

Assessment on the Accessibility of Public Buildings and its Facilities to the Disabled in Ghana

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Abstract

Based on the evidence of close link between people with disability and the economy, the Government of the republic of Ghana back in 1996 developed the National Disability Policy leading to the passage of the National Disability Law, Act 715 of 2006 which aims at promoting equal opportunities, enhance, empower and seek protection of the rights of persons with disabilities irrespective of gender, age, or type of disability. However, advocacy, implementation and supervision of disability programmers are seriously lacking. Accessibility is one of the elements addressed in these policies and laws. Due to limited enforcement of disability laws, absence of National Accessibility Standards and lack of knowledge about the right of disables, laws and policies on accessibility have been largely overlooked.

Despite the efforts of the government to establish a conducive environment for participation of person with disability in all spheres of life, there are still difficulties in terms of accessing the physical infrastructure as most public buildings do not have facilities such as ramps, lifts, elevators, and so on. Some of the existing accessibility facilities are not designed according to the required standards and as a result, persons with disability face discrimination, violation of the right of persons with disability and deliberately putting impediments to the disabled to exhibit their full potential to contribute to the development of Ghana and Africa (Addi, 2011). The paper concludes by specifying the need for policy to address the problems, challenges and the difficulties people with disability face in their daily operations.

Keywords: Accessibility, Standards, built environment, legislation, discrimination, public policy, design and planning, disabled facilities, enforcement, and infrastructure.

1. Introduction

In architecture, construction, engineering, real estate development and building technology, the word building refers to any human-made structure used or intended for supporting or sheltering any occupant. Buildings serves several needs of society-primarily as shelter from weather and as general living space, to provide privacy, to store belongings and to comfortably live and work.

A building as a shelter represents a physical division of the human habitat (a place of comfort and safety) and the outside (a place that at times may be harsh and harmful) for these reasons, buildings should be made accessible to everyone especially the disabled since they are the most vulnerable. Ghana is among the few countries in Africa that have taken affirmative action in favour of marginalized groups at a higher level with a focus on persons with disabilities (Wendt and Cerf, 1979).

With this in view, if they are not given the necessary skills it will affect the economic growth of the nation (Addi, 2011).

Currently, it is estimated that a tenth of the world's population is afflicted with various forms of disabilities out of which 500 million are physically disabled (Ozcebe, 2008; Baser, 2008). This implies that, at least, two million out of the estimated population of 24 million Ghanaians are disabled in one form or the other. The picture becomes bleaker, if one considers the fact that we are all disabled at one time or the other in our lives. For instance, a child, a pregnant woman, an injured person, an elderly person, a parent with a pram, etc., are all disabled in one way or the other. There are very few people who remain able-bodied and healthy all their lives. It is, therefore, important that the built environment, which includes public buildings, are made barrier-free by appropriately designing, constructing and maintaining them to meet the needs of all users equally (Bariset al, 2009).

2. Models of Disability

Over the years, several models of disability have been developed. Some of them are the medical, individual, social, religious, inter-cultural, market, moral, economic, spectrum, rights-based, charity and legitimacy models. (Imrie 2004), however, sees disability as falling into two main models: the medical and social models. While the

former focuses on the medical condition of a person, the latter conceptualizes disability as an interaction between individual limitations and the environment, focusing more on barriers created by society (McClain-Nhlapo, 2006). The social model emphasizes the removal of societal barriers that exclude people with disabilities, including environmental, institutional and attitudinal barriers. Hansen (nd) It is undeniable fact that a person becomes disabled by the barriers they face, not by their impairment. He continues that, “the policies, practices and values of built-environment professionals and disabled people’s own reticence about articulating their needs then combine with self-limiting behavior to ensure that this unjust situation remains unchallenged”.

3. Discrimination and marginalization

Elsewhere, researchers (Otmani, et al., 2009; Imrie and Kumar, 1998) have discovered that the built environment, which is generally not disable- friendly, discriminates against PWDs, by excluding them from social life.

