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STATE OF PUBLIC BUILDINGS IN GHANA AFTER THE PASSAGE OF THE PERSONS WITH DISABILITY ACT (ACT 715): THE CASE OF TERTIARY INSTITUTIONS

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Abstract
Persons with disability Act (ACT 715) makes it mandatory to put up buildings that are disabled friendly but most designers and contractors in Ghana fail to factor the disabled people in the design and construction of infrastructure. In most cases where attention has been given, the provision of the person with disability has been misconstrued by some building industry players to mean provision of ramps to ground floors. After the passage of the persons with disability Act, in 2006, it has become necessary that all public buildings in Ghana have to be designed and built to incorporate the required features that will aid the disabled to have a comfortable access to all public places. This study is therefore carried out to investigate into the state of public buildings in Ghana after the passage of the persons with disability Act (ACT 715) with particular emphasis on public tertiary educational institution buildings in Ghana. To achieve the study objectives, the paper adopted research survey method which includes the use of questionnaire and interview conducted among Contractors and Clients representatives as well as officials from the Law Enforcing Agency who are directly involved in the construction of public buildings. The study considered four public tertiary institutions and the type of buildings considered under these institutions are lecture halls, students' hostel, offices and residential flats for staff. The results showed that though the disability law has been passed, out of 31 buildings investigated, 9.68% of the buildings were fully factored with disability facilities, 67.74% partially factored and 22.58% not factored at all. The study concluded that law enforcing agency should ensure that construction professionals fully factor disabled people in their building designs and construction. Massive education should also be given to the general public and clients about the need to make buildings disabled friendly.

Keywords: Construction, Design, Disability, Infrastructure, Ghana

INTRODUCTION

The council of Europe in 2004 published that 'the built environment is arranged in such a way that everyone is allowed access to it in the most independent and natural manner as far as practicable. The United Nations also stipulates in the same vain that the designing and building should take account of the diverse capabilities of human beings. They should accommodate a wide range of ancillary aids and be able to support interactive usage. By the United Nations standard, all work areas in which physically disabled persons may be employed should be accessible. In Ghana, for many years the 'disabled' have been discriminated by the way buildings are designed and built. Both private and public buildings as well as other facilities and infrastructure are built without recourse to the needs of the disabled in the society. Although Ghana has gone through a lot of transformation in terms of general building construction such as residential, commercial and institutional buildings before and after independence in 1957 from the British. A cursory look at development of buildings in Ghana, obviously, shows that with this transformation, the design and construction of most of these buildings did very little to consider the disabled in Ghanaian society despite the fact that they form 10 percent which is a major/recognizable constituent of the country's population (UNICEF, 2000).

Many private and public buildings like residential flats/apartments, shopping centres, office buildings, medical clinics/hospitals, schools and universities, recreational centres, athletic and sports stadia, and houses of worship are built without mechanisms like ramps, lifts and escalators etc. which make these buildings not disabled friendly. What makes the situation worse is the fact that designers and contractors tend to forget the axiom that 'every human being will one day become a disabled either through accident or old age' (Owusu and Owusu-Ansah, 2011).

It is regrettable that design and construction of buildings in most cases have not given consideration in making public buildings easily accessible to the disable people in Ghana. This act of discrimination has continually deprived disabled persons, their fundamental human rights in the field of planning and resources allocation.

It is against this background that some pressure groups advocated for the passage of the Disability Bill into law in June, 2006. The person with disability Act (Act 715) was passed to bind architects (designers), builders, building owners, managers, consultants, advocates and professionals in the building industry to provide facilities and infrastructure that gives accessibility and provide a barrier free environment for the independence, convenience and safety of all people with disabilities. This Act came into force to ensure significant improvements in the level of access required in new buildings and existing ones undergoing renovation.

