

# INCESSANT BUILDING COLLAPSE: A CONTEMPORARY ISSUE IN NIGERIAN BUILDING INDUSTRY

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## **Abstract**

The Standard Organization of Nigeria (SON); the Nigerian Society of Engineers (NSE); the Council for the Regulation of Engineering in Nigeria (COREN); the Nigerian Institute of Building (NIOB); the Council of Registered Builders of Nigeria (CORBON) and in fact, all the professionals involved in the construction industry are not only worried but also interested in the growing rate of buildings collapsing on construction sites nationwide. This necessitated this opinion paper on the, "Incessant Building Collapse: A Contemporary Issue in Nigerian Building Industry (IBCCINBI)". The paper discussed the issue of building collapses in Nigeria, the possible causes of building collapses in Nigeria as well as, samples and costs of building collapse and explosion in Nigeria for the past twenty years, government and professional approach to collapse of buildings in Nigeria, and also made useful suggestions on what could be done to combat this enemy.

## **Introduction**

Building is a structure designed and erected to stand more or less permanently by utilizing economically, the materials and other forces of nature for improving quality of life and institutions. Building construction according to Adindu (2005), has improved health, created settlement, shaped cities and provided employment and secondary employment.

In a related development, Onwuka (2005), defined buildings as fixed structures for human occupancy and use. According to Onwuka, residential (e.g. houses), institutions (e.g. schools and colleges), commercial and industrial (e.g. hotels and factories) and pre-fabricated buildings are all buildings. He went further, to define building as the erection and maintenance of any structure in which people work or dwell.

## **The Issue of Building Collapses in Nigeria**

The term building collapse signifies the process of structure falling into decay, falling utterly or in ruin destruction, caving in or topples (Iroegbu, 2006). According to Amobi (2006), collapse means to fall down or in, breaks into pieces suddenly, loose physical strength among others. Thus, collapse connotes the extreme, where no remedial measures would be necessary.

Generally, buildings are constructed to serve the purpose for which they were built. A building is said to have failed when it ceases to attain the standard of performance envisaged during its conception and design.

The word failure, according to Amobi (2006), means non-performance, running short, breaking down. Elsewhere failure means rupture, breaking or fail. It therefore, implies that, failure in building refers to break down or non-performance of building or its components. Failure may be partial or total (collapse) and may occur during construction or during use.

This is not surprising when one considers the wide range of materials and techniques of construction, differences in the condition on building sites and the varied occupational uses of the complete buildings. Prompt actions can be taken according to Amobi (2006), to remedy failures by rectifying the faults or carrying out corrective maintenance. This may range from simple operations

like the replacement of a broken louver glass to complex ones such as under pinning operations. However, a collapsed building leaves nothing to remedy only debris. Collapsed buildings have always claimed human casualties. Lives have been recorded and millions of Naira wasted, Amobi maintained.

## **The Possible Causes of Building Collapses in Nigeria**

It is no longer news, according to Obiegbu (2004), that, buildings collapse all over Nigeria. Therefore, to answer the question - What are the possible-causes of building collapses in Nigeria? Akindoyeni and

Bamisile (2003), cited in Obiegbu (2004), states that:

- a) Design work by non-professionals and untrained persons are being accepted by some planning authorities for development.
- b) Immeasurable specifications are being proposed for materials and workmanship for building projects.
- c) Building materials of dubious chemical, mechanical and/or engineering properties are freely marketed, purchased and used for our buildings.
- d) Unprofessional and unqualified personnel manage building production to the detriment of sound practical and documentation of the process. As a result of any combination of (a) to (d) above, buildings continue to collapse, resulting in loss of lives, limbs, time and funds, to the detriment of the economy and resulting in the lack of confidence in the industry.

In a related development, Iroegbu (2006), maintains that, the use of low and inferior quality materials contribute to building failures e.g. use of mangled tiny rods, use of concrete mixtures that were more of sand than cement. A literature review and oral interview with professionals on the causes of building collapse according to Adindu (2005) show that, the following factors contribute essentially to collapse of buildings in Nigeria:

- Use of substandard building products and materials.
- Failure of contractors, builders and owners to comply with building laws and regulations.
- " Food and storms.
- Fire disaster.
- Bomb explosion/blast.
- Land slides and erosion.
- Fragile conditions of the building.
- Non-approval for renovation of old buildings.
- Conversion of bungalows to storey buildings.
- Use of defective and insufficient materials in building construction.
- Violation of states building plans and codes.
- Government inability to implement and enforce planning laws.
- Rickety and ramshackle buildings.
- Structural defects in buildings.
- Neglect of approved specifications for buildings.
- Inadequate foundation and other structural elements under reinforcement.
- Poor quality workmanship.
- Hurried construction of buildings without architectural and engineering standards.
- Large population *overstretching of the faculties*.
- Abandoned projects.
- Poor *building* maintenance.
  
