

## **COLLAPSE OF BUILDINGS AND THE APPLICATION OF LAW IN NIGERIA**

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### **Abstract**

*The spate of collapse of buildings in Nigeria is becoming more alarming and unprecedented especially in the last one year resulting in an incalculable loss of human lives and materials. This paper takes a look at the issue of collapse of buildings and the application of law system in Nigeria. It examines the Lagos State urban and planning law as a tool to guarantee safe and healthy buildings in the building industry. Some of the causes of collapsed buildings are highlighted. This paper concludes that appropriate sanctions and punitive measures are needed to reduce the loss of both human lives and materials whenever a building collapses.*

**Keywords:** building, building regulation, collapse, design, law

### **Introduction**

The incidence of collapsed buildings in Nigeria today has been very topical and unprecedented especially in recent years causing loss of human lives, property damage and socio-economic disruption. Examples of such collapsed buildings include a four-storey building which collapsed in Ebute- Metta, Lagos in July, 2006, in which nearly 30 people were reported dead and about 50 survivors rescued from the wreckage, the collapse of two other storey buildings in Port Harcourt, River State, in 2005, the collapse of one of the tallest buildings in Lagos after a fire engulfed it in March, 2006 and lately the collapse of a bank building (still under construction) along International Airport Road, Lagos.

These building collapses unfortunately, are reminders that the building industry needs a quicker intervention in order to safeguard loss of human lives and property. The activities in the building industry are strictly governed by laws and regulations with several building codes of practice enacted to act as guides for the construction of buildings. Standards are also necessary for quality construction. It is along this framework that this paper attempts to highlight some key issues on the causes of collapsed buildings and to draw attention on the importance of laws and regulations, their enforcement as panacea for safer and healthy buildings in the construction industry.

### **Professionals in the Building Industry**

The major stakeholders in the building industry are the professionals namely Architects, Engineers, Quantity Surveyors, Builders/Contractors (Structural, Mechanical and Electrical) and the Local Planning Authority and also the non-professionals. A high level of skills, competence, craftsmanship and integrity are needed from the professionals in designing and constructing buildings. As Obabori and Odion (2004) argue, the interaction of the professionals and non- professionals and other groups in the building industry results in quality building and construction works.

In any building project, Architect by virtue of his knowledge of building designs conceives idea from the brief of a client, interprets and communicates this idea by way of sketches/drawings and transmits it, after it has been approved by the client, to other parties in the building team, the team includes engineer who prepares the structural design based on structural analysis of the loads the building would carry, Quantity Surveyor who prepares the cost estimates and Contractor (Builder, Mechanical and Electrical) who ensures that the building project is well executed in accordance with the accepted

standards. Where these processes are not followed as they ought to be or where any of the parties laxes in his responsibilities there is the tendency to expect a failure which could bring about building collapse. Ayinuola and Olalusi (2004) point out that the professionals contribute to the buildings collapse because they undertake building construction all alone without consultation with the rest of the building team.

### **Buildings Collapse in Context**

Architecture essentially has three main functions. These are function, aesthetics and stability (form and stability). A building should be designed to have strength and stability in order to be able to withstand certain loading situations including lateral loads from wind.

A building consists of interconnected components such as foundations, walls, columns, beams, floors and roofs. The work involved in the design and construction of these components require selecting materials, construction methods to be adopted and good workmanship that will meet expected building standards for the comfort and safety of the users.

In order to achieve this, buildings are to be designed and constructed to structurally support certain loads without deforming excessively. These loads include weights of the people and objects, and be able to support both live loads and dead load of the building itself.

Bartony (1989) defines strength of the buildings as its ability to support reliably the imposed loads and the internal forces induced in the structural components under load, whilst stability of a building is the ability to withstand overturning or sliding. Strength and stability are intertwined and depend on the strength of the foundation and foundation soils, reliability of the structural components on their own and size and shape of the building (Bartony, 1989). A building may fail if there is difference between observed and expected performance.

