) | 30 | 8 |
| | Elevator provided with Audible and visual warning signals indicating arrival at a floor | 30 | 8 |
| | Finish of the elevator cab non skid-resistant | 20 | 18 |

| | | |
|---|----|----|
| Emergency intercom usable without voice communication | 4 | 34 |
| Tactile or Braille instruction for the communication system | 8 | 30 |
| Door opening/closing internal long enough | 34 | 4 |

Table 4: Functional state of stairs

| Facility | Functional Requirements | Number of buildings that conform with the functional requirement | Number of buildings that do not conform with the functional requirement |
|-----------------|--|---|--|
| Stairs | Minimum width of the stairs 0.90m | 202 | - |
| | Intermediate handrails installed for stairs 3.00m wide or more | 75 | 127 |
| | Intermediate landing with a length no less than 1.20m, when the stairs cover a difference in level of more than 2.50 m | 182 | 20 |
| | Landing length at the top and at bottom of the stairs no less than 1.20 m | 185 | 17 |
| | Stairs have flush or rounded nosing? | 100 | 102 |
| | Treads have a non-slip surface | 200 | 2 |
| | The location of the stairs clearly identifiable | 198 | 4 |

4.3 Stairs

Stairs are provided in 202 buildings (i.e. for buildings above one floor). The functional state of the stairs is summarized in Table 4. Major deficiencies observed are with the nosing and the unavailability of intermediate handrail.

4.4 Entrances

There are differences in level between the road surface and pathway level at building entrances. Only 45 buildings (18%) are with ramps and steps for access to able and disabled people. The remaining 82% are with only steps to cater for able and disabled people. Entrance doors to over 50% of the buildings observed do not operate independently.

4.5 Corridors

Differences in level along the corridors occur in 85 buildings. Only 14 are bridged with functional ramps to provide access for the disabled.

Table 5: Functional state of restrooms

| Facility | Functional Requirements | Number of buildings that conform with the functional requirement | Number of buildings that do not conform with the functional requirement |
|-----------------|---|---|--|
| Rest-rooms | Accessible restroom identified by a sign sufficient space inside the restroom to maneuver a wheel chair | 71 | 9 |
| | Water closets and urinals mounted at a height between 0.45m and 0.85m | 80 | - |
| | Accessible wash – basin mounted at a height between 0.80m and 0.85m | 80 | - |
| | Grab bars installed in water closets and urinals at a height | 80 | - |

| | | |
|---|----|----|
| between 0.85m and 0.95m | | |
| Grab bars with diameter between 30mm and 40mm | 80 | - |
| Wall mounted grab bars with a clearance between 35mm and 40mm | 71 | 9 |
| Non-slip grab bars | 80 | - |
| Load bearing grab bars | 36 | 44 |
| Faucets easy to grip and operate with one hand | 80 | - |
| Lower edge of mirrors positioned at a height not exceeding 1.00m | 80 | - |
| Restroom equipped with an alarm system | 27 | 53 |
| Flushing arrangements, dispensers and toilet papers mounted between 0.50m and 1.20m | 80 | - |
| Flushing mechanisms easy to operate | 80 | - |
| Flooring material skid-proof, well drained and water proofed | 71 | 9 |
| Pivoted doors open outward | 80 | - |

4.6 Restrooms

Restrooms are available in few of the public buildings. Only 80 buildings have at least a unisex restroom. The deficiencies observed is the absence of load bearing grab bars and alarm system. Detail of the functional state is shown in Table 5.

4.7 Signage

More than 80% of the buildings studied are not providing signage. The deficiencies in the signage available are as follows: lack of directional signs, available signs are dirty and not readable at night.

4.8 Water Fountains and Automated Teller Machines

The functional state of 89 water fountains found in the public buildings is shown in Table 6.

Automated Teller Machines were observed in banks. The machines were mounted to the specification as shown in Table 6.

