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ASSESSMENT OF STRUCTURAL RISK FACTORS AND THEIR IMPACT ON THE INSURABILITY OF ENGINEERING FACILITIES IN ANAMBRA STATE, NIGERIA

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Abstract

Engineering facilities the buildings, infrastructure, and installed plant that make up the physical asset base of property and facilities management portfolios face a wide range of structural risks that shape not only their safety and serviceability but also their insurability. In Nigeria, and particularly in Anambra State, recurring building collapses, foundation failures, and premature structural deterioration have exposed a weak link between structural risk assessment practice and insurers' underwriting decisions. This study examines the principal structural risk factors affecting engineering facilities in Anambra State and analyses how these factors shape insurability outcomes: risk acceptance, premium rating, policy exclusions, and claims exposure. Drawing on documented building-failure records, regulatory instruments including the Nigerian Insurance Industry Reform Act, 2025 and established risk and insurance theory, the study develops a Structural Risk–Insurability Assessment Framework. The framework links foundation and geotechnical conditions, construction material quality, design and supervision competence, environmental exposure (notably the flooding- and erosion-prone areas of Anambra State), and maintenance culture to four core insurability principles: insurable interest, risk homogeneity, moral hazard, and the economic feasibility of the premium. The study further proposes a structured, survey-based methodology for empirically validating the framework among built-environment professionals, facilities managers, and insurance practitioners in Anambra State. The secondary evidence reviewed indicates that structural risk in the study area is dominated by human and regulatory failures substandard materials, poor supervision, and weak enforcement compounded by environmental exposure. These are precisely the factors insurers are most likely to treat as uninsurable, or to price with loaded premiums and exclusion clauses. The paper recommends mandatory pre-insurance structural risk audits, closer collaboration between facilities managers and risk engineers, and stronger enforcement of statutory building and insurance compliance as mechanisms for improving both the structural safety and the insurability of engineering facilities in the State.

Keywords: *Structural Risk Factors; Insurability; Engineering Facilities; Building Collapse; Risk Assessment; Facilities Management; Anambra State*

1. Introduction

Engineering facilities buildings, structural infrastructure, and the systems embedded within them are among the most capital-intensive components of the built environment, and a core concern of property and facilities management practice. How well they perform over their life cycle depends on the interaction of design, materials, construction workmanship, operating environment, and ongoing maintenance. When any one of these elements is deficient, the facility becomes exposed to structural risk: the probability that a structural element or system will fail to perform its intended function, potentially resulting in partial or total collapse, loss of life, property damage, and business interruption.

Structural risk is not merely a technical or engineering concern. It carries direct financial and contractual consequences through its effect on insurability the extent to which a risk can be accepted by an insurer at a commercially viable premium. Insurers judge insurability against established underwriting principles: the existence of insurable interest, the ability to pool a large number of similar exposures, the fortuitous (accidental, non-deliberate) nature of the peril, the absence of excessive moral hazard, and the calculability of loss. Facilities with poorly understood or poorly documented structural risk are difficult for insurers to price accurately. They are, as a result, either declined cover, offered cover with heavy loadings and exclusions, or under-insured relative to their true value.

Nigeria's built environment has recorded a rising incidence of structural failure and building collapse over the past two decades, with Anambra State emerging as one of the states most affected. Reviews of documented incidents point to a familiar combination of causes: substandard construction materials, weak project supervision, unauthorized design alterations, poor foundation practice, and environmental stressors such as flooding and gully erosion the last of which is especially severe in parts of Anambra State. These are precisely the variables that determine whether a facility is insurable, and on what terms. Yet the relationship between structural risk assessment, as practiced by engineers and facilities managers, and insurability decisions, as practiced by insurers and underwriters, remains weakly integrated in the Nigerian context. Many property owners and facility operators only encounter the insurability implications of structural deficiencies after a loss event when a claim is repudiated or a policy turns out to exclude the very peril that has occurred.

