SSR Journal of Engineering and Technology (SSRJET)

Homepage: https://ssrpublisher.com/ssrjet/

Volume 3, Issue 2, 2026 ISSN: 3049-0383

Evaluation of Collapsed Buildings in Nigeria from 2015 to 2025: Causes, Effects and Control

Oyadokun Joel Olufemi, Adeyinka Remi and Amao Funmilayo Lanrewaju

Department of Architecture, Ladoke Akintola University of Technology, Ogbomoso, Oyo state

Received: *20.01.2026* | ***Accepted:*** *07.02.2026* | ***Published:*** *17.02.2026*

***Corresponding author:** Oyadokun Joel Olufemi

DOI: *10.5281/zenodo.18668984*

Abstract **Original Research Article**

Over the years, Nigeria has witness significant numbers of collapsed buildings leading to tragic and significant loss of lives, injuries, properties destruction, and lack of public confidence in construction industry. This is a major concern to government, stakeholders in building industry and the general public despite various efforts to avoid the calamities; yet, it has become a persistent and tragic problem. Therefore, this study is to evaluate the collapsed buildings in Nigeria, the root causes, effects, control, and examining notable cases from 2015 to 2025 in order to drastically reduce these incidences even if it cannot be eliminated totally and to ensure safer and more resilient buildings in Nigeria.

The study employed descriptive survey and the research approach adopted was qualitative. Data was collected from secondary source derived from multiple sources such as published and unpublished materials in books, journals, internets, and case studies. Forty one (41) notable collapsed buildings were selected from 2015 to 2025 based on number of casualties excluding the number of injuries. Data was analysed using cross-tabulation to examine the causes and number of casualties.

The study revealed that the major cause of collapsed buildings in Nigeria was the use of substandard materials, and this led to structural failure of these buildings. Others causes include: unauthorized developments, modifications and alterations, negligence, poor construction practices, corruption, and non adherence to regulatory bodies.

The study concluded that collapsed buildings in Nigeria are preventable and can be drastically reduced if it cannot be eliminated totally provided all hands involve in the building constructions perform their duties effectively, sincerely with strong governance, accountability, professional ethics, material control, community vigilant and total commitment to building integrity.

Keywords: Collapsed buildings, Nigeria, Causes, Substandard materials, Structural failure.

Introduction

The history of collapsed buildings in Nigeria dated back to pre-independence times but has become more frequent in recent times due to rapid urbanization, weak enforcement of building codes and regulations, and economic pressures. Over the years, the country has witness significant numbers of collapsed buildings leading to tragic and significant loss of lives, jobs, incomes, dignity injuries, properties destruction, crises among stakeholders,

environmental disasters, and lack of public confidence in construction industry (Ede, 2010). It is a constant and devastating development in Nigeria, exposes and constitutes one of the greatest failures in building practices. It is also indicative of broader deficiencies in governance, urban planning and societal priority.

Collapsed buildings are very rampant in urban regions especially in Lagos, Abuja, and Port Harcourt where regulatory frameworks and quality control mechanism are often underdeveloped, coupled with growing demand for housing. Commercial infrastructures have exacerbated the problem with outpaced regulatory control leading to widespread corner-cutting by developers seeking to maximize profit in building constructions.

Collapsed buildings occur when essential structural elements such as beams, slabs, columns, and foundations experience partial or total breakdown, and defects to perform intended functions effectively, jeopardizing the serviceability state of the structures (Ayodeji, 2011). The outcome is instantaneous or progressive disintegration of the structures, posing dangerous to human lives, properties and the surrounding environments. The incidences may be abruptly leaving no room for evacuation or gradual through failure mechanisms, and it can occur during construction or after the buildings have been completed and occupied.

The causes of these incidents include: limited knowledge of materials behavior, construction techniques, population pressure, accelerated construction timelines leading to construction deficiencies, resource constraints, substandard materials, corruptions, poor workmanship, conscious decisions, negligence and institutional failures during designs approval and throughout the construction processes, lack of using qualified professionals and inadequate designs (Adeyemi *et al.*, 2018).