Table 6: Functional state of water fountains and Automated Teller Machines

| Facilities | Functional Requirements | Number of buildings that conform with the functional requirement | Number of buildings that do not conform with the functional requirement |
|---------------------------|--|---|--|
| Water Fountains | Water fountains spouts mounted at an appropriate height of 0.90m | 71 | 18 |
| | Control easy to operate with one closed fists | 80 | 9 |
| Automated Teller Machines | Machine mounted at a height between 0.85m and 0.90m | 22 | - |

5. Conclusions

The importance of barrier-free buildings can not be overemphasized as it guarantees equal access to able and the disabled people. The inventories gathered

on public buildings revealed that most public buildings are “closed” to the disabled people. Among the deficiencies identified with public buildings are inaccessibility and non-compliance of the supporting facilities to guidelines relating to the design and construction. Lack of key facilities in public buildings greatly restricts the activities of the disabled people. The negative effect of the trend on the economy considering the population of people with disabilities is disastrous. Total neglect in making public buildings accessible for all constitutes a barrier in the development of their abilities. The society at large is equally deprived of abilities and talents of the disabled people. The following relevant questions could address the problem: Are the stakeholders (owners, designers, contractors and regulatory agencies in the construction sector) aware of the accessible guidelines for the disabled people in public buildings? Is there established mechanism by the Local Authorities to see that approved designs satisfy the minimum requirements needed by the disabled people in public buildings? Are the people living with disabilities aware of their rights in all its ramifications? Provision of answers to the questions would assist in developing measures required to have a sustainable built environment

There are proposed studies aimed at addressing the questions. The objectives of the proposed studies shall be: to investigate how accessible (i.e. barrier-free) public buildings are to the disabled people (owners’, designers’, contractors, local authorities’ and disabled people’s views), to investigate the level of awareness of the design and construction guidelines for accessibility to public buildings by the disabled people (owners’, designers’, contractors, local authorities’ and disabled people’s views) and to identify the factors hindering the implementation of the accessibility guidelines (owners’, designers’, contractors and local authorities’ views).

References:

- Bayes, K. and Frankline, S. (1971), *Designing for the Handicapped*, George Godwin Ltd., London
- Barking and Dagenham (2001). Disability Language and Etiquette. Retrieved February 14, 2007 from the World Wide Web: <http://www.barking-dagenham.gov.uk/6-living/accessibility/etiquette/etiquette-menu.html>
- Code of Federal Regulations, Reprint (1994), Excerpt from 28 CFR Part 36: *ADA Standards for Accessible Design*.
- Daily Sun (Tuesday, December 5, 2006), *Lagos to provide facilities for physically challenged students*, The Sun Publishing Limited, Lagos, 16.
- Ghaem, G. (1991), *Research on urban planning and architecture for disabled persons in Iran: Establishing design criteria*, Report of the CIB Expert Seminar on Building Non-Handicapping Environments, Budapest 1991, Independent Living Institute, Retrieved September 18, 2006 from the World Wide Web: <http://ada.gov/adastd94.pdf>, 490-580.

- Goldsmith, S. (1976), *Designing for the disabled*, RIBA Publications Limited, London.
- Igwe, J. M. (1998), *Enabling environment for the disabled: a review of architectural design criteria*, The Lagos Journal of Environmental Studies, 1(1) 129-133.
- Neufert, E. (1984), *Architects' Data*, 2nd Ed., Williams Collins Sons & Co. Limited, London.
- Physical Disability Council of Australia (PDCA), 2004, Retrieved January 1, 2007 from the world wide web: <http://www.pdca.org.au/cgi-bin/pdca.pl>
- Saturday Tribune (30 December, 2006), *Census Result: We're 140m--- NPC*, The Tribune, Ibadan, 3.
- Smith, V. P. and Billington, M. J. (1991), *The Building Regulations Explained and Illustrated*, Blackwell Scientific Publications, (9), 17.1 - 17.25
- The Punch (Tuesday, December 26, 2006), *ACE tasks INEC on physically challenged persons*, Punch (Nig.) Limited, Lagos, 35
- United Nations (2003-04), *Accessibility for the Disabled – A Design Manual for a Barrier Free Environment*, Department of Economic and Social Affairs, Division for Social Policy and Development, Retrieved May 12, 2006 from the world wide web: www.un.org/esa/socdev/enable/designm/AD4-01.htm, 1 – 133
- Ward, A. P. (1979), *Organisation and procedures in the construction industry*, Macdonald and Evans Limited, Plymouth.