Today, the disabled people face many kinds of discriminations, posing difficulties and disadvantages of different sizes as it was also the case in the past, and barriers, such as bad designs, insufficient knowledge or discriminatory behaviors’ caused disabled people’s exclusion from social life. When the problems of the disabled are considered, the built environment can be shown as the most outstanding symbol of disabled people’s exclusion from social life.

Wellington (1992) reports that it is not a common practice for disabled people to be active users of public buildings and spaces owing to the traditional conception of the disabled as a person who has to be dependent in one way or the other.

He maintains that, traditionally in Ghana, similar to many other African countries, the disabled person has been regarded as one who should be dependent on the extended family within the confines of the domestic space and within the immediate limits of the community where there are willing neighbors to assist him or her traverse the physical barriers in the way of movement to, and utilization of social and communal facilities.

4. International Building Instruments

Apart from the legislations, various statutory building instruments, such as International Standards, Building Regulations and Guidelines, Codes of Practice, etc., have also been developed by several countries and organizations to achieve designs and features that are usable by persons with disabilities. Their main goal is to provide guidance as to how the built environment can be designed to anticipate and overcome restrictions that prevent disabled people from making full use of premises and their surroundings.

Examples of such instruments are: British Standards Institution (2001) – Design of Buildings and Their Approaches to Meet The Needs of Disabled People [BS8300 (2001)], Americans with Disabilities Act Accessibility Guide (2004) [ADAAG (2004)] and Accessibility for the Disabled, A Design Manual for a Barrier-Free Environment, Urban Management Department of the Lebanese Company for the Development and Reconstruction of Beirut Central District SOLIDERE (2004) – developed by the UK, USA and the UN, respectively, to provide guidance on good practice in the design of domestic and non-domestic buildings and their approaches so that they are convenient to use by disabled people. Their recommendations relate, not only to the elements of construction and accommodations which are common to different types of buildings, but also to those that are specific to building types. They also deal with ways in which their management and maintenance can affect safe access and use of facilities by disabled people. Checks by the researcher on the Draft Ghana Building Code (1988) and National Building Regulations (1996), which regulate the construction of buildings in Ghana, revealed that they have not been revised to incorporate barrier-free designs.

This means, Ghana, as a nation, does not have a policy framework that regulates and obliges the stakeholders in the building industry to design and build structures that are disabled-friendly. It was in the light of this development that this study was undertaken to contribute to the development of social consciousness with respect to disabled people’s equal participation in social life, especially in public buildings, to assist in the removal of the reasons excluding the disabled people from social life. It will also guide the efforts, in this respect, of individuals, institutions and public bodies, who design, build and maintain these public buildings.

Despite the various attempts in terms of legislation and the design of statutory building instruments, the built environment of many countries have remained largely inaccessible (Imrie, 2002). According to Imrie (2002), this situation is explained by the fact that the statutory and legal provisions underpinning the construction of barrier-free environments are feeble or absent in most countries. He maintains that, in the UK, the building regulations, which are the main mechanism in requiring developers and designers to provide access to buildings for disabled

people, is feeble and ineffectual, in that it only require developers to make 'reasonable provisions' for disabled people and only in new public buildings and major renovations. This development has led to the situation where, even when the attempts are made, the so-called "reasonable provisions" which have not been clearly defined have not been adequate in removing the barriers in the built environment.

It is evident, therefore, that, even in developed countries, such as the UK, designers and developers of facilities in the built environment have not been sufficiently "pinned down" by the building regulations, and as long as the situation continues, the quest for a barrier-free built environment will continue to be a mirage.