- Professional incompetence and fraud, leading to inability of the professionals to detect substandard materials.
- Inability of government to promulgate national building codes to prevent collapse of buildings in Nigeria.
- Lack of effective expansion by physical planning unit.
- Inadequate frames-layout to support structures.
- Use of slender reinforced concrete columns for storey buildings.
- Reinforced concrete columns not well tied horizontally with beams as at floor levels.
- Approval given to building not qualified by law.
- Residential building converted to commercial and business premises.

**Samples and Costs of Building Collapse and Explosion in Nigeria for the Past Twenty (20) Years  
1986-2006**

| S/No. | Nature of Disaster | Location                                  | Cost   | Date                             |
|-------|--------------------|---|--|----------------------------------|
| 1.    | Building Collapse  | Kenyatta Street<br>Uwani-Enugu            | - 2 Story Building   | 1989                             |
| 2.    | Building Collapse  | Ikeja, Lagos                              | - 5 Star Hotel   | 1990                             |
| 3.    | Building Collapse  | Ojuelegbe and Arilara Street,<br>Surulere | Two storey building<br>under construction  | 10 <sup>th</sup><br>July, 1990   |
| 4.    | Building Collapse  | 5 Berkley Lane, Lagos                     | - Two storey building<br>under construction -Nine lives lost                           | Sept.<br>;4 <sup>th</sup> , 1990 |
| 5.    | Building Collapse  | Orile, Iganmu, Lagos                      | - A building under construction<br>-Many lives of workers were lost                    | November<br>12, 1990             |
| 6.    | Building Collapse  | Port Harcourt                             | - 3 Storey building - 63 Students<br>killed  | June 1990                        |
| 7.    | Building Collapse  | Agege, Lagos                              | - Two storey building killing two<br>people  | June<br>15 <sup>th</sup> 1992    |
| 8.    | Building Collapse  | Akindele village, Ikeja                   | - A collapse after a heavy rainfall  | 10 <sup>th</sup> August,<br>1992 |
| 9.    | Building Collapse  | Ipetu Street, Ikorodu                     | - A residential storey building<br>-killing not less than four kids                    | March, 1995                      |
| 10.   | Building Collapse  | New Haven, Enugu                          | - 3 Storey building - Many people<br>killed  | 1997                             |
| 11.   | Building Collapse  | Idunshagbe Lane,<br>Lagos Island          | - A three storey building collapsed<br>-Not less than ten. casualties were<br>recorded | October 13,<br>1998              |
| 12.   | Building Collapse  | Maryland                                  | - Eight storey Royal Motel   | November 5,<br>1998              |
| 13.   | Building Collapse  | Iponri Avenue, Lagos                      | Six storey office blocks collapse  | November 5,<br>1998              |
| 14.   | Building Collapse  | Idumota, Lagos                            | - Three storey commercial building -<br>Fifteen lives lost                             | 9 <sup>th</sup><br>April, 2001   |
| 15.   | Building           | University of Lagos                       | - One storey classroom -   | August                           |