The incidence of collapsed buildings is a major concern to government, stakeholders in building industry and the general public despite various efforts to avoid them. Warnings often go unheeded until disaster strikes (Oladapo, 2022). This usually resulted to serious casualties, psychological trauma, financial ruin, societal disruption and posing serious challenges because it has become a persistent and tragic problem as the country leads Africa in both frequency and intensity (Olagunju *et al.*, 2013), despite advancements in Architecture and technology. It has transformed what should be symbols of progress and development into tragedies and losses because it often results in many fatalities.

Over the years, numerous incidences of collapse buildings have been recorded and studied in Nigeria but not from 2015 to 2025. Therefore, this study is to evaluate the collapsed buildings in Nigeria, the root causes, effects, control, and examining notable cases from 2015 to 2025 in order to drastically reduce these incidences if it cannot be eliminated totally and to ensure safer and more resilient buildings in Nigeria.

2.0 Literature Review

Building collapse refers to a total or significant failure of a structure, resulting in the falling down completely or in part. It can be defined as the partial or total failure of a structural system whereby the structure can no longer withstand the loads designed to support, resulting in a catastrophic loss of stability, integrity and the structure is rendered useless. It can pose significant safety hazard to occupants, and surrounding area. It may be sudden, unintended occurrence causing it to crumble or destroyed.

Building collapse in Nigeria has received significantly scholars and professional attention due to it recurring and devastating impacts on life and properties. It has become more frequent especially in urban centers (Olagunju *et al*, 2016 and Fagbenle *et al*, 2017). It always involves residential buildings, churches, schools, commercial centers and industrial buildings although; there is a sharp increase in high-rise buildings especially in Lagos (Akinyemi *et al.*, 2021). The impacts of these in Nigeria are multi-dimensional. Ayedun *et al*, (2016) stated that these incidences have led not only to significant economic losses but also to the untimely deaths and displacement of countless Nigerians.

Collapsed buildings can be initiated by natural disasters like earthquakes, weather or soil erosion and can be attributed to man-made

factors such as faulty designs, use of substandard materials, poor construction practices, in adequate supervision, lack of proper maintenance, negligence in some vital areas during construction, lack of soil testing and investigation, no provision for extra loads, poor workmanship and non-adherent to building codes and regulations.

Oloyede *et al,* (2010); Oyelami and Aina, (2020); and Umeh, (2020) stated that the root causes of collapsed buildings in Nigeria ranging from human negligence corruption to technical and environmental factors. Ayedun *et al.,* (2017) and Nwankwo *et al.,* (2020) stated that quackery in the building industry is a top cause of collapsed buildings and that many buildings are designed and built by non- professionals.

Ayedun *et al.,* (2016) observed that over 80% of collapsed buildings in Lagos are due to poor workmanship and lack of regulatory oversight, likewise, (Adeyemi, 2017; Ademola and Lawal, 2021) stressed the dangers of poor supervision and non-adherence to building codes and regulations, poor supervision, weak foundations, overloading of structural elements beyond their design capacities.

Furthermore, the rising demand for housing in urban centers has led the developers to cut corners by reducing cost and maximize profit, often to the detriment of structural integrity while Ede, (2019) emphasized the roles of unqualified professionals and contractors in collapsed buildings. Bamigboye, (2019) and Obiora, (2020) found low compressive and tensile strengths, soft soil, and use of substandard materials in building construction as major causes of collapsed buildings in Nigeria. Bamisile *et al.,* (2022) discussed how material testing is often skipped entirely during building construction.

Ayo and Ogunbode, (2019) observed that corruption practices in town planning departments, illegal approvals, lack of inspection and bribery allow unsafe buildings to be constructed. Nigerian Building and Road Research Institute (NBRRI), 2021 stated that climate change, induced soil instability, and inadequate structural assessments as emerging contributors to collapsed buildings. Ede, (2010) observed frequent design violations and the absence of quality assurance mechanism during construction are major contributions to building collapse in Nigeria.

Other causes of collapsed buildings include: poor quality control, lapses in structural designs analysis and site investigations, building permit falsification, noncompliance with reinforcement standards, and improper curing process (Barnabas, 2020; Brookng, 2022; Oladapo, 2022; and Cable, 2023). Underfunding of regulatory agencies, lack of man power, unauthorized modification, alteration and addition of floors, aging, overstressed structures and poor maintenance of structures, delay or ignoring demolition and evacuation orders, inadequate risk management, vibrations from external forces, corrosion of steel and premature removal of framework are contributing factors to collapsed buildings in Nigeria in Nigeria.