In section 6 and 7 of the Act 715 under the rights of persons with disability, provisions are made for access to be provided to public places and public services respectively. The Act makes it mandatory to put up structures that are disabled friendly. It emphasizes that 'as far as practicable, every place to which the public have access shall have appropriate facilities for disabled persons. It is to ensure that all professionals and stake holders in the building industry design and provide facilities and infrastructure that gives accessibility and equal participation to persons with disability. An accessible building has benefits for all. It is safer, healthier, more comfortable and easily adapted to changing needs. Every one requires equal consideration from those who commission, design, construct or manage buildings and the external environment. For example:

- Someone who is short of breath or has a broken ankle will find stairs difficult or impossible to use;
- A smooth circular door knob will be very difficult to use if a person has poor grip;
- Even a single step can deny entry to a person pulling a suitcase on wheels, or a person using a wheel chair.

Though the disability law has been passed, a scan of buildings just around indicates that some building designers or construction companies are not factoring disabled people in their construction. This attitude frowns on the Disability Act and other legislation on disabled people. Again, it discriminates against disabled people and put them at a disadvantage despite the fact that it is essential for people with disabilities to live independently in their communities. The aim of this paper therefore is to investigate into the state of public

buildings in Ghana after the passage of person with Disability Act (ACT 715) in Ghana. To attain the needed results the following objectives were devised:

- To determine whether accessibility measures are factored into the design of public tertiary institutional buildings;
- To ascertain the type of disabled facilities incorporated in the design and construction of public tertiary institutional buildings;
- To ascertain whether the disability laws are being enforced in the modern buildings.

It is expected that results of this study would serve as a vital document that would be beneficial to the National Council on persons with disability in monitoring and evaluating disability policies and programmes. The results would also serve as a source of information to the parliament of Ghana and the Ministry of Water Resources, Works and Housing to know whether their laws and regulations are being complied with or otherwise in the society.

SCOPE OF THE STUDY

Buildings that have to comply with accessibility requirements for the disabled include all public buildings, governmental facilities and institutions, office buildings, educational institution buildings, utility service buildings, recreational facilities and all other building types normally used by the general public, but in this work, the researchers limit themselves to tertiary educational institution buildings which includes lecture halls, auditoriums, offices for staff, residential building for staff and student hotels, that were constructed after the passage of the persons with disability Act, 2006 (ACT 715). To be precise, the buildings and infrastructure which were surveyed were those constructed from the year 2007 to date. New buildings under construction were also considered. Public Tertiary educational institutions considered in this study are: University of Cape Coast, University college of Education-Winneba Campus, Cape Coast Polytechnic, and Takoradi Polytechnic. The targeted persons with disability considered in this study were physically challenged persons.

SIGNIFICANCE OF PERSON WITH DISABILITIES LEGISLATION

There are so many legislations governing the disabled person in the whole world. The United States of America's Congress' response to the problem of discrimination against the disabled was the passing of the Americans with Disabilities Act (ADA) in 1990.

It was followed by Australia and the United Kingdom in 1992 and 1995, respectively, with their versions of legislation called the Disability Discrimination Act (DDA) (Otmani, Moussaoui and Pruski, 2009). The major aim of all these pieces of legislation was the removal of barriers in the built environment to allow PWDs to participate in everyday life of their societies. Their main goals included providing people with disabilities access to buildings, equal employment opportunities, equal access to public transportation, the opportunity to attend school and the chance to be eligible for social security support (Little, 1995). The United Kingdom pushed further the frontiers of her legislation by introducing part M of the 2004 Building regulations which established the concept of mainstream access provision to buildings. It was followed by the Disability Equality Duty (DED) which was born out of the Disability and Discrimination Act (2005) and seeks to compel all who design, manage and maintain the built environment to ensure that PWDs play a full part in benefiting from, and shaping an inclusive built environment (Duggan, 2006).

In Ghana, civil society and the Ghana Federation of the Disabled (GFD), the national umbrella organization for the PWDs, whose members include the Ghana Association of the Blind (GAB), Ghana National Association of the Deaf (GNAD), Ghana Society of the Physically Disabled (GSPD), Society of Albinos Ghana (SOAG), Parents Association of Children with Intellectual Disability (PACID) and Share Care Ghana (SCG), joined the struggle for the right of PWDs. In response, the government, in 1992, made provisions in its constitution that protects the rights of PWDs. In 1993, the Disabled People's Act was sent to parliament to be deliberated on which, eventually, culminated in its passage on June 23rd, 2006. The Bill aims to provide disabled people with accessibility to public places, equal employment opportunities, transportation at free or reduced prices, free, general and specialized medical care, etc. (Persons with Disability Bill, 2006).