This study responds to that gap. It assesses the structural risk factors most relevant to engineering facilities in Anambra State and examines how these factors translate into insurability outcomes, with a view to proposing a practical framework that facilities managers, engineers, insurers, and regulators can use to improve both the safety and the insurability of the State's built assets.

Facilities and property managers in Anambra State are increasingly required to secure insurance cover for the engineering facilities under their management whether to satisfy statutory requirements, lender covenants, or ordinary risk management practice. Yet structural risk assessment in the State, where it happens at all, is largely conducted as a stand-alone engineering or regulatory exercise, disconnected from the criteria insurers actually apply when determining insurability.

The result is a recurring mismatch. Facilities that appear structurally acceptable to their owners are frequently found, at the point of claim, to fall outside the insurer's risk appetite, to be inadequately rated, or to be caught by exclusion clauses relating to foundation failure, flood damage, or poor maintenance. Meanwhile, the persistently high incidence of building collapse and structural distress documented in Anambra State suggests that the underlying drivers substandard materials, weak supervision, non-compliant design, and environmental exposure are not being systematically identified, measured, or communicated in a form that supports sound underwriting. This study is therefore concerned with the weak integration between structural risk assessment and insurability determination for engineering facilities in Anambra State, and the resulting exposure of owners, occupiers, and the insurance industry to unquantified and often uninsured structural risk.

This study is expected to benefit several groups of stakeholders. Facilities and property managers gain a structured basis for anticipating how structural conditions will be viewed by insurers, enabling more informed decisions on maintenance investment and risk transfer. Insurers, reinsurers, and risk engineers gain a locally grounded set of structural risk indicators that can inform underwriting guidelines and pricing models for the Anambra and wider South-East Nigeria market. Regulators and professional bodies gain evidence supporting stricter enforcement of building control and the newly expanded compulsory insurance obligations under the Nigerian Insurance Industry Reform Act, 2025. Finally, the study adds to the still-thin body of Nigerian literature that connects structural engineering risk directly to insurance and risk management theory, rather than treating the two as separate fields of practice.

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2. Literature Review

2.1 Conceptual Clarification: Structural Risk and Engineering Facilities

For the purposes of this study, and in the context of property and facilities management (ISO, 2018), engineering facilities refer to the physical structures and associated building systems foundations, superstructure, envelope, and structural services that together enable a facility to fulfil its intended function safely over its design life. Structural risk is the probability and consequence of a structural element or system failing to perform this function, ranging from minor cracking and deflection to partial or total collapse. Structural risk factors the conditions, practices, or exposures that increase this probability are generally grouped into three families: human-related factors (design error, poor workmanship, weak supervision), material-related factors (substandard or improperly specified materials), and environmental factors (soil conditions, flooding, erosion, seismicity, and climatic stress).

2.2 Structural Risk Factors in the Nigerian and Anambra State Built Environment

A substantial body of Nigerian research links building collapse and structural distress to a recurring set of causes: poor construction practices, substandard materials, unqualified artisans, inadequate regulatory enforcement, neglected soil investigation and load-bearing analysis, overloading, faulty foundations, inadequate supervision, poor drainage, and unauthorized design alteration alongside natural factors such as heavy rainfall, flooding, erosion, and windstorms (Windapo & Rotimi, 2012; Okechukwu et al., 2021). Industry analysis attributes roughly half of collapse incidents to faulty design, around forty per cent to construction-site faults, and the remainder to product or material failure, underscoring that structural risk in Nigeria is overwhelmingly a human and organizational phenomenon rather than a purely natural one.

Evidence specific to Anambra State reinforces this pattern while adding a pronounced environmental dimension. A comparative review of reported building collapses found that Anambra State recorded 48 documented collapse incidents between 2008 and 2024 exceeding the 30 recorded in the Federal Capital Territory over the same period with at least 57 confirmed deaths and over 172 injuries attributable to these failures (Akuboh, 2026). The leading causes identified were sub-standard building materials, structural failure, heavy rainfall and flooding, and unprofessional practice, including violation of building approvals and regulations.