This is a serious concern to stakeholders in building industry because Clients, Architects, Engineers, Town planners, Contractors contributed immensely to these problems. Finally, Adebayo, (2006) observed that building collapse can be controlled or minimized if the clients are ready to pay for high quality materials, professional services and everybody is ready to take responsibility with sincerity.

2.1 Types of Building collapse

There are many types of building collapse namely:

1. Partial collapse: It is limited to specific elements of the building while other parts remain standing.
2. Total or complete collapse: The entire structure falls completely and becomes unusable.
3. Pancake collapse: In this collapse, floor falls on top of each other, resembling a stack of pancakes due to simultaneous failure.
4. Domino collapse: One part of a structure topples and courses other to fall like dominoes.
5. Sudden collapse: It occurs without any visible warning or signs. It is very dangerous and hazardous.

6. Progressive collapse: In this collapse, a small failure spreads and brings down other structural elements. It is initiated by a localized failure that spread sequentially, undermining adjacent structural elements and leading to large scale destruction. It is also a chain reaction where the failure of one element causes others to fail leading to partial or total collapse.
7. V-shaped or v-frame collapse: The centre of the building drops, leaving the outer wall partially standing, forming a v-shape. It is common in buildings with few or central structural supporting wall. It occurs in buildings where beams fail at the centre point due to overloading, damage, routing and weathering.
8. Lean-to collapse: One side of a floor or roof remains supported while the opposite side fails; creating a triangular void and this is due to one or more load-bearing walls failure.
9. Cantilever collapse: A beam or slab fixed at one end fails causing the other end to drop. It also refers to the failure of a building where a beam supports the building only at one end, and the overhang carries the load.
10. A-frame collapse: Similar to two lean-tos, the floors collapse to the sides, leaving a central void. It is often described as a tent collapse. The floors get separated from the exterior supporting walls. However, the central interior supporting walls of the building along with the support part of the floor directly above remain intact. It results from weakness of shear forces at the junction between the external supporting walls and the floors.
11. Tented collapse: The centre of the building lifts or remains higher than the sides after failure.
12. Disproportionate collapse: A small initial failure triggers a much larger collapse. It is often refers to as cascade failure results in the failure of one element of a building.
13. Symmetrical collapse: is similar to partial collapse occurring in small buildings. The collapse mostly occurs at the centre or edges of the buildings where some elements remain standing. It includes lean-to and cantilever collapses.

2.2 Characteristics of collapsed Building

The characteristics of collapsed buildings include:

a. Loss of load-carrying capacity: Failure of critical structural elements.

b. Disruption of structural equilibrium: This is the state where internal and external forces acting on the building are no longer balanced, leading to uncontrolled movements.

c. Propagation of failure: Localized defects in one part of the structure trigger an effect that culminates in a global collapse. It causes adjacent elements or parts to give way.

d. Diverse causative factors: The failure mechanism can be instigated by internal or external deficiencies activities or human interference.

Others are cracks or crumble concrete, gaps between walls and floors or ceiling, popping sounds from roof trusses, wall rotation, water intrusion in the basement, sagging floors and ceilings, faulty foundation and corrosion.

2.3 Effects of collapsed building

The effect of collapsed buildings in Nigeria include: loss of lives, physical injuries, psychological trauma to survivors, long life disabilities, high cost of medical care for survivors, destruction of properties and businesses, financial burdens associated with reconstruction, diminishing confidence, and damage to professional practices, institutions involved, regulatory authorities and urban development agencies. It also affects public moral, disfigurement, and social cohesion in affected neighborhood, rubble and materials clog roads, waterway, and damage system.

Furthermore, toxic chemical, dust and asbestos may leak, causing air, soil and water contaminations. Expose wire or damage electrical system may cause electrocution of people in the affected buildings, rescue and clean up often take place in unstable, dangerous environments. The Contractors, Engineers, government agencies may face criminal prosecutions, civil liabilities and reputational damages and citizens may demand justice and compensations. The tragedies can force the governments to strengthen building codes, safety laws, and the official involved may be fired, suspended, or jailed if find guilty,

The fatalities are always high especially in densely populated or public buildings. It affects the economy of owners, insurers if the buildings are insure (insurance claim), and many are rendered homeless, needing temporary shelters. If schools, students education is halted or suspended because such schools will be closed.