PROVISIONS FOR ACCESS IN BUILDINGS FOR DISABLED PERSONS (PHYSICALLY CHALLENGED PERSONS)

Lack of special provisions for the disabled (physically challenged persons) regarding accessible buildings and facilities has been a challenge for society since every one cannot participate equally in everyday life. There is the need now more than ever to design public buildings to be accessible to all.

By the United Nations standard, all work areas in which physically disabled persons may be employed should be accessible. In particular reference to tertiary education institutional buildings, all teaching, administrative and common areas should be accessible to a wheelchair user. Suitable arrangements should be made for stepped lecture halls or auditoriums. All library facilities and equipment should be accessible. The open book stacks should also be accessible. The recreational facilities should be usable by disabled people, to the extent possible.

By adopting the approach of building for everyone, the council of Europe in 2004 published that 'the built environment is arranged in such a way that everyone is allowed access to it in the most independent and natural manner as far as practicable. The term 'natural' implies that provisions for access and usability are perceived as normal and not for the benefit of particular groups or individuals. This leads to provisions that are perceived as special additions, such as special doors for wheelchair users.

The United Nations also stipulates in the same vain that the designing and building should take account of the diverse capabilities of human beings. They should accommodate a wide range of ancillary aids and be able to support interactive usage. It is also essential to produce solutions in which, along with improvement in accessibility, there will be an improvement in the freedom of choice offered to the user. Access for everyone can then be achieved when the following points listed have been achieved in their respective places of need:

- Install curb ramps;
- Provide wide routes and spaces;
- Provide sufficiently wide door openings with low bevelled thresholds or none at all;
- Provide low-mounted controls;
- Provide ramps, elevators or platform lifts;
- Increase the opening interval of elevators and automatic doors;
- Provide handrails for gripping;
- Use automatic or easy-to-open doors;
- Use lever-type door handles;
- Provide bright-coloured markings or signals to identify obstructions;

- Provide clearly legible lettering and sufficiently large dimensions for direction signs;
- Use contrasting colour for doors, handrails, tactile signs, etc;
- Provide alarm signals (www.un.org/esa/socdev/enable/designm/)

Physically challenged persons should be able to move freely in buildings from one floor to other both horizontally and vertically without any hindrance. The following facilities highlighted below should therefore be part or incorporated in the design and construction of public buildings to aid the disabled person's movement in buildings.

Ramps

Ramp is a sloping planar surface providing access from one level to another (Davies and Jokiniemi, 2008). Merritt and Rickets also provide more to this and states that a ramp or a sloping floor, is used for movement of people and vehicles in such buildings as stadiums and garages (Merritt and Rickets, 2001).

Travelators (Moving Pavements)

These are intended for the horizontal movement of passengers; they can, however, be inclined up to between 12o and 15o to the horizontal. The moving surface is either a reinforced rubber belt or a series of linked steel plates running on rollers. According to Hall (1992), moving pavements are used at air terminals, railway stations and shopping centres; they can be used by the infirm, or by people with wheeled baskets or perambulators. Widths of the moving surface vary from 600 mm to 1 m and are flanked on both sides by balustrades incorporating handrails.

Escalators

Escalators are continuous inclined conveyors designed for moving large numbers of people quickly and efficiently from one floor to another. Unlike a normal lift installation it requires no waiting time. According to Hall (1992), escalators have advantage of being reversible to suit the main flow of traffic during peak times and, unlike lifts, they may be used when stationary. Escalators are widely used in banks, departmental stores, sports stadia, exhibition halls, air terminals and railways stations.

Elevators

Elevators are installed to provide speedier vertical transportation, especially in tall buildings. Transportation is provided in an enclosed car that moves along guides, usually within a fire-resistant vertical shaft but sometimes unenclosed along the exterior of a building. The shaft, or the exterior wall, has openings, protected by doors, at each floor to provide access to the elevator car. The car may be suspended on and moved by cables (Merritt and Rickets, 2001).