5. Architectural Disability

In a design manual, Wylde, et al. (1994) intimate that only 10% of individuals may not be architecturally disabled in one way or other at some time in their life. For this reason, it is imperative that the built environment is properly designed and made all- inclusive. Goldsmith (1997) coined the phrase 'architectural disability' to describe how the physical design, layout and construction of buildings and places can confront people with hazards and barriers which make the built-environment inconvenient, uncomfortable or unsafe and may even prevent some people from using it at all. Hansen (n.d.) intimates that one of the greatest drawbacks for the inclusive design of the built-environment is professional mindset and assumptions, encapsulated in the distinction between general and special needs. Wijk (2001) attributes 'architectural disability' by building designers to stubbornness and ignorance, and believes the ignorance can be cured by exposing these designers to good information and creative examples. Salmen (2001), on the other hand, claims that architects, engineers and other construction professionals do not often appreciate the changing needs and abilities of society and, therefore, of how to come out with suitable inclusive design solutions.

The attitude of these professionals can be changed through retraining and continuous professional education by their various professional bodies. It may also call for a change in the mode of training at the various institutions where these professionals are trained. Imrie and Hall (2001) have identified four assumptions within the construction industry that, currently, prevent the built-environment from being designed in such a way as to reduce architectural disability. These are:

- i. Low demand among disabled people to justify providing a more accessible built-environment;
- ii. That, it is unreasonably costly to provide environments that are fully accessible;
- iii. That, meeting the needs of wheelchair users is sufficient to meet the needs of all disabled people, and
- iv. that, accessible environments can be provided by specifying technical design solutions without there being any corresponding change in social attitudes, values or practices.

These assumptions are half-truths and can be disproved if one considers the fact that:

- i. Over the last few decades or so, disabled persons have increasingly campaigned for an end to their exclusion from a range of social and economic opportunities (Imrie, 1997). Secondly, since we are all likely to be disabled at one time or the other in our lives, designing for the disabled will mean designing for the broader society which increases the demand for such designs.
- ii. In terms of cost, one could argue that inclusive design can be financially beneficial, in that, in most cases, universal design elements can be added to a product's design for little or no cost.
- iii. There are many types of disabilities and so designing for PWDs goes further than designing only for wheelchair users.
- iv. Designing for PWDs also goes beyond just specifying technical solutions without paying attention to the social aspects. For instance, inclusive design means designing for everyone, without stigmatizing or excluding particular groups or individuals. This is part of society's ethical responsibility to create inclusive and caring communities. It allows everyone to participate and provides choices rather than limitations and sends the message that these people are, in fact, important members of the community (Vandebelt, 2001). For instance, Lawton in his work in 1994 studied the effect of the built- environment on the elderly in society.

He came to the conclusion that, a poorly-designed built- environment can negatively affect the lives of the aged, since their scope of architectural variables are very limited and that minute upgrading of the older person's physical environment can significantly improve their lives. Hansen (n.d.) argues that the same proposition holds

for PWDs, and that, in both cases, “a well-designed environment has the potential to be ‘therapeutic’ rather than disabling”.

An important outcome for inclusive design should, therefore, be to both ease architectural disability and realize a greater measure of social equity and justice.

However, critics of inclusive design argue that, in many cases, it is impossible to provide a ‘one size fits all’ solution and that some people will always be excluded.

6. Accessibility and Disability

According to the ISO (2009), accessibility includes ease of independent approach, entry, evacuation, and or use of a building and its services and facilities by all of the building's potential users with an assurance of individual health, safety, and welfare during the course of those activities. The main public entrance or route to a building should be accessible to all persons, regardless of disability. Accessibility to buildings or parts of buildings means that people, regardless of disability, age or gender, are able to gain access to buildings or part of buildings, into them, within them and exit from them. An accessible barrier-free environment is the first step towards fulfilling the right of People with Disability (PWD) to participate in all areas of community life. Article 9 of the UN convention on the rights of PWD on accessibility notes that, to enable persons with disabilities to live independently and participate fully in all aspects of life, appropriate measures should be taken to ensure persons with disabilities have access, on an equal basis with others, the physical environment, transportation systems, and other facilities and services open or provided to the public, both in urban and in rural areas.

