



# Building Collapse Mitigation: Roles of Builders and Challenges

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*Received:* 30 December 2024 | *Accepted:* 22 January 2025 | *Published:* 02 March 2025

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## Abstract

The menace of building collapses worldwide has been a subject of immerse concern among stakeholders within the construction industry. The implications of such incidents extend beyond the mere destruction of physical structures, encompassing the loss of human lives and financial investments, while also raising significant questions regarding the competencies of construction professionals, particularly builders, who bear the responsibility for overseeing construction processes. This study examined the critical roles of builders in mitigating building collapses in Nigeria, as well as the challenges that impede their effectiveness in this regard. Employing a survey research design, the study utilized a purposive sampling technique to gather data. A structured questionnaire was designed and administered to registered builders in Lagos, with the resulting data analyzed using descriptive statistical methods. The findings reveal that the pivotal roles of builders in preventing building collapses include the accurate interpretation of construction drawings, management of construction processes, and the preparation of project quality management plans. However, the study identifies several challenges confronting builders, notably a public ignorance of the roles of builders, lack of collaboration with other construction professionals, the non-engagement of builders in projects, and the low enforcement of enabling laws that supports their practice. These factors collectively undermine their capacity to address building collapse risks effectively. The study recommends the widespread enlightenment campaigns to educate the public and stakeholders about the critical contributions of builders to construction safety and quality on the roles of Builders in the construction industry and also the adoption and enforcement of the National Building Code across all states to guide the construction processes and prevent building collapses.

**Keywords** Building collapse, Builders, Roles of Builders, Building production management

## 1. Introduction

The frequent phenomenon of building collapses within the construction industry has emerged as a pressing concern in developing nations (Nicholas et al., 2022). This condition manifests when a building fails to fulfill its primary objectives of providing stability, comfort, and safety, owing to the partial or complete breakdown of its constituent elements. In Nigeria, the incidence of building collapses has witnessed a marked increase over recent decades. Studies has revealed a significant increase in the frequency of building collapses, with certain regions demonstrating a higher prevalence than others. Notably, Lagos State has been disproportionately impacted, as evidenced by a multitude of reported cases in recent years (Awoyera et al., 2021; Eze et al., 2024). Comparable trends have been observed in other regions, including Abuja, Rivers State, Ondo Stat and Anambra State, where substantial occurrences of structural collapse have also been recorded (Abiola et al., 2024; Akuboh & Aimola, 2025; Obiora et al., 2022). The alarming rise in building collapses across Nigeria has been attributed to a confluence of factors. These include poor construction methodologies, defective design practices, unauthorized modifications to structures, the utilization of inferior materials, the absence of professional oversight in construction processes, and inadequate enforcement of regulatory frameworks (Akuboh & Aimola, 2025; Awoyera et al., 2021; Ma'aruf et al., 2023; Orikpote et al., 2023). Collectively, these deficiencies have precipitated a high frequency of structural failures, resulting in fatalities, bodily injuries, property destruction, squandered financial

resources, and broader economic repercussions (Adenuga, 2020; Adenuga et al., 2022). Beyond these immediate consequences, such incidents undermine public confidence, deter investment within the construction industry, and cast a slur on the professional competency of building practitioners tasked with the design and supervision of construction activities (Obiora et al., 2022). Central to the assurance of structural integrity is the critical roles of builders, who bear responsibility for the execution and management of construction works, as well as the supervision of onsite personnel (NBC, 2006; Osuizugbo, 2020). Within the Nigerian construction sector, the duties of builders are multifaceted, encompassing the entire lifecycle of a building; from initial planning through to completion and post-occupancy maintenance. Builders are entrusted with the translation of construction drawings into tangible structures, employing labor, materials, equipment, and other resources to achieve this end (Leo-olagbaye et al., 2023; Ogunbiyi, 2015). The National Building Code [NBC] (2006) imposes upon builders the obligation to prepare a series of essential documents, including those pertaining to construction health and safety, the construction programme of work, the maintenance manual, the construction methodology, and the project quality management plan. These responsibilities are undertaken to ensure that clients receive optimal value for their investment, while simultaneously upholding quality and safety standards that contribute to the long-term sustainability of the construction sector (Obaju et al., 2022). Notwithstanding the pivotal role builders play within the construction industry, there remains a paucity of research examining their critical contributions to mitigating building collapses and the challenges that hinder their effective performance, particularly in the context of Nigeria. Consequently, this study seeks to examine the critical roles of builders in mitigating against building collapses, while also identifying the challenges they encounter in executing these duties effectively. The findings of this research are expected to heighten public awareness regarding the enhancement of building safety and the prevention of structural failures. Furthermore, the study aims to bolster the professionalism of builders and provide insights that will inform the development of more robust regulatory frameworks and policies against building collapses in Nigeria