Platform lifts

Platform lifts are also known as stairway lifts or wheelchair lifts. Stair lifts have been used in hospitals, homes for the elderly and convalescent homes for some time. In more recent years, manufacturers have recognised the domestic need and have produced simple applications which run on a standard steel joist bracketed to the adjacent wall. With development of Building Regulations, Access and facilities for disabled people', is likely to ensure that staircases in all future dwellings are designed with the facility to accommodate and support a stair lift or a wheelchair lift. This will allow people to enjoy the home/office of their choice, without being forced to seek an alternative (Hall and Greeno, 2006).

Railings and Handrails

Railing refers to a fence, balustrade or low barrier of metal bars fixed to a frame structure, supported by posts at regular intervals (Davies and Jokiniemi, 2008). However the Concise Oxford dictionary explains it in the more general way as ‘Handrail is a rail fixed to posts or wall for people to hold on to, for support’. According to Chudley and Greeno, 2008, ‘these must comply in all respects with the requirements given in part K of the building Regulations and in the context of escape stairs are constructed of a non-combustible materials with handrail shaped to give a comfortable hand grip’. This is usually placed at the edge of a staircase, walkway bridge, or elevated surface to prevent people from falling off.

RESEARCH METHODOLOGY

The research adopted two principal methods for the collection of the data for the study. These consist of survey questionnaires and semi structured interview.

These two methods were used due to the fact that using different approaches for collecting research data lead to greater validity and reliability than using a single methodological approach according to Denzin (1970) and Dixon, Bouma and Atkinson (1987). Using a survey strategy gives you more control over the research process and when sampling is used, it is possible to generate findings that are representative of the whole population at a lower cost than collecting the data for the whole population (Saunder, Lewis and Thornhil, 2007). The questionnaire was designed in line with the aim and objectives of the research to ascertain whether disabled facilities were incorporated in the Public tertiary educational institution buildings in Ghana and also to find out the type of disabled facilities incorporated in the buildings.

The interviews were conducted in a semi structured format that allows respondents to express their own view points (Flick, 2002). The semi structured face-to-face interview was designed to ascertain whether the disability laws were enforced in the modern buildings in the tertiary educational institutions under studied in the country. This method was also used to solicit additional information from the client's representatives for the selected tertiary educational institutions (Development officers and Estate officers) and the law enforcing agency on main subject of the study.

The targeted respondents for answering the questionnaires include Building Construction Professionals who are client's representative (Architects, Engineers, Clerk of works) and contractors representatives (Project managers, Site engineers, Site supervisors) and who are directly involved with the construction of public tertiary educational institution building and also are in charge of the on-going building projects for the four selected public tertiary educational institutions in the southern sector of Ghana. In totality 34 persons were contacted for the answering of the questionnaires for the study. For fair distribution and response of the questionnaires, 17 of the questionnaires were sent to client's representatives and the remaining 17 of the questionnaires were also sent to contractor's representatives. The questionnaires were delivered personally by the researchers with self-addressed envelope to the respondents.

This was to ensure that targeted persons received the questionnaire and it was much easier to collect them. This method of communication has led to the return of all the 34 questionnaires for analysis.

Four public tertiary educational institutions used for the study were conveniently selected from eight (8) public tertiary educational institutions in the southern sector of Ghana. The selected institutions are located in central and western region. The researchers selected these four institutions from the two regions (Central and Western) because of convenience and proximity. The selected institutions are University of Cape Coast, University College of Education- Winneba, Takoradi Polytechnic and Cape Coast Polytechnic. The types of buildings considered under these institutions were: Lecture halls, Auditorium, Students hostels, Offices and Residential flats for staff.