The causes of collapsed buildings in Nigeria essentially are due to a single or combination of factors such as design deficiencies, wrong construction methods poor workmanship (Uji, and Oyemachi, 2005); and other causes which include "cracking, spalling, deflection which is considered large enough to cause impairment to the function for which the structure is designed" (Arayela and Adam 2001) As argued by Oyewande (1992) 50% of the causes of collapsed buildings in Nigeria are due to design fault, 40% accounts for fault on construction sites and 10% to product failure. Hall (1984) argues that faulty design, faulty execution of work and use of faulty materials are the major causes responsible for the collapse of buildings. The causes of building collapse can be discussed under general headings as follows:

- i. Bad design
- ii. Faulty construction (faulty materials, workmanship error)
- iii. Foundation failure
- iv. Extraordinary loads
- v. Building misuse/age of building
- vi. Poor maintenance

**Bad design** – This does not imply only errors of computation, but failure to critically take into account the loads the structure will be made to carry. This arises from erroneous theories, use of incorrect data, ignorance of the effects of repeated or impulsive stresses, and improper choice of materials.

**Faulty construction** – Some of major collapsed buildings have been attributed to faulty construction or otherwise, errors in workmanship. It occurs where inspection of the works has been lax especially from the person in charge of the construction. Uji and

Onyemachi (2005) contend that 'involvement of others with a duty to superintend over the work in progress' actually results in errors in the work. It may also be due to substitution of quality materials with inferior ones, lack of skill and knowledge on the part of the construction workers.

**Foundation failure** – A building can also collapse if the structure is erected on bad foundation. Although the building will still be able to carry its loads, but the earth may not. Therefore, it is important to carry out a proper examination of soils by the engineer in the course of designing a building, this can cause differential settlement leading to cracking of the walls and decking. Soil investigation helps to reveal the presence of weak soils in the upper layers of land and the possible structural foundation to be employed for the construction.

**Extraordinary loads** – These are natural loads in the form of heavy snowfalls, shaking of an earthquake or exceptionally high wind. It is often referred as natural forces. A building should be designed to meet these challenges. This is achieved through proper environmental impact assessment (EIA) to assist in the best selection of materials and suitable site for the erection of buildings.

**Building misuse/age of building** – The building occupants' often are to blame for misuse of buildings. For instance, change of purpose for which the building is designed. The most common of this is increasing the number of floors without recourse to the structural stability of the structure.

**Poor maintenance** – Poor maintenance of buildings may also cause weakening of the building's fabric. The building has to be inspected variously and maintained adequately to prevent damage that could result in building collapse.

#### **Relevance of Building Regulation, Building bye-laws and Codes**

The need for legislation in the building industry cannot be over emphasized. Human settlements are very vital and as such their comfort ability and safety have to be guaranteed through standard practices. Bassey (1992) affirms that the importance of legislation is a way of ensuring that national, social and health needs are maintained. The development and planning controls which are established by Town and Country laws exercise controls over development matters in the building industry. The laws vary from states to states due to differences in socio-economical and geographical factors.

Building regulation is a set of instrument which stipulates minimum performance standards for the design and construction of buildings. As argued by Adeleye and Olayiwola (2006), town planning tools contained in building regulation and bye laws of local planning authority could engender a disaster free environment. Building regulation, building standards and codes of practice are to ensure the health and safety of the public in regard to buildings and other developments.

#### **The Lagos State Urban and Regional Planning Board Law Cap L 52 of Lagos State 2004.**

The Town and Country Planning Laws of Lagos State had undergone series of amendments in the years 1986, 1990, 1994 and 1995 (Bamishile and Zubair, 1997). Apart from these amendments, the name was also changed to the Lagos State Urban and Regional Planning Board laws to reflect modern and current trend in urban society. The Cap law 133 of Lagos State 1981 gave provisions on building regulations which must be satisfied when processing approval for building plan and during construction stage. The Cap law 52 of Lagos State 2004 which replaced the ones before it contains several important provisions to ensure standard and quality of building in Lagos State and if

scrupulously implemented without fear or favour, the spate of collapsed buildings in Lagos State would drastically reduce.