## 2. Materials and Methods

This research employed a survey research design, targeting registered builders in Lagos State as the study population to ensure the collection of rich and detailed data pertinent to the research objectives. This selection was further justified by the state's high concentration of construction activities and the enactment of the Urban and Regional Planning and Development Law 2010 (URPDL), which regulates physical planning, urban development, and building control within Lagos State (Mrabure & Awhefeada, 2020; Odediran et al., 2013). A purposive sampling technique was utilized to select the sample from this population. Primary data were gathered through a well-structured questionnaire administered to the selected respondents via an online survey platform (Google Forms). Additionally, secondary data were obtained through a comprehensive literature review, encompassing books, academic journals, and periodicals relevant to the research topic. The collected data were analyzed using descriptive statistical methods, including simple proportions, percentages, frequency tables, mean item scores, and standard deviations.

## 3. Results and Discussions

### 3.1 Response rate of respondents

The table below illustrates that only 106 members of the Nigerian Institute of Building [NIOB] Lagos State Chapter responded to the questionnaire, which was distributed via their WhatsApp platform. This response rate represents 33.7% of the total, which is noteworthy for an online survey (Wu et al., 2022). This response rate suggests that the 106 respondents may represent more active members rather than the entire 315, and their responses provided significant insights with the study's goal.

**Table 1.** Response rate

<b>Response</b>	<b>Number</b>
Questionnaires administered	315
Questionnaire Received	106
Response Rate	33.7%

### 3.2 Characteristics of Respondents

Table 2 shows the educational attainment of the 106 respondents, revealing that 69.8% hold a first degree (HND/BSc), 22.6% possess a Master's degree, while 5.7% and 1.9% of the respondents are in possession of Ph.D. degrees and Postgraduate Diplomas, respectively. These findings indicate that the respondents are equipped with

the requisite academic qualifications to participate effectively in the research study. Further examination of Table 2 shows the distribution of professional experience within the construction industry among the respondents. The data indicates that 31.1% of participants have accrued less than 10 years of experience, whereas 51.9%—encompassing those with 16-20 years and over 20 years—possess more than 15 years of experience. This distribution indicates that the respondents' group as a whole possesses a great deal of experience and seasoned competence in the construction industry. Regarding the types of projects executed by the respondents, Table 2 illustrates that 59.2% are engaged in residential building projects, 28.3% are involved with commercial building projects, while 5.7% and 2.8% participate in infrastructure and industrial building projects, respectively. These statistics imply that the projects represented in this study predominantly reflect a market propelled by housing demands and urbanization.

**Table 2.** Details of  
Respondents

<b>Respondents' Details</b>	<b>Frequency</b>	<b>Percentage</b>
<i>Respondents Educational Qualification</i>		
PhD	6	5.7
MSc	24	22.6
PGD	2	1.9
HND/BSc	74	69.8
<i>Years of Experience</i>		
1-5	1-5	1-5
6-10	6-10	6-10
11-15	11-15	11-15
16-20	16-20	16-20
Over 20	Over 20	Over 20
<i>Type of Project Undertaken</i>		
Residential buildings	Residential buildings	Residential buildings
Commercial buildings	Commercial buildings	Commercial buildings
Industrial buildings	Industrial buildings	Industrial buildings
Infrastructure	Infrastructure	Infrastructure