2.4 Control of collapsed building in Nigeria

Collapsed buildings in Nigeria can controlled with:

1. Strict enforcement of building codes and regulations, review and update of these codes, public enlightenment, engagement of qualified professionals a must, use of modern and advanced technology for site monitoring, use of high quality materials, soil and site testing and investigations, skilled construction practices with regulatory compliances and mandatory building approvals.
2. Strengthening legal and judicial framework, proper maintenance of existing buildings, avoidance of unauthorized modifications, proper structural designs, improve quality control of construction materials, thorough supervisions and inspection at every stage during and after building construction by government agencies, combating corruption and quackery, and capacity building for regulatory agencies.
3. Need for stakeholders collaboration in preventing collapsed buildings, enforcement of sanctions, punishment, and blacklisting individual, institution culpable or found wanting, improvement on professional standards and accountability, urban planning and housing policies, adoption of Quality Management system (QMS), proper drainage, adequate funding for regulatory bodies by government, comprehensive building insurance, avoidable housing policies by government, emergency response and strengthening professional ethics and accountability.

3.0 Methodology of the Study

The study employed descriptive survey and the research approach adopted was qualitative. The study also evaluated existing literature to enable a holistic and build a comprehensive understanding of the study. Data was collected from secondary source derived from multiple sources such as published and unpublished materials in books, journals, internets, and case studies.

Forty one (41) notable collapsed buildings were selected from 2015 to 2025 based on number of casualties excluding the number of injuries. Purposive sampling method was used in selecting notable collapsed buildings. The unit of analysis was a collapsed building and the scope of study is limited to collapsed buildings in Nigeria. Data was analysed using cross-tabulation to examine the causes and number of casualties.

4.0 Findings and Discussions

Table 1: Notable Collapsed Buildings in Nigeria from 2015 to 2025

S/N	Name	State	Year	Casualties	Causes
1.	4-storey Agbama housing estate building, Umuahia	Abia	2015	Many	Unauthorized development, Lack of supervision, Structural failure, and poor construction practices.
2.	Cathedral of St. Anthony catholic church, Aninri	Enugu	2015	05	Structural failure, and Substandard materials used.
3.	5-storey Lekki garden estate, Lagos Island	Lagos	2016	35	Constructed beyond approved floors, Substandard materials used, Weak structure, and Illegal construction.
4.	2-storey Kano State University of Science and Technology building	Kano	2016	20	Structural failure, Poor construction practices, and Substandard materials used.
5.	Reigners Bible International Church Auditorium, Uyo	Akwa Ibom	2016	>200	Structural failure, Poor drainage, Substandard materials used, Unqualified Engineers, and Design failure.
6.	1-storey building, Apo mechanic village, FCT	Abuja	2016	04	Substandard materials used, and Structural failure.
7.	4-storey building with a penthouse, Lagos Island	Lagos	2017	08	Unapproved structure and conversion, Weak structural integrity, and Illegal addition of floors.
8.	3-storey Fire service building, Mbaise road, Owerri	Imo	2017	04	Unprofessional practices, Substandard materials used.
9.	Bungalow building, Abule Egba	Lagos	2017	02	Settlement, due to heavy downpour. Structural failure.
10.	7-storey building, Port Harcourt	Rivers	2018	05	Substandard materials
11.	3-storey building, Oke-Arin, Lagos Island	Lagos	2018	02	used, Faulty structural design, and Foundation failure.
12.	3-storey school building, Ita-Faaji, Lagos Island	Lagos	2019	20	Illegal structure, Structural failure, and poor engineering works
13.	2-storey residential building, Kano	Kano	2020	08	Unapproved conversion of uses, Non adherence to regulatory agencies, and Lack of