Sustainable design involves the consideration for both social contribution and ecologically acceptable solutions in the design process (IDSA, 2005). Sustainable design includes an interaction of social, economic and environmental values, which mean sustainable design can be considered completed when these three values are satisfied (Lee et al, 2009). The environmental aspect embraces an ecological approach that pursues environmental conservation and use of regenerative energy. The economical aspect seeks efficiency of resource utilization and system flexibility. The social perspective however is relatively ambiguously valued. In an account of sustainability, Murano (1995) identified four characteristics of social sustainability; ‘need-sufficient’, ‘reliable’, ‘adequate’, ‘equal’. The term ‘need-sufficient’ suggests every development has to provide physical and psychological satisfaction to human. ‘Reliable’ suggests that final deliverable has to be conveyed in a stable way and users also have to perceive this reliability. ‘Adequate’ is the property that consider user context such as culture, geography, economic situation and other user appropriate needs in the development process. ‘Equal’ has close relationship with universal design. It aims to enable every user to consume the resource or product equally and in this way, the basic user-ability has to be secured thus giving the user a feeling of ‘convenience’.

According to the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) (2011), persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments, which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others. The term disability is conventionally used to refer to attributes that are severe enough to interfere with, or prevent, normal day-to-day activities and can be permanent, temporary, or episodic. They can affect people from birth, or be acquired later in life through injury or illness (Right to Play, 2010). On the other hand, the wheelchair-bound handicapped, is a person who cannot walk on his feet but must be transported with the aid of a wheelchair for a limited time or for all his life.

7. Disability Policies in Ghana

In 2006, the government of Ghana signed the Persons with Disability Act, which guaranteed persons with disabilities access to public places, education, employment and transportation (p24 (7)). As cited in the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), ‘the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities should be promoted, protected and ensured, and respect for the inherent dignity of persons with disabilities should be promoted’ (8). Although disability policies exist on paper, implementation is very limited, and awareness of the Disability Act in Ghana is low, not only in society, but also among persons with disabilities themselves (3). In addition, national policy development aimed at improving living conditions in general, and among persons with disabilities in particular, is dependent on the availability of quality data. Experiences in high-income countries demonstrate that information about persons with Disability, CBR and Inclusive Development, Vol. 22, No.1, 2011. DOI 10.5463/DCID.v22i1.12 www.dcidj.org disabilities and their living conditions, has the potential to contribute towards an improvement in the situation faced by this group (9). In Ghana, like many low-income countries, this quality data is lacking (10).

8. Disability Act 2005

The Disability Act 2005 aims to advance the participation of people with disabilities in everyday life by, for example, improving access to buildings, services and information. Attention is drawn to the obligation on Public bodies (such as Government Departments, Local Authorities, Health Service Executive, Semi-state Bodies, etc.) to make their public buildings comply with Part M 2000, by 2015. It also requires that these public buildings be brought into compliance with amendments to Part M not later than 10 years after the commencement of the amendment. For the purposes of this part of the Disability Act “public building” means a building, or that part of a building, to which members of the public generally have access and which is occupied, managed or controlled by a public body.

The NDA may prepare a draft code of practice relating to the accessibility of public buildings for persons with disabilities, for the purpose of giving guidance to these public bodies, if so requested.

9. The Design of Ramps

The Americans with Disabilities Act (ADA) (2002), defines ramp as an accessible route for walking or wheeling in the form of an inclined plane with a slope greater than or equal to 1:12 from the horizontal. The Canada Mortgage and Housing Corporation (CMHC) (2011), asserts that a ramp is ideal for people who are having difficulty negotiating stairs for various reasons, be it the need to carry heavy objects between levels, move a child in a stroller, or because of a disabling condition.

Providing both stairs and a ramp at changes in level will allow people to choose the option that best suits their needs, resulting in a greater flexible and comfort.

10. Analyses of results

Table 1

| Components under consideration | Number of premises | no | yes | No idea |
|--|---------------------------|-----------|------------|----------------|
| Car park and access route to and around buildings | 32 | 78% | 22% | 0 |
| Horizontal Circulation building entrances corridors floor surface finishes etc | 32 | 78% | 22% | 0 |
| Vertical circulation (ramps, staircases lift etc) | 32 | 80% | 20% | 0 |
| Sanitary accommodation | 32 | 92% | 8% | 0 |
| Communication aids (Signage and general lighting) | 32 | 95% | 5% | 0 |

Components under consideration

Car parks and access route to and around buildings

A total number of 32 Government or Public premises were visited during this research and on the table 1 above 78% shows that no car parks and access route to and around the buildings, and 22% shows that they have car parks and access route to and around the buildings.