### 3.3 Critical Roles of Builders in Mitigating Building Collapses

To evaluate the critical roles of builders in mitigating building collapses, as perceived by the respondents, a five-point Likert scale was employed: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. Table 3 presents the mean scores and corresponding rankings of the critical roles of builders in preventing building collapses within the context of this study. The data reveal that all mean scores surpass 4.0, indicating that respondents consider each responsibility to be of substantial importance in averting structural failures. Notably, the responsibility rated most critical, "Accurate interpretation of construction drawings," achieved a mean score of 4.78. This role is instrumental in enabling builders to translate architectural and engineering plans into tangible structures, while also facilitating buildability and maintainability analyses and the preparation of requisite documentation for construction processes (Obaju et al., 2022; Osuizugbo & Ojelabi, 2020). Furthermore, it ensures that builders possess a comprehensive understanding of precise structural requirements and load-bearing specifications, thereby minimizing the likelihood of construction errors. Such clarity is essential for preserving the integrity of the design and mitigating potential vulnerabilities that could precipitate a building collapse.

Other highly ranked critical roles of builders in preventing building collapse, "Management of construction processes" (4.76) and "Preparation of project quality management plan" (4.73) occupy the second and third positions, respectively. Studies by NIOB (2002), Obaju et al., (2022) Ogunbiyi (2015) and Osuizugbo and Ojelabi (2020) identified the management of construction processes as a pivotal function of builders within the building production process. This responsibility ensures compliance with design specifications, safety regulations, and material standards, thereby mitigating the likelihood of structural deficiencies. Through meticulous supervision of construction personnel, materials, and quality assurance protocols, builders can address risks associated with substandard workmanship or material degradation, preventing these issues from culminating in catastrophic structural failures. Furthermore, builders assume a vital role in formulating a project quality management plan, ensuring that construction methodologies, materials, and structural designs adhere to established safety benchmarks and specifications, directly contributing to the reduction of collapse risks. Okonta et al., (2024) corroborate that the active participation of builders, alongside other stakeholders, enhances the overall quality,

safety, and longevity of constructed edifices, facilitating the early detection of potential vulnerabilities and thereby preventing structural failures during or post-construction.

**Table 3.** Critical responsibilities of Builders in mitigating Building Collapses

<b>Builders' Roles</b>	<b>Mean</b>	<b>Rank</b>
Preparation of the buildability and maintainability analysis report for the building project	4.66	7
Preparation of the project quality management plan	4.73	3
Preparation of the construction health and safety document	4.45	11
Preparation of the construction programme of work document	4.69	4
Preparation of the building maintenance manual	4.48	10
Preparation of materials, labourers, and plant schedule	4.42	12
Preparation of a predesigned technical report and environmental impact analysis report	4.18	13
Preparation of an early warning system	4.09	14
Preparation of construction methodology	4.68	5
Management of construction processes	4.76	2
Monitoring and evaluation of building projects	4.67	6
Certification of quality materials to be used	4.59	9
Material selection and testing	4.62	8
Project monitoring and enforcement	4.59	9
Accurate interpretation of construction drawings and documents	4.78	1
Correct utilization of resources on site	4.68	5

### 3.4 Challenges faced by Builders in mitigating against Building Collapses in Nigeria

In evaluating the challenges encountered by builders in their efforts to prevent building collapses in Nigeria, data were collected from respondents utilizing a Likert scale with the following designations: 1 - Strongly Disagree, 2 - Disagree, 3 - Neutral, 4 - Agree, and 5 - Strongly Agree. Table 4 represents the respondents' rankings of the challenges confronting builders in mitigating building collapses. The findings indicate that the predominant impediments include public ignorance regarding the roles of builders, a lack of collaboration among professionals within the built environment, non-engagement of builders in construction projects, and low enforcement of enabling legislation to support their practice. The perception of public ignorance concerning the roles of builders reflects a prevalent conviction among respondents that the general populace lacks comprehension of builders' responsibilities. This observation corroborates the findings of Ekekezie et al., (2022), who identified a deficiency in public awareness of builders' roles as a significant factor impeding their involvement in building production management on project sites. Such a lack of awareness and misapprehension of their professional duties may undermine the recognition of builders' expertise, potentially leading to the employment of unqualified practitioners, the use of substandard materials, and the neglect of safety protocols. Collectively, these factors may elevate the risk of building collapses. Additionally, the absence of collaboration among professionals in the built environment emerges as a significant barrier for builders. Studies by Kawu (2013) and Ma'aruf et al. (2023) underscore that the absence of collaboration among professionals constitutes a substantial hazard. This disconnection may precipitate a series of risks, including defective designs, disregarded standards, and unaddressed errors, which builders alone are ill-equipped to rectify. The prevention of building collapses necessitates a cohesive strategy characterized by seamless information exchange, clearly delineated responsibilities, and a collective commitment to prioritizing safety over insular practices. For builders, promoting proactive communication and advocating for integrated project management represent critical steps toward ameliorating these deficiencies.