Table 1: Total Questionnaires Sent Out and Returned

Respondent	**No of questionnaires sent out**	**Percentage (%)**	**No of Questionnaires Returned**	**Percentage (%)**
Client's representative	17	50%	17	50%
Contractor's representative	17	50%	17	50%
Total	34	100%	34	100%

Table 2: Questionnaires Responded by Contractor's Representatives

Respondent	**No of questionnaires sent out**	**Percentage (%)**	**No of Questionnaires Returned**	**Percentage (%)**
Project Manager	3	17.65	3	17.65
Site Engineer	5	29.41	5	29.41
Site Supervisor/Foreman	9	52.94	9	52.94
Total	17	100%	17	100%

Table 3: Questionnaires Responded by Client's Representatives

Respondent	**No of questionnaires sent out**	**Percentage (%)**	**No of Questionnaires Returned**	**Percentage (%)**
Architect	2	11.77	2	11.77
Engineer	5	29.41	5	29.41
Clerk of works	10	58.82	10	58.82
Total	17	100%	17	100%

Completed and uncompleted (on going) Building Projects in the selected tertiary educational institutions from the year 2007 to date.

Table 4: Uncompleted (on going) Building Projects

Institution	**No of uncompleted building projects**	**Percentage (%)**
University of Cape Coast	5	29.41
University of Education – Winneba campus	6	35.29
Cape Coast Polytechnic	4	23.53
Takoradi Polytechnic	2	11.77
Total	17	100%

Table 5: Completed Building Projects

Institution	**No of completed Building projects**	**Percentage (%)**
University of Cape Coast	7	50.00
University of Education – Winneba campus	2	14.29
Cape Coast Polytechnic	3	21.42
Takoradi Polytechnic	2	14.29
Total	14	100%

Table 6: Type of completed and uncompleted buildings that has been constructed from the year 2007 to date for the selected institutions

Type of building	No of buildings	Percentage (%)
Lecture Hall/classroom block	13	41.94
Offices for staff (teaching/administrative)	3	9.68
Auditorium/seminar room	5	16.12
Library	2	6.45
Residential flat for staff	3	9.68
Students Hostel	2	6.45
Others	3	9.68
Total	31	100%

Table 7: Physically challenged persons facilities factored in buildings after the passage of Disability Act (Act 715) in 2006

	Fully factored	Partially factored	Not factored at all	Total number
Number of Buildings	3	21	7	31
Percentage (%)	9.68	67.74	22.58	100%

Table 8: Type of physically challenged person's accessibility facilities factored in the buildings

Type of accessibility facilities	No of buildings incorporated with disabled aids	Percentage (%)
Ramps	11	35.48
Ramps, Railing and Handrails	5	16.13
Lifts/Elevators	3	9.68
Ramps and Elevators/Lifts	2	6.45
Elevators/Lifts, Ramps, Railings and Handrails	3	9.68
None	7	22.58
Total	31	100%

RESULTS AND DISCUSSIONS

All the thirty four (34) research questionnaires which were received from the respondents (Clients and Contractors representatives) as shown in table 1 were analyzed. These questionnaires were designed for the respondents in order to ascertain whether disabled facilities were incorporated in the public tertiary educational institution buildings in Ghana and also to find out the type of disabled facilities incorporated in buildings. The breakdown of the questionnaires is shown in tables 2 and 3. Seventeen (17) representing 50% of the total questionnaires were received from client's representatives (2 Architects, 5 Engineers and 10 clerks of works). Other seventeen (17) of the questionnaires also representing 50% of the total questionnaires were received from contractor's representatives (3 project managers, 5 site engineers and 9 site supervisors/foremen.

Results of the questionnaires are as presented:
As indicated in table 6, the type of buildings completed and uncompleted (on going) on the various campuses of the four selected Public tertiary educational institutions were: 13 Lecture halls/classroom blocks, 3 offices for staff (teaching/administrative), 5 Auditorium/Seminar rooms, 2 Libraries, 3 Residential flats for staff, 2 students hostels, and 3 others. These added up to a total number of 31 buildings. Analysis of the questionnaire shows that out of the 31 buildings (completed and uncompleted), 3 of the buildings representing 9.68% had fully incorporated or factored disability (physically challenged persons) facilities in their design and construction. 21 of the buildings representing 67.74% were partially factored physically challenged persons facilities and 7 of the buildings representing 22.58% did not factor or consider any physically challenged facilities at all in the designed and construction of such buildings. The result as shown in table 7, confirm the fact that, the building designers for public buildings do not fully incorporate or factor disabled persons (physically challenged persons) in their design and construction.