Horizontal circulation, building entrances, corridors, floors surface finishes

The second component on the table above is horizontal circulation, building entrances corridors floor surfaces finishes etc, 78% shows the difficulties in horizontal circulation and access to the building entrances, corridors, floor surface and finishes etc. and 22% shows that horizontal circulation, building entrances, corridors, floors surface finishes is not a problem to people with disabilities.

Vertical circulations (ramps staircases, lift,)

The third component on the table 1 above is vertical circulation (ramps staircases, lift etc) which shows that 80% of Government or Public buildings do not have ramps nor a lift which makes it very difficult for people with disability to access and only 20% had ramps and lift in these buildings.

Sanitary accommodation

The fourth component on the table 1 above shows that 92% of these premises do not have sanitary accommodation for people with disabilities and only 8% has sanitary accommodation for people with disabilities.

Communication aids

The fifth item on the table is communication aids (Signage and general lighting). It shows that 95% meaning almost in all the 32 premises only 5% had communication aids such as signage and general lighting system for people with disabilities.

Conclusion

By virtue of these problems, this research is to help address the difficulties and the Stresses that the Disabled encounter before they access Public Buildings and the facilities in the Country.

Furthermore, it was clearly identified that, our Public Buildings Lack the designing and the Construction of Buildings to the Disabled as far as accessibility to our built-environment is concerned.

In order not to add salt to injury, accessibility of building facilities to the Disabled in the country would be thing of the past or eliminated if the following recommendations are well looked at.

Based on the summary of findings and conclusions drawn, the following recommendations are made to ensure the accessibility of the above public buildings by PWDs:

11. Retrofitting

- Designated car parks that are appropriately designed, constructed and signed should be provided for PWDs at all public buildings, and also gaping gutters should be covered or reconstructed to prevent injury to the able and the PWDs.
- SOLIDERE (2004) recommends that, at least, one entrance per facility should be accessible to a wheelchair user. For the latter group of buildings, a reconstruction of the accesses leading to their respective principal entrances with a necessary inclusion of accessible ramps will be an inevitable course of action for a disabled-friendly environment.
- The corridors of the 32 Public Buildings captured in this research should be cleared of all obstructions to facilitate movement and prevent injury to PWDs, and also PWDs travel paths should be cleared of obstructions to help the PWDs to access it, since it is the only access route for PWDs.
- With vertical circulation, some of the staircases should be widened or reconstructed since it is the means of communication used by PWD and other workers to access their offices which are situated on the upper floors. Secondly, all staircases in the facilities surveyed should, therefore, be fitted with two handrails to facilitate easy movement and proper support for the disabled users. Thirdly, external and internal ramps should be provided in the Buildings to make them accessible to all users of these facilities.
- All-inclusive sanitary accommodations should be provided appropriately in the buildings, at least one WC and one Urinal should be provided in the buildings to facilitate PWDs.
- Additional signs should be provided at all the facilities to minimize the possibility of both able and disabled losing their way around those premises.
- Finally the three main entrances to these premises should be reconstructed to make provisions to PWDs, wheelchair users to access the premises.

12. Workshop and Seminars

Major stakeholders like the government, policy-makers, non-governmental organizations, and PWDs groups under Ghana Federation of the Disabled (GFD) should collaborate and organize workshops and seminars for the general public on the need for a barrier-free environment. Public education through the electronic and the print media can also be carried out. These measures will sensitize the general public, most of who are oblivious of the needs of the disabled in the society, and will, in turn, accelerate the rate of integration of the disabled persons into mainstream society.