A separate analytical study of building collapse causes in Anambra State similarly identifies heavy rainfall, poor-quality materials, hurried construction, structural compromise, flooding, defective foundations, absence of building approval, and weak monitoring by relevant authorities as recurring causal themes, drawing on incidents documented over a ten-year period (Nwigwe et al., 2024). A case-level investigation of a collapsed structure in Oko, Anambra State, attributed the failure to a combination of weak foundation conditions, an inappropriate concrete mix, substandard materials, inadequate reinforcement, and poor project supervision (Okechukwu et al., 2021) a pattern that mirrors the State-wide trends identified in the broader reviews.

Anambra State's exposure to heavy seasonal rainfall, its generally low-lying topography in parts of the State, and severe gully erosion together add a distinct environmental layer to its structural risk profile relative to many other Nigerian states (Akanwa et al., 2022). Flood events have historically caused large-scale displacement in parts of the State, and the same hydrological conditions that drive that displacement also degrade foundations, saturate subsoils, and accelerate the deterioration of structural elements compounding the human and material risk factors identified above.

2.3 Concept and Principles of Insurability

Insurability refers to the extent to which a given risk can reasonably be underwritten by an insurer (Berliner, 1982; Rejda & McNamara, 2017). Classical insurance theory sets out several conditions a risk should broadly satisfy to be considered insurable: there must be a large number of similar exposure units, allowing losses to be pooled and predicted using the law of large numbers; the loss must be accidental or fortuitous rather than intentional; the loss must be definite and measurable in terms of cause, time, place, and amount; the potential loss must not be so catastrophic or correlated across the portfolio as to threaten the insurer's solvency; the premium charged must be economically feasible relative to the value at risk; and the party seeking cover must hold an insurable interest in the subject matter (Vaughan & Vaughan, 2014).

Structural risk factors interact directly with each of these conditions. A facility whose foundation condition is undocumented, for example, undermines the insurer's ability to measure loss potential. A facility with a documented history of unauthorized alteration or unapproved construction raises questions about moral hazard and fortuity. And facilities in flood-prone parts of Anambra State raise concerns about correlated, catastrophic exposure across an insurer's portfolio.

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2.4 Insurance and Risk Engineering Practice in the Nigerian Construction and Facilities Sector

Insurance has long been recognized as one of the principal mechanisms for managing construction and structural risk in the Nigerian built environment, alongside engineering and administrative controls (Mills, 2001). Evaluations of insurance use on Nigerian construction sites have found that all-risk policies are the most commonly used instrument for managing site-level construction risk (Odeyinka, 2000), and that a positive relationship exists between the sum insured and the actual replacement cost of the asset when losses occur (Adeleke et al., 2013) implying that accurate risk assessment at the point of underwriting has a direct bearing on the adequacy of eventual claims settlement. At the same time, studies of compliance with statutory builder's risk insurance requirements in Nigeria have found that construction professionals are generally aware of such requirements but do not consistently treat insurance as a binding project requirement, revealing an implementation gap between insurance regulation and site practice (Oduoza & Odimabo, 2013).

This gap has become the subject of recent regulatory reform. The Nigerian Insurance Industry Reform Act, 2025 (NIIRA 2025) strengthens the compulsory insurance regime for buildings, requiring builders' liability insurance before construction begins on any building of more than two floors, and extending compulsory insurance to public buildings such as schools, hospitals, shopping malls, hotels, and other publicly accessible facilities, with significant financial and custodial penalties for non-compliance (Federal Republic of Nigeria, 2025). Industry commentary suggests that, because insurers assume financial liability once a risk is underwritten, mandatory insurance is expected to incentivize closer scrutiny of construction quality, greater use of certified professionals, and improved monitoring of engineering standards prior to underwriting in effect turning the insurer into an additional layer of structural risk oversight alongside statutory building control.

This reform raises the practical stakes of a well-defined structural risk assessment framework of the kind proposed in this study, since insurers operating under NIIRA 2025 will need a structured, defensible basis on which to assess the structural risk of the facilities they are now compelled to underwrite. More broadly, risk engineering practice the systematic identification and evaluation of hazards affecting a property's insurability typically begins with a physical assessment of construction type, structural condition, age, maintenance history, and exposure to environmental hazards such as flood zones, using this assessment to inform underwriting terms. This well-

established international approach provides a natural bridge between the engineering-oriented structural risk literature reviewed above and the insurability principles set out in Section 2.3, and forms the conceptual basis of the framework developed in Section 4.4.