The issue of non-engagement of builders in construction projects has been identified as a significant challenge within the industry. Nwachukwu et al., (2016) observed that builders are not adequately involved in project execution. This lack of participation heightens the risk of building collapse by restricting their ability to provide essential oversight, expertise, and quality assurance. Consequently, this exclusion contributes to errors in implementation, suboptimal material utilization, and breaches of regulatory standards. Such marginalization presents a formidable obstacle for builders, who must navigate this exclusion while endeavouring to affirm their

indispensable role in upholding the structural safety and integrity of construction initiatives. Another critical impediment faced by builders in preventing building collapses is the low enforcement of enabling legislation intended to bolster their professional practice. This challenge substantially exacerbates the incidence of building collapses (Falana & Ipindola, 2020; Mrabure & Awhefeada, 2020), with profound consequences for safety, accountability, and the construction sector at large. This enabling laws encompasses regulations, codes, and standards established to ensure builders' active involvement in building production management and adherence to safe construction methodologies. Weak enforcement of these legal frameworks gives rise to numerous issues that undermine builders' capacity to avert structural failures. The overlapping of roles by other professionals also presents a significant challenge for builders in fulfilling their duties to prevent building collapses. This overlap of roles among professionals can profoundly affect builders, creating obstacles in their efforts to ensure structural integrity. Nicholas et al., (2022) observed that building professionals in Nigeria often adopt a “jack of all trades” approach, assuming a broad spectrum of responsibilities throughout the construction process. Such challenges typically emerge when various stakeholders—architects, engineers, contractors, and regulatory inspectors—either exceed the boundaries of their designated roles or fail to establish clear distinctions in their respective functions. This can result in confusion, miscommunication, and deficiencies in accountability. By promoting clarity in role delineation and fostering effective collaboration, the construction industry can mitigate these risks, thereby enhancing building safety, and reducing the incidence of collapses.

**Table 4.** Challenges faced by Builders in Mitigating against Building Collapses

Challenges faced by Builders	Mean	Rank
Non- Engagement of Builders in projects	4.35	3
Low enforcement of enabling laws to support their practice	4.25	4
conflict of interest among professionals	3.41	8
Shortage of professional builders	3.55	7
Lack of collaboration with other professionals in the built environment	4.46	2
Overlapping of roles by other professionals	4.01	5
Client interference in project	3.73	6
Public ignorance of the roles of builders	4.60	1

## 4. Conclusion

This study examined the roles of builders in averting building collapses and identified the challenges they encounter in executing their responsibilities effectively. The results indicate that builders play a pivotal role in forestalling building collapses through the precise interpretation of construction documentation, oversight of construction operations, and assurance of project quality. However, in discharging these crucial duties, builders face substantial obstacles, including a lack of public awareness regarding their professional functions, inadequate collaboration with allied professionals, and exclusion from project involvement. These findings highlight a systemic challenge within the construction sector, wherein builders are insufficiently recognized and supported, notwithstanding their indispensable role in safeguarding structural integrity. The study advocates for the implementation of targeted public awareness initiatives to inform both the general populace and key stakeholders about the vital contributions of builders to structural safety, thereby addressing the pervasive issue of public ignorance. Furthermore, it proposes the establishment of structured frameworks to enhance communication and coordination between builders and other construction professionals. Policy advocacy is also recommended to ensure the consistent inclusion of builders in all building projects, thereby optimizing the application of their expertise. Additionally, the research underscores the necessity of ongoing professional development and training programs for builders to bolster their competencies and adaptability, enabling them to navigate industry challenges while upholding elevated standards of practice.

## Declarations

**Data availability** Data will be made available upon reasonable request.

**Funding** This study received no funding.

**Competing interests** Authors declare no known competing or financial interests.



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