As indicated in table 8, the types/kinds of disabled (physically challenged persons) facilities provided in all the building types were: Ramps, Lifts/elevators, and railing/handrails. Majority of the buildings investigated, incorporated ramps more than any other types of disabled facilities.

As indicated in table 8 above, 11 of the buildings representing 35.48% incorporated ramps only in the construction, 5 buildings representing 16.13% incorporated ramps, railings and handrails, 3 of the buildings representing 9.68% incorporated lifts/elevators, 2 representing 6.45% of the buildings incorporated ramps and lift/elevators, 3 representing 9.68% of the buildings fully incorporated elevators/lifts, ramps, railings and handrails. 7 representing 22.58% of the buildings were not incorporated with any disabled facilities. Table 7 and 8 indicates that 77.42% of the thirty-one (31) total number of buildings considered in the study area has one way or other incorporated with physically challenged person facilities. Although only 3 buildings representing 9.68% of the buildings investigated, fully incorporated elevators/lifts, ramps, railings and handrails, the result shows that some improvement have been made by incorporating physically challenged persons facilities in the buildings since the introduction of the disabled act (ACT 715).

When the respondents were interviewed on the question of whether the disabled facilities incorporated in the buildings in their institutions are adequate or inadequate? 75% of the respondents said the facilities were inadequate while 25% of respondents were of the view that, the facilities were adequate. The respondents who were interviewed on this question were eight (8) client's representatives (Development officers and Estate officers). This comprises, two (2) each respondents representing the four tertiary educational institution selected for the study.

These eight (8) interviewees were also asked whether they agreed that disability accessibility aid must be compulsorily incorporated in the design of Public buildings. With this question, all the eight respondents (100%) agreed strongly that disability accessibility aid must be compulsorily incorporated in the design of public buildings.

Officials in charge of the approval of building designs for the four selected tertiary educational institutions were interviewed on the question of whether buildings designed by the designers conformed to the disability standards. According to them, though the law has been passed, still some of the designs that come to them for approval do not conform to the disability standards and they attributed this to lack of compliance and ignorance of the Act.

Officials from the law enforcement agencies in the study area were also interviewed to ascertain whether they enforced disability laws in modern buildings construction. They admitted that disability laws were not strongly enforced. According to them, the reason why they cannot strongly enforced the disability laws is the lack of legislative instrument (LI) to back the Act for stronger enforcement powers. However, they tried to impress upon designers of the public buildings to include disable facilities.

CONCLUSIONS

The disabled people in Ghana account for a recognisable size of the population (10%) and deserve the right to access and use buildings comfortably. Despite the magnitude of the disability percentage of the population, most designers and contractors in Ghana fail to factor the disabled people in their design. After the passage of the persons with disability Act (ACT 715), in 2006, it has become necessary that all public buildings in Ghana have to be designed and built to incorporate the required features that will aid the disabled to have a comfortable access to all public places. The study showed that though the disability law has been passed, only few buildings in the study area were fully factored with disability facilities. Although only 3 buildings representing 9.68% of the buildings investigated, fully incorporated elevators/lifts, ramps, railings and handrails, the result shows that some improvement have been made by incorporating physically challenged persons facilities in the buildings since the introduction of the disabled act (ACT 715).

Out of 31 buildings investigated, 3 of the buildings representing 9.68% had fully incorporated or factored disability (physically challenged persons) facilities in their designed and construction. 21 of the buildings representing 67.74% were partially factored physically challenged persons facilities and 7 of the buildings representing 22.58% did not factor or consider any physically challenged facilities at all in the design and construction of such buildings. The result confirms the fact that, the building designers for public buildings do not fully incorporate or fully factor disabled persons (physically challenged persons) in their design and construction. This attitude frowns on the Disability Act and other legislation on disabled people. Again, it discriminates against disabled people and put them at a disadvantage. The law enforcing agency therefore should ensure that construction professionals' fully factor disabled people in their building designs and construction.

Massive education should also be given to the general public and clients about the need to make buildings disabled friendly.

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