2.5 Theoretical Framework

This study is anchored on two complementary theoretical perspectives. The first, risk-based underwriting theory, holds that insurers price and accept risk in proportion to the probability and severity of loss associated with the specific characteristics of the insured asset; under this theory, structural risk factors function as rating variables that determine premium loading, policy exclusions, or outright decline of cover. The second, systems theory, applied to the built environment, treats a structure as an interdependent system in which deficiencies in one sub-system foundation design, say propagate risk to other sub-systems, such as superstructure integrity, and ultimately to the facility's overall performance and safety.

Read together, these theories suggest that structural risk factors should not be assessed in isolation but as an interacting system whose cumulative effect determines the insurability profile of the facility as a whole a proposition that informs the integrated framework presented later in this paper.

2.6 Identification of the Research Gap

The Nigerian literature on structural risk is dominated by studies that identify and rank the causes of building collapse using case investigation, documentary analysis of reported incidents, or professional questionnaire surveys, typically categorizing risks as economic and financial, socio-political, human-related, physical, environmental, and legal (Oyewande, 1992; Akuboh, 2026). Separately, the insurance and construction economics literature examines the extent of insurance uptake, compliance with statutory insurance requirements, and the adequacy of insured sums relative to replacement cost (Odeyinka, 2000; Adeleke et al., 2013).

What is comparatively absent from the Nigerian literature, and from the Anambra State literature specifically, is a study that explicitly connects the two streams one that examines how the structural risk factors documented by engineering researchers are, in practice, treated by insurers when determining insurability, premium, and claims outcomes for engineering facilities. This study addresses that gap by proposing an integrated structural risk–insurability framework and a corresponding empirical methodology for its validation in Anambra State.

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3. Methodology

3.1 Study Area

The study is set in Anambra State, in the south-eastern geopolitical zone of Nigeria. The State comprises twenty-one Local Government Areas and is characterised by a rapidly growing urban building stock, particularly in Awka (the State capital), Onitsha, and Nnewi, alongside extensive residential and commercial development in peri-urban and rural communities. Its terrain includes low-lying riverine areas prone to seasonal flooding, particularly along the Niger and Anambra river systems, and upland areas affected by severe gully erosion. These physical characteristics, combined with rapid and often informally supervised construction activity, make Anambra State a suitable and relevant setting for studying structural risk and its insurability implications.

3.2 Research Design

The study adopts a mixed-method, descriptive survey design combined with documentary analysis of secondary evidence. The documentary component, reported in Section 4, synthesises published records of structural failure incidents and existing empirical studies to establish the pattern and ranking of structural risk factors in the study area. The survey component, described below, is designed to empirically validate and extend this secondary evidence through the perceptions and experience of built-environment and insurance professionals directly involved in the assessment, management, and underwriting of engineering facilities in Anambra State.

3.3 Population and Sampling Technique

The target population comprises built-environment and insurance professionals practising in Anambra State: registered architects, builders, civil/structural engineers, estate surveyors and valuers, facilities managers, and insurance underwriters or risk engineers handling property risks in the State. A stratified random sampling technique is proposed, with strata defined by professional category, to ensure adequate representation of both the structural risk assessment side (engineering and facilities management professionals) and the insurability determination side (underwriting and risk engineering professionals) of the phenomenon under study. Sample size should be determined using an appropriate formula such as the Taro Yamane method, applied to the sampling frame obtainable from the relevant professional bodies' Anambra State chapters for example, the Nigerian

Institute of Building, the Nigerian Society of Engineers, the Nigerian Institution of Estate Surveyors and Valuers, and the Chartered Insurance Institute of Nigeria.