					enforcement from the agencies.
14.	3-storey building, Yaba	Lagos	2020	08	Structural failure, and poor construction.
15.	21-storey building, Ikoyi	Lagos	2021	45	Structural failure, Ignored warning, Substandard materials used, Unapproved modifications, and Regulatory negligence.
16.	3-storey building, Lekki	Lagos	2022	04	Negligence, Corruption, and Structural failure.
17.	7-storey Oba Oniru building, Victoria Island	Lagos	2022	02	Substandard materials used, and Structural failure.
18.	3-storey building, Ebute- meta	Lagos	2022	10	Structural failure, Aged, Negligence, and distressed building.
19.	Gwarinpa plaza building	Abuja	2022	03	Lack of approval, and Substandard materials used.
20.	Ebenezer church, Okpanam	Delta	2022	03	Weak foundation, and Unauthorized expansion.
21.	3-storey shopping plaza, Gwarinpa, FCT	Abuja	2023	03	Structural failure, Inadequate supervision and Substandard materials used.
22.	Zaria central mosque	Kaduna	2023	07	Old age, and Poor maintenance.
23.	High – rise building, Banana Island	Lagos	2023	01	Illegal construction (no building approval), and Substandard materials used.
24.	1- storey school building, Kubwa	Abuja	2023	04	Substandard materials used, No building approval, Constructed by non professionals, and Lack of monitoring during construction.
25.	2-storey building, Herbert Macauley	Lagos	2023	03	Substandard materials used, Poor design, and Distressed building.
26.	Secondary school building	Abuja	2023	20	Poor construction, and supervision
27.	2-storey building, Garki village	Abuja	2023	02	Structural failure, Poor workmanship, Inadequate supervision, and Substandard materials used.

28.	2-storey building, Ebute meta	Lagos	2023	01	Distress building, and Structural failure.
29.	Molete residential building	Ibadan	2023	06	Structural failure, and Illegal modification
30.	Federal Capital Building	Abuja	2024	07	Corruption, Structural failure, Substandard materials used.
31.	1-storey residential building, Olunloyo	Ibadan	2024	10	Distressed building, Structural failure, and Substandard materials used.
32.	Mid-rise building, Sabon Lugbe	Abuja	2024	07	Lack of supervision, and Substandard materials used.
33.	A storey building, Ikorodu	Lagos	2025	03	Structural failure, and Substandard materials used.
34.	3-storey building, Sabon-Gari	Kano	2025	03	Structural failure, and Substandard materials used.
35.	3-storey restaurant building, Ojodu, Berger	Lagos	2025	05	Aged, Illegal structural modification, and Structural failure.
36.	Port- Harcourt waterfront	Rivers	2025	05	Structural failure, and Substandard materials used.
37.	3-storey building with penthouse, Oriwu, Lekki	Lagos	2025	02	Structural failure, and Substandard materials used.
38.	Idi-Araba central mosque, Mushin	Lagos	2025	03	Structural failure, and Substandard materials used.
39.	1-storey hotel building, Uromi	Edo	2025	01	Structural failure, Poor supervision, and Substandard materials used.
40.	A building at Dankama village, Kaita Local Government Area	Katsina	2025	06	Structural failure, and Substandard materials used.
41.	4-storey building, Alagomeji, Yaba	Lagos	2025	04	Structural failure, and Substandard materials used.

Source: Authors Compilation, 2025

From Table 1 above, the study revealed that the major cause of collapsed buildings in Nigeria was the use of substandard materials, and this led to structural failure of these buildings. The use of these materials was due to bad economy of the country, high cost of building materials, and availability of fake building materials. Others causes include: unauthorized developments, modifications and alterations, negligence, lack of professional supervisions, monitoring during construction by government agencies, poor construction practices, faulty structural designs,

corruption, old age, poor maintenances, and non-adherence to regulatory bodies.

5.0 Conclusion

This study evaluated the collapsed buildings in Nigeria from 2015 to 2025, the root causes, effects, control, solutions, and examining notable cases. The study concluded that the incessant of this incidence represents a profound crisis of governance, professional ethics and public safety. It is manifestation of a system riddled with corruption, disregard to human lives and without decisive to implement comprehensive reforms, the incidence will continuing to occur. It is a critical challenge in the building industry, reflecting not only technical inadequacies but also deeper society and institutional failure,

Collapsed buildings in Nigeria are preventable and can be drastically reduced if it cannot be eliminated totally provided all hands involve in the building constructions perform their duties effectively, sincerely with strong governance, accountability, professional ethics, material control, community vigilant and total commitment to building integrity. The building construction team and the government must adopt a holistic approach that involves reforms, policy enforcement, public education and accountability. It also requires joint efforts by government, and building team to ensure that every building constructed in Nigeria is safe, durable, and stable from the design to completion stages and even beyond to protect lives and properties.