|     |   |  |  |                                  |
|-----|---|--|--|----------------------------------|
|     | Collapse  |  | casualty recorded  | 2002                             |
| 16. | Building Collapse                                 | Sabo, Lagos Mainland                             | - Two storey building collapse<br>-Some casualties recorded (Soboties, 2005 cited in Dioka, 2006)  | November 11 <sup>th</sup> , 2002 |
| 17. | Building Collapse                                 | Different Parts of Lagos                         | - Over 10 buildings were reported to have collapsed (Obiegbu, 2004)  | 2002                             |
| 18. | Bomb explosion in Lagos State Military Contonment | Ikeja, Pedro Street, Victoria Island & Ikoyi     | - 1000 reported dead — 4 Storey building destroyed — Neighbouring Area damaged - Prudent Bank collapsed - 6 Other buildings ruined - Looting and residents trapped — Vibration, social and psychological impacts | January, 2002                    |
| 19. | Bomb Blast  | Lagos State University Teaching Hospital         | - 60 Bodies deposited - Many wounded   | January, 2002                    |
| 20. | Building Collapse                                 | Abuja Gariki                                     | - 6 Persons perished - Many victims burned under the rubber  | January, 2002                    |
| 21. | Fire Disaster                                     | NNDC Headquarters, Ikoyi                         | - Collapse of many buildings<br>-Ground & first floor sank — Other buildings caught fire - Residents fell with buildings — Many died — Many injured  |                                  |
| 22. | Building Collapse                                 | Otigbo Street, Ikeja                             | 4 Storey building under construction collapsed - 1 Person killed, 31 workers injured, 40 trapped under the building  |                                  |
| 23. | Building Collapse                                 | Ikeja  | - 3 Storey building - Person died — Many injured   | March, 2002                      |
| 24. | Building Collapse                                 | Tapa Street, Orije, Iganmu                       | - 9 Persons killed - Many other buildings destroyed  | 2003                             |
| 25. | Building Collapse                                 | Saki Street, Lagos Island                        | - 3 Persons killed - Several others wounded  | May, 2003                        |
| 26. | Building Collapse                                 | Two buildings collapsed the same day at Awka     | - 2 Buildings under construction collapsed   | April, 2003                      |
| 27. | Building Collapse                                 | Sakis Street, Lagos Island                       | - 3 Persons killed - Several others wounded  | May, 2003                        |
| 28. | Building Collapse                                 | Agage, Lagos                                     | - 2 Persons killed - 5 Injured   | June, 2003                       |
| 29. | Building Collapse                                 | Ajao Estate, Lagos                               | - Four storey building collapsed<br>-Many workers were trapped   | June 8, 2003                     |
| 30. | Building Collapse                                 | 54 Willoughby Street, Ebutte Metta               | - Five people died - Many wounded  | September, 2003                  |
| 31. | Building Collapse                                 | - 4 Storey building under construction collapsed | - Collapse of building   | October, 2003                    |
| 32. | Fire  | Enugu-Igbo Etit                                  | 350 Villagers displaced - Months   | February,                        |

|     |                   |                                      |  |   |
|-----|-------------------|--------------------------------------|--|---|
|     | Disaster          |                                      | old baby roasted   | 2004                                    |
| 33. | Building Collapse | Oke-Ira Grammar School, Ogba, Lagos  | - 4 Children seriously injured<br>-Many other minor injuries (Adindu, 2005)  | April, 2004                             |
| 34. | Building Collapse | Maryland                             | - Three storey building collapse under construction  | July 15 <sup>th</sup> , 2004            |
| 35. | Building Collapse | Agage, Lagos                         | - Two storey office block collapse during construction   | 7 <sup>th</sup> January, 2005           |
| 36. | Building Collapse | Ogba, Lagos                          | - Two storey building collapse during construction   | 10 <sup>th</sup> September, 2005        |
| 37. | Building Collapse | No 60 Clifford Road, Aba, Abia State | 2 Storey building under construction   | 2005                                    |
| 38. | Building Collapse | Ebutte-Metta, Lagos                  | - A four storey building with 52 flats and 36 shops. 120 people trapped in that building and 25 people killed including a family of five | 2006                                    |
| 39. | Building Collapse | Ebutte-Metta, Lagos                  | - Three storey residential building collapsed  | September, 2006                         |
| 40. | Building Collapse | Ajao Estate, Lagos                   | Three storey office (Bank) building collapsed. 30 casual workers trapped under the rubble. Two persons were reportedly unaccounted for.  | Monday ;S"<br>November,<br>-2006 :<br>: |

**Sources:** Adindu (2005); The Guardian News Paper, Wednesday, December 6, 2006).

### **Identified Causes of Building Collapse: The Government and Professional Approach to Collapse of Buildings**

One of the roles of government is to formulate laws and policies and to enforce them. Research, according to Adindu (2005), has shown that, Government of Nigeria both Federal and States formulate laws without enforcement which has contributed to flagrant violations of building law by developers.

Reacting to a frequent collapse of buildings, Jokota, cited in Aluo and Odinta (2003), warned that, the House of Assembly should focus on laws guiding building construction — they should not only pursue, but ensure its compliance. In all the states in Nigeria, there is evidence of failure to comply with building laws and regulation.