3.4 Instrumentation and Data Collection

A structured questionnaire is proposed as the principal data collection instrument, organised around the study's specific objectives: Section A capturing respondent and facility profile; Section B eliciting perceived severity and frequency of the structural risk factors identified in the literature review, rated on a five-point Likert scale; Section C eliciting perceptions of how each risk factor affects insurability outcomes acceptance, premium loading, exclusion, claims repudiation; and Section D capturing open-ended observations on gaps between structural risk assessment and underwriting practice. The instrument should be validated through expert review and a pilot study before full administration, and supplemented, where feasible, by key-informant interviews with underwriters and structural engineers and by site-level observation of a sample of engineering facilities in Awka, Onitsha, and Nnewi.

3.5 Method of Data Analysis

Quantitative data generated from the proposed survey would be analysed using descriptive statistics frequencies, percentages, mean scores, and standard deviation to establish the relative severity and ranking of structural risk factors, and inferential techniques such as correlation or regression analysis, or the Relative Importance Index commonly used in Nigerian construction management research, to test the strength of association between structural risk factors and insurability outcomes such as premium loading. Qualitative data from open-ended items and interviews would be analysed thematically to contextualise the quantitative results.

3.6 Reliability and Validity

Content and face validity of the instrument should be established through review by academic and industry experts in facilities management, structural engineering, and insurance underwriting. Reliability of the Likert-scale sections should be tested using Cronbach's alpha, with a threshold coefficient of 0.70 or above generally regarded as acceptable for exploratory research of this kind.

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3.7 Limitations of the Study

The findings of this paper rest on secondary evidence documented collapse records and published studies rather than on primary survey data. Incident records in Nigeria are known to undercount actual failures, and the absence of systematic exposure data limits actuarial precision. The survey methodology presented in Sections 3.3 to 3.6 is proposed, and its administration remains necessary work for validating the framework with primary field data. The conclusions drawn here should therefore be read as theoretically grounded and evidence-informed, but provisional pending that empirical validation.

4. Analysis and Discussion of Secondary Evidence

4.1 Documented Structural Failure Incidence in Anambra State

Table 1 summarizes secondary evidence on the incidence and consequence of documented building collapse in Anambra State, drawn from a comparative review of reported incidents across the State between 2008 and 2024 (Akuboh, 2026).

Indicator	**Anambra State (2008–2024)**	**FCT–Abuja (2008–2024)**
Documented collapse incidents	48	30
Confirmed deaths	At least 57	64
Confirmed injuries	At least 172	At least 84
Leading causes identified	Sub-standard materials; structural failure; heavy rainfall/flooding; unprofessional practice and regulatory violation	Sub-standard materials; structural failure; unprofessional practice and regulatory violation

Table 1. Documented building collapse incidence, Anambra State vs. FCT–Abuja (2008–2024). Source: compiled from Akuboh (2026).

Although Anambra State recorded fewer deaths than the FCT over the review period, it recorded substantially more incidents, and more than double the injuries and has, on recent trends, overtaken the FCT to become the state with the second-highest incidence of building collapse in Nigeria after Lagos. This pattern is consistent with a structural risk profile driven by a high volume of moderate-to-severe failures rather than a small number of catastrophic ones, which has particular significance for insurability: a high-frequency, moderate-severity loss pattern is, in principle, more amenable to actuarial pricing than a low-frequency, high-severity one, provided insurers have reliable exposure data which, as noted in Section 2.6, is presently limited in the Nigerian context.

4.2 Ranking of Structural Risk Factors from the Literature

Table 2 consolidates the structural risk factors most consistently identified across the reviewed Nigerian and Anambra-specific studies, grouped by category, together with an indicative assessment of their relevance to insurability drawn from the insurance and risk engineering principles discussed in Section 2.3.