13. Legislation and Enforcement

With the passage of the PDA, Act 715, the Ghana Building Code and Ghana Building Regulations should be revised and passed into laws to make it mandatory for all public buildings to be accessed by disabled persons. This law should be enforced by the relevant state agencies like District, Municipal and Metropolitan Assemblies and the government should have the political will to back these agencies by penalizing all defaulters.

14. Professional Institutions

Professional institutions of the Built Environment, such as Ghana Institute of Architects (GIA), Ghana Institution of Engineers (GhIE), Ghana Institute of Planners (GIP) and Ghana Real Estate Developers Association (GREDA), should organize workshops and seminars to retrain and sensitize their members on the need for barrier-free designs.

15. Educational Institutions

Institutions like the Polytechnics and Universities that train practitioners of the built-environment should introduce topics on barrier-free environment in their curriculum.

16. References

- Americans with Disabilities Act Accessibility Guidelines (ADAAG) (2004). <http://www.access-board.gov/adaag/html/adaa.htm> [Accessed April 14, 2010].
- Arditi, A. and Rosenthal, B. (1998), Developing an objective definition of visual impairment, pp: 331-334, Journal (Conference), Madrid, Spain.
- Addi S.K., (2011) Building Barrier-free Environment for the Disabled, Ghana Home Page, News Archive.
- Baris, E.M. and Uslu, A. (2009). "Accessibility for the disabled people to the built-environment in Ankara,Turkey", African Journal of Agricultural Research, Vol. 4 (9), pp. 801-814.
- Buaben, J. (2002), Architect calls on Government to ensure strict adherence to Disability Act, Ghana News Agency, Accra, <http://www.modernghana.com/news>
- Baser, T. (2008). "KentteEngelliYa_am". Paper presented to EngelliDostu, Belediye Symposium, Ankara, Turkey, 27 May.
- Bichard, J., Hanson, J. and Greed, C. (2006). "Away from Home (Public) Toilet Design: Identifying User Wants, Needs and Aspirations, in Designing Accessible Technology", J. Clarkson, P. Langdon and P. Robinson (eds.), Proceedings of CWUAAT 2006. London: Springer-Verlag.
- British Standards Institution (2001). Design of buildings and their approaches to meet the needs of disabled people, BS 8300, London, 168 pp.
- Communities and Local Government (2005). "Planning and access for disabled people: a good practice guide." <http://www.communities.gov.uk/index.asp?id=1144644> [Accessed on July 12, 2010].
- Constitution of the Fourth Republic of Ghana (1992). Published by Ghana Publishing Company, Accra.
- Disability Discrimination Act (2005). The Disability Discrimination Act (DDA), Office of Public Sector Information (OPSI), St. Clements House. 2-16 Colgate. Norwich. NR3 1BQ, UK.
- Danso, A.K.; Ayarkwa, J. and Dansoh, Ayirebi (2011) state of accessibility for the disabled in selected monumental public buildings in Accra, Ghana, Journal.
- Draft Ghana Building Code Part 1 & 2 (1988). Published by Building and Road Research Institute, Council for Scientific and Industrial Research, Kumasi, Ghana.
- Duggan, L. (2006). "Humanised streets – The context for successful place making." Paper presented at Walk21-VII, The Next Steps, The 7th International Conference on Walking and Liveable Communities, Melbourne, Australia.
- Goldsmith, S. (1976). Designing for the Disabled, Third Edition, London, RIBA Publications.
- Goldsmith, S. (1997). Designing for the Disabled: The New Paradigm, Architectural Press, Oxford.
- Hansen, J. (n.d.). "The Inclusive City: Delivering a more accessible urban environment through inclusive design", Faculty of the Built Environment, University College of London, London.
- Imrie, R. (2004). "Demystifying disability: A review of the International Classification of Functioning, Disability and Health," Sociology of Health & Illness, 26(3), pp 287–305.
- Imrie, R. (2002). "Inclusive design, disability and the built environment." Presentation to the Practical, Recommendations for Sustainable Construction (PRESCO) – CRISP Joint Conference, Ostend, Belgium. <http://www.etnpresco> [Accessed on July 1, 2010].
- Imrie, R. and Hall, P. (2001). Inclusive Design: Designing and Developing Accessible Environments, Spon Press, London and New York.
- Imrie, R. and Kumar, M. (1998). "Focussing on Disability and Access in the Built Environ". Disability Society, 13(3): pp. 357-374.
- Imrie, R. (1997). "Challenging Disabled Access in the Built Environment: An Evaluation of Evidence from the United Kingdom", The Town Planning Review, Vol. 68, No. 4 (Oct., 1997), pp. 423-448, Liverpool University Press, net/workshop/presentations/R_Imrie.pdf.
- Lawton, M.P. (1994). "Social ecology and the health of older people," American Journal of Public Health, Vol. 64, No. 3, pp. 257-260.
- Leedy, P.D. (1985). Practical Research: Planning and Design (4th edn.), London, Collier Macmillan.
- Little, J. (1995). "What has ADA really done?" Accent Living, Vol. 39(4) pp. 28–30.