The relevant sections which are considered very vital are given inter alia: section 34 provides that "notwithstanding any provision in any Law or Edict to the contrary government or its agency involved in the development of land shall obtain approval of the control department of the ministry "By insisting on prior approval for everybody including government and its agencies, is a clear indication that nobody is above the law. Section 35 relates to the application for a development permit. This is done by providing information to include plans, designs drawings any other information as may be proscribed by regulations made pursuant to the law.

Another important provision is section 36 which provides that development plans submitted by the developer to the board must be prepared by a registered professional. This provision has indirectly eliminated the use of quacks or non-professionals from the building industry. Building owners should be educated on the dangers inherent in using quacks or less competent persons in building design and construction. Despite these provisions and regulations, cases of collapsed buildings still persist. In order to have sanity in the construction industry, the board has power to serve an enforcement notice on anybody or developer who contravenes the provision of the law. The notices include:

1. Notice of contravention
2. Notice to stop works
3. Notice to quit
4. Notice to seal up
5. Notice of demolition

However, respite is granted to any developer who has received any notice under section 54 by allowing him a reasonable time of not exceeding 21 days within which such developer can rectify or comply with the provision of the law, the breached of which necessitated the earlier notice to stop work. Demolition notice is served on the developer or owner if a structure erected is found to be structural defective, poses danger or constitute a nuisance to the occupants and public.

The enforcement of these laws is very vital in the building industry. Town planning or building officers engaging in sharp practices should be punished and made a scapegoat. Equally, developers should be prosecuted for erecting structures which do not comply with the building regulations. The National Building codes which eventually launched by the Obasanjo administration in Feb.2007 after the original draft was submitted ten years ago should be made available to professionals in the building industry.

#### **Factors Responsible for Non-enforcement of the Building Regulations and Bye-laws**

**Corruption** – This has been the greatest ill that threatens any spirited effort of government in Nigeria today. Influential individuals in the society could circumvent the laid down rules. They get approval for any building plan even if such is not prepared by a professional as stipulated in the law.

**Lack of adequate man power** – The ministries and departments of government responsible for enforcing the building regulations are understaffed and also lack well trained professionals. They need to conduct regular visits to the construction sites to enforce the building regulation; they also need to be re-trained through seminars and courses in order to meet various challenges in the building industry.

**Motivation** – A workforce that is well motivated would give the best result and vice versa. Motivation should be taken seriously by providing all that is necessary to carry out the job satisfactorily with great passion and commitment. Therefore, government should motivate the staff by paying good salary and emoluments.

**Public cooperation** –The public less often reports case of improper construction or structures that could constitute danger to the lives and property; or constitute health and safety risks to the public. In developed countries, this is not the case. Hence, the public should assist the planning authorities or the professional bodies in the building industry by reporting any unsafe buildings to help minimize collapsed of buildings.

### **Recommendations**

The followings are recommended as panacea to minimize the spate of collapsed buildings in Nigeria.

1. All erring builders or professionals should be sanctioned through their professional bodies and prosecuted in a competent court of jurisdiction if they fail to comply with regulation in the building industry.
2. The professionals should as a matter of statutory obligation consider the risks, at the time of design, the implication of their design decisions over the life of the structure.
3. Use of construction materials and products that comply with building standards.
4. Owners and operators of buildings should always arrange for periodic inspections and structural appraisals to ensure that their safety is adequate as they continue in use, and to carry out maintenance of the buildings. This is especially important where large numbers of people dwell. In this regard the expertise of an engineer or facility manager would be needed on structural, safety, inspection maintenance and repair.
5. The Town planning authority should from time to time, carry out checks on buildings to ensure that they are used in accordance with design assumptions and purposes for which they are designed.

### **Conclusion**

This paper has examined the causes of collapsed buildings in Nigeria and the importance of legislation and building regulation in the building industry. It highlighted various factors responsible for the non- enforcement and implementation of the building regulations the result of which is the consequence now faced in the building sector. The paper attempted to give recommendations which can assist to reduce collapsed of buildings in the country.

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