Category	**Representative structural risk factors**	**Primary insurability concern raised**
Geotechnical / foundation	Inadequate soil investigation; faulty or under-designed foundations; construction on unsuitable or unstabilized soil	Loss measurability; pre-existing / latent defect exclusions
Materials and workmanship	Substandard or under-strength concrete and reinforcement; poor block quality; unqualified artisans	Moral hazard; deliberate cost-cutting affecting fortuity
Design and supervision	Defective structural design; inadequate site supervision; unauthorized design alteration	Warranty of professional compliance; claims repudiation risk

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Regulatory compliance	Construction without approval; non-adherence to the National Building Code; weak monitoring by development control authorities	Insurable interest and legality of subject matter; statutory compliance conditions in policy
Environmental exposure	Heavy rainfall, flooding, gully erosion, poor site drainage	Correlated / catastrophic loss potential; flood zone rating and exclusions
Maintenance and age	Deferred maintenance; ageing structural systems; change of use / overloading	Facility Condition Index as a rating input; increasing loss frequency over policy term

Table 2. Structural risk factor categories and their primary insurability concerns.

The pattern in Table 2 confirms the theoretical expectation set out in Section 2.5: structural risk in Anambra State is systemic, with human, regulatory, and environmental factors reinforcing one another rather than acting independently. From an insurability standpoint, the most consequential factors are those clustered around materials, workmanship, and regulatory compliance, because these bear directly on moral hazard and on the insurer's ability to rely on the fortuity of loss. A facility built with known substandard materials, or without statutory approval, presents underwriting difficulties quite distinct from and generally more severe than a facility exposed only to ordinary environmental perils.

4.3 Linking Structural Risk Factors to Insurability Outcomes

Building on Table 2 and the insurability principles reviewed in Section 2.3, structural risk factors in Anambra State can be expected to affect the insurability of engineering facilities through four principal channels:

1. Risk acceptance: facilities with visible or documented deficiencies in foundation condition, unauthorized construction status, or location within a recognized flood or erosion corridor are

more likely to be declined outright or referred for specialist risk engineering assessment before cover is offered.

2. Premium rating: where cover is offered despite elevated structural risk, insurers are expected to apply loadings that reflect the severity and correlation of the risk factors present, particularly for flood and erosion exposure, which raises concerns about aggregated, portfolio-wide loss.
3. Policy exclusions and warranties: insurers commonly respond to unresolved structural risk not by declining cover altogether, but by attaching exclusion clauses for example, excluding subsidence, flood, or losses arising from unapproved alterations or warranties requiring periodic structural inspection and maintenance as a condition of continued cover.
4. Claims outcomes: where a loss event occurs, the presence of undisclosed or pre-existing structural risk factors particularly substandard materials or unauthorized construction is a common ground for claims repudiation or reduced settlement, converting what should have been an insured loss into an uninsured one for the property owner.

4.4 Proposed Structural Risk–Insurability Assessment Framework

Synthesizing Sections 2 to 4.3, this study proposes a four-stage Structural Risk–Insurability Assessment Framework for engineering facilities in Anambra State

(Figure 1):

1. Stage 1: Structural risk identification: systematic documentation of the geotechnical, material, design/supervision, regulatory-compliance, environmental, and maintenance factors set out in Table 2, using facility condition assessment and, where available, geotechnical and structural surveys (Mills, 2001; Oduoza & Odimabo, 2013).
2. Stage 2: Risk severity and correlation scoring: rating each identified factor by likely severity of consequence and by the extent to which it correlates with other facilities in the insurer's portfolio, particularly relevant for the flood and erosion exposure common across Anambra State.
3. Stage 3: Insurability determination: applying the classical insurability principles (insurable interest, fortuity, measurability, absence of excessive moral hazard, economic feasibility of premium, and non-catastrophic correlation) to the scored risk profile, to determine whether and on what terms the facility should be accepted for cover.

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4. Stage 4: Feedback to structural risk management: using the insurer's or risk engineer's findings to inform the facilities manager's maintenance and capital investment priorities, closing the loop between underwriting assessment and ongoing structural risk control.