The Nigerian Institute of Building (NIOB) is worried about the incessant collapse of building in Nigeria. In May, 2000, professional builders gathered in Lagos to examine critically how collapse of buildings can be eradicated. They made recommendations, which **have** not been implemented in many states of the federation (Adindu, 2005). These include: 1) Introduction of Building Control (Maduako, 2000), inspectorate division in all local government

area.

- 2) Establishment of building laboratory testing stations.
- 3) Government certifies building conducive, physically and hygienically before it is occupied.
- 4) Building to be environmentally friendly.

The presence of quacks in Nigerian building industry has been recognized. According to Chinwokwu (2003), the incessant collapse of buildings in the country is the direct effect of ignorant and incompetent peoples who have besieged the industry. A non-governmental organization - Socio-Economic Rights Initiative (SERI), cited in Uwaegbulam (2003), observed that, incompetence in the management sector contribute to poor performance. They recommended that, regulated agencies like Standard Organization of Nigeria (SON) should ensure that, iron rods and other building materials should met specific measurements.

The government, according to Adindu (2005), has the authority to demolish defective buildings. The physical - planning unit has the right to supervise and enforce building regulations. Inability of the ministries to supervise and enforce regulation contributes to rampant cases of building collapse. In Lagos State, the department of Urban and Regional Planning Board (URPB) according to Adindu (2005), demolished many defective *buildings* to check building collapse. The board designed the strategies to be adopted in checking building collapses, which include:

- 1) Sealing of identified defective buildings.
- 2) Evacuation of people living in such defective building before sealing it.

Professionals agreed that, professional practice must be demonstrated — Architects to abide to architectural drawings; Structural engineers to follow structural drawings; Surveyors to produce bill of quantities and planners to enforce planning laws.

Determined to fish out culprits responsible for building failures, Bulama (2005), blamed the major cause of building failure to lack of adherence to standard construction procedures. According to Bulama, the Council for the Regulation of Engineering in Nigeria (COREN) has set up an investigation panel based on preliminary reports and would also set up a tribunal with the law establishing it to try all those involved. He added that, the basic problem with the industry at the moment in Nigeria is that, many people feel they can construct buildings without the use of specialists and skilled. They take upon themselves to construct buildings without the involvement of the relevant professionals.

Among others, he had already blamed as causes, the non-involvement of structural engineers at the design stage, lack of appropriate and strict approval procedures, non-involvement of qualified engineers in the actual construction of the projects, use of poor quality construction materials, lack of soil investigation and improper interpretation of site conditions. Other causes according to him are the involvement of quacks, particularly by developers who do not see the need to involve qualified professionals, lack of adequate measures by relevant government agencies to monitor and ensure that the construction is in line with approved plan.

Again, tests conducted according to Ajibola (2005), cited in Iroegbu (2006), revealed that, some of the steel materials used, showed that, they are substandard, as the strength were incorrect. While blaming this on the lack of laboratories for testing and control of building materials, he called for collaboration between the Standards Organization of Nigeria (SON) and the professional bodies in making sure that, materials used are of standard quality.

## **Recommendations**

Among the solutions proffered to solving this problem include but not limited to:

- 1) Government at all levels must make adequate provision for the monitoring of development in towns and cities. By this, the relevant professionals must be appointed to help check these excesses.
- 2) Professional bodies must ensure that, their members found wanting are disciplined and their licenses to practice are withdrawn. However, for all the studies made - on the issue of collapse buildings in Nigeria, no professional builder has been involved in the issue of building collapse.
- 3) The relevant planning authorities should formally engage the services of practicing builders and that of private structural engineering firms.
- 4) Developers must always imbibe the culture of engagement of the services of qualified builders.
- 5) Government must ensure that, a Buildability and Maintainability Analysis Report (BMAR) is prepared, signed and sealed by a licensed Architect before-the erection of any building.
- 6) There is need for fostering co-operation between all the stakeholders in the construction industry so as to sanitize the industry.
- 7) Finally, government must demonstrate adequate support for Standard Organization and must ensure availability of only quality materials for use in the construction market, while cost reducing measures need to be employed.

## **Conclusion**

The issue of collapse buildings in Nigeria needs to be addressed quickly - if the country hopes to

earn respect in the committee of nations. This is the position of this paper. Thanks to the National Council of States-Comprising of all State Governors, for approving, this month (September) the National Building Code (Okoro, 2006).

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