6.0 Recommendations

The following recommendations are made to drastically reduce collapsed buildings in Nigeria. They are:

i. Adoption of digital tools and technology such as drone surveys, Building Information

Modeling (BIM) to improve compliances, detentions and oversights. Enforcement of standards like Mandatory Conformity Assessment Programme (MANCAP) to improve material quality. Enact and enforce the national building codes and regulations and ensures compliances across the country and digitalize building approval processes.

ii. Mandatory registration professionals engagement at all stages of building construction

with continuous professional developments programs for all building team to ensure update with best practices and technologies, Strict discipline actions to any member found culpable with partiality, Incentives and recognitions for compliance, rigorous materials testing, good designs, and certification for all construction materials.

iii. Traceability and supply chain control of building materials, coupled with public education and awareness, whistle blowers protection, institutionalize annual structural integrity audits; strengthen legal frameworks, soil testing and investigation. Establish sensitizing victims supports fund such as medical aid, relief and rehabilitation supports, review, updating existing laws, rules and regulations to address emergency.

iv. Zero tolerance to corruption, promote indigenous expertise and capacity buildings,

Government should increase funding and man power for regulatory bodies, empower local government to enforce laws at the grassroots. Implement affordable and safe housing technology and education system transformation by including building safety, modern construction techniques into school curricula.

By adopting, embracing these comprehensive recommendations and are sincerely implemented and well monitored, the incessant collapsed buildings in Nigeria will be significantly reduced. Safer structures will be built for the benefit of all, and Nigeria as a nation can move towards a future where its development will be rapid.

REFERENCES

Akinyemi, l., and Fadairo, G. (2018). Investigation into building collapse in Nigeria: A case study of Lagos state. International Journal of Built and Technology, 9(3), 805 – 814.

Alade, O. A. and Bamidele, O. (2023). Analysis of Building collapse trends in Nigeria (2013 – 2022). Journal of Sustainable Construction, 9(2), 45 – 61.

Ayedun, C. A., Durodola, O. D., and Akinjare, O. A. (2016). An empirical evaluation of factors causing building collapse in Nigeria. International Journal of Civil Engineering and Technology, 7(3), 10 - 23.

Bamidele, A. (2020). Evaluating the causes of structural collapse in Nigeria. International Journal of Engineering Research and Technology, 9(2), 112 – 118.

Ede, A. N. (2010). Building collapse in Nigeria: The trend of casualties in the last decade (2000 – 2010). International Journal of Civil and Environmental Engineering, 10(6), 32 – 40.

Ede, A. N. (2019). Building collapse in Nigeria: The trend of casualties in the last decade (2009 - 2019). Nigeria Journal of Construction Technology and Management, 10(1), 35 – 42.

Fagbenle, O. (2020). Causes and prevention of building collapse in Nigeria. International Journal of Built and Sustainability, 7(2), 34 – 41.

FEMA, (2020). Best practices in building safety and collapse prevention. Federal Emergency Agency.

Oke, A.E. (2019). Construction stakeholders and building collapse in Nigeria. *Construction and Building*, 19(2), 87 - 98.

Okonkwo, M. (2021). Building failures in West Africa: Afield survey. Journal of Civil Engineering Research, 29(1), 50 – 67.

Oladapo, A. A. (2022). Professional negligence and enforcement gaps: A legal review of Ikoyi building collapse. Journal of African Urban Development, 5(4), 47 – 59.

Ogunsemi, D. R. (2018). Causes and effects of building collapse in Nigeria. International Journal of Civil Engineering Research, 6(1), 15 -28.

Oyadokun, J. O., Ayinla, A. K., Amao, F. L. (2025). Understanding Building structures by Architecture students: An antidote to collapse of buildings in Nigeria. Iconic Research and Engineering Journals, 9(6), 114 – 124.

Singh, R. and Patel, A. (2023). Aging infrastructure and risk. International Review of Structural Safety, 35(2), 91 – 108.