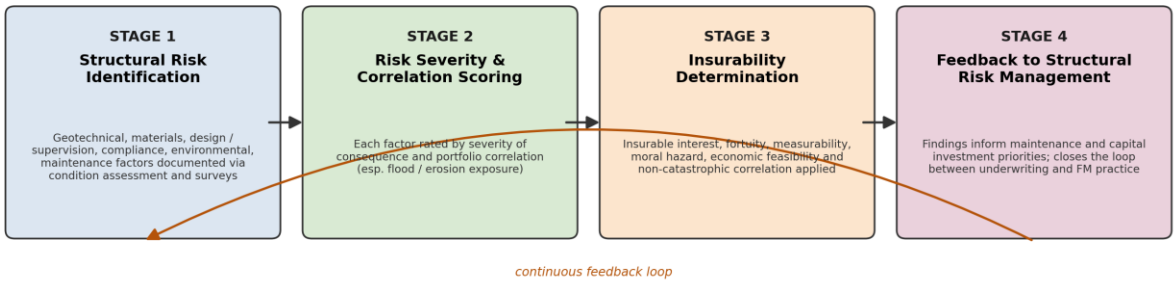


Figure 1. Proposed Structural Risk–Insurability Assessment Framework.

This framework positions the facilities manager as the operational link between the structural condition of the asset and its insurability status, and is intended to be tested empirically using the survey methodology set out in Section 3.

5. Implications for Stakeholders

For facilities and property managers, the framework implies that routine structural condition assessment through a Facility Condition Index or comparable metric, for example should be treated as an input to insurance placement, not merely to maintenance planning. For insurers and risk engineers, the study suggests that underwriting guidelines for Nigerian engineering facilities, particularly those in flood- and erosion-prone parts of Anambra State, should explicitly incorporate the categories of structural risk factor identified in Table 2, rather than relying primarily on generic property class ratings. For regulators and professional bodies, the findings support closer coordination between building control authorities and insurance regulators in implementing NIIRA 2025, so that statutory approval status and documented structural compliance can be used directly as inputs to insurability determination. For property owners and occupiers, the study underscores a simple point: the affordability and reliability of insurance cover for a facility is, in practice, a direct function of the same structural risk factors that determine its physical safety.

6. Conclusion

Structural risk factors and insurability are two sides of the same coin for engineering facilities in Anambra State. The documented pattern of building collapse and structural distress in the State driven substantially by substandard materials, weak supervision, regulatory non-compliance, and pronounced environmental exposure to flooding and erosion is also, largely, the pattern of factors that insurers would treat as grounds for declining cover, loading premiums, attaching exclusions, or repudiating claims. This study has reviewed the relevant Nigerian and Anambra-specific evidence (Oyewande, 1992; Akanwa et al., 2022; Akuboh, 2026), related it to established insurability theory (Berliner, 1982; Rejda & McNamara, 2017; Vaughan & Vaughan, 2014), and proposed an integrated Structural Risk–Insurability Assessment Framework together with a survey-based methodology for its empirical validation. Closing the gap between structural risk assessment and insurability determination through routine condition assessment, locally calibrated underwriting practice, and stronger regulatory coordination (Adeleke et al., 2013; Federal Republic of Nigeria, 2025) offers a practical pathway to improving both the physical safety and the financial resilience of engineering facilities in Anambra State (Odeyinka, 2000).

7. Recommendations

1. Mandatory pre-insurance structural risk audits should be instituted for engineering facilities above a defined value or storey threshold in Anambra State, aligned with the compulsory insurance provisions of NIIRA 2025.
2. Facilities managers should adopt a documented Facility Condition Index, or an equivalent structural condition metric, as a standing input to insurance renewal and placement.
3. Insurers and risk engineers operating in the Anambra State market should develop locally calibrated underwriting guidelines that explicitly weight flood and erosion exposure, given the State's pronounced environmental risk profile.
4. Development control authorities and insurance regulators should establish a formal data-sharing arrangement so that building approval and compliance status can inform insurability determination.
5. Professional bodies in engineering, facilities management, and insurance should collaborate on joint continuing-professional-development programmes to build a shared understanding of structural risk assessment and insurability.

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6. The empirical survey methodology proposed in Section 3 should be administered to a representative sample of built-environment and insurance professionals in Anambra State, to validate and refine the proposed framework with primary field data.

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