- McClain-Nhlapo, C. (2006). "Training on inclusive development." Power-point presentation. The World Bank.
- National Building Regulations (1996). L.I. 1630, Accra.
- Otmami, R., Moussaoui, A. and Pruski, A. (2009). "A new approach to indoor accessibility," *International Journal of Smart Home*, Vol. 3, No. 4.
- Ozcebe, H. (2008). "Halk Sagligive Engellilik Yaklasimi". Paper presented to Engelli Dostu, Belediye Symposium, Ankara, Turkey, 27 May.
- Pamela J. Brink & Manilyn Wood (1998), *Advanced Design in Nursing Research*, Sage,
- Persons with Disability Act (2006). 175th Act of the Parliament of the Republic of Ghana, Published by Ghana Publishing Company, Accra.
- Planning and access for disabled people: A good practice guide" (2003). Report issued by The Office of the Deputy Prime Minister (Dept. of Communities and Local Government), London. Website: www.communities.gov.uk.
- Salmen, J.P.S. (2001). "U.S. Accessibility Codes and Standards: Challenges for Universal Design," Wolfgang F.E. Preiser & Elaine Ostroff (eds.), *Universal Design Handbook*, McGraw-Hill, Boston, pp. 12.1-12.8.
- Solidere (2004). *Accessibility for the Disabled, A Design Manual for a Barrier-Free Environment*, Urban Management Department of the Lebanese Company for the Development and Reconstruction of Beirut Central District (SOLIDERE).
- Smith B.G. and Hutchinson B. (2005), *Gendering Disability*, (p: 25) Rutgers University Press, New Jersey, U.S.A.
- U.S. Access Board. Americans with Disabilities Act accessibility guidelines for buildings and facilities; recreation facilities (1990). <http://www.access-board.gov/recreation/final.htm>. Accessed September 22, 2010.
- Uslu, A. (2008). "Kentsel Tasarimda Engelli Dostu Yaklasimi," Paper presented to Engelli Dostu Belediye Symposium, May 27, in Ankara, Turkey.
- Vendebelt, D. (2001). "Disabilities Universal Design" (Waterloo Region Trends Research Project), Social Planning Council of Cambridge and North Dumfries, pp. 1-11.
- Wellington, H.N.A. (1992). "Opportunities and Challenges of Barrier-Free Design Consciousness – An Evaluation of the Application of Barrier-Free Design Principles in the Socio-Cultural Circumstances in Ghana." Paper presented at CIB Expert Seminar on Building Non-Handicapping Environments in Harare, 1992.
- Wijk, M. (2001). "The Dutch Struggle for Accessibility Awareness," Wolfgang F.E. Preiser & Elaine Ostroff (eds.), *Universal Design Handbook*, McGraw-Hill, Boston, pp. 28.1-28.17.
- Wylde, M. Baron-Robbins, A. and Clark, S. (1994). *Building for a Lifetime; The Design and Construction of Fully-Accessible Homes*, Taunton Press, and Newtown, Connecticut.