

Manuscript ID : 00000-55010

International Journal of Civil Engineering and Technology

Volume 9, Issue 9, September 2018, Pages 1675-1681, Page Count - 7



Source ID : 00000001

## STRUCTURAL FORM WORKS AND SAFETY CHALLENGES: ROLE OF BAMBOO SCAFFOLD ON COLLAPSE OF REINFORCED CONCRETE BUILDINGS IN NIGERIA

Anthony Nkem Ede <sup>(1)</sup> Oluwarotimi Michael Olofinnade <sup>(2)</sup> Paul Oluwaseun Awoyera <sup>(3)</sup>

<sup>(1)</sup> Department of Civil Engineering, College of Engineering, Covenant University, Ota, Nigeria.

<sup>(2)</sup> Department of Civil Engineering, College of Engineering, Covenant University, Ota, Nigeria.

<sup>(3)</sup> Department of Civil Engineering, College of Engineering, Covenant University, Ota, Nigeria.

### Abstract

*Bamboo scaffold serves as provisional structure to support people, materials, structures under construction and for maintenance works in most developing nations of Africa and Asia. But the risk posed by the use for construction in nations like Nigeria where collapse of reinforced concrete buildings is frequent have not been researched upon in the past. This research looks at the hazard posed by adopting bamboo scaffolds in construction in Nigeria. A total of 102 collapsed reinforced concrete buildings were revisited. Structural health monitoring tools, expert judgment and statistical measures were used. Results showed that over 20% of the collapse cases considered are at the risk of being caused by failure of overloaded bamboo scaffolds.*

### Author Keywords

Bamboo scaffolds, Building Collapse, Rainstorm, Reinforced Concrete, Structural Health Monitoring

### Acknowledgement

The management of Covenant University is appreciated for financial assistance for this publication

**ISSN Print:** 0976-6308

**Source Type:** Journals

**Publication Language:** English

**Abbreviated Journal Title:** IJCIET

**Publisher Name:** IAEME Publication

**Major Subject:** Physical Sciences

**Subject area:** Civil and Structural Engineering

**ISSN Online:** 0976-6316

**Document Type:** Journal Article

**DOI:**

**Access Type:** Open Access

**Resource Licence:** CC BY-NC

**Subject Area classification:** Engineering and Technology

**Source:** SCOPEDATABASE

### Reference

#### References (22)

1. Wong, K.W  
Bamboo scaffolding: safety management for the building industry in Hong Kong

(1998) Hong Kong Polytechnic University,

---

2. Which is safer: metal or bamboo scaffolding?

(2017)

Article Link: <http://boards.straightdope.com/sdmb/showthread.php?t=325995>

---

3. Awoyera, P. O., A.N. Ede  
Bamboo versus Tubular Steel Scaffolding in Construction: Pros and Cons

(2017) *Reference Module in Materials Science and Materials Engineering*,

---

4. Ede, A.N., Olofinnade, O.M., Sodipo, J  
Use of Building Information Modelling Tools for Structural Health Monitoring

(2017) *International Conference on Computing, Networking and Informatics*, Page No 235-238,

---

5. Ede A. N. and Pascale G  
Structural Damage Assessment of FRP Strengthened Reinforced Concrete Beams under Cyclic Loads

(2016) *Materials Science Forum*, Volume 866, Page No 139-142,

DOI: [doi.org/10.4028/www.scientific.net/MSF.866.139](https://doi.org/10.4028/www.scientific.net/MSF.866.139)

---

6. Ede A. N., Bonfiglioli B., Pascale G. and Viola E., A  
Dynamic Assessment of Damage Evolution in FRP- Strengthened RC Beams

(2004) *Proceedings of the International Conference on Restoration, Recycling and Rejuvenation Technology for Engineering and Architectural Application*, Page No 155-163,

---

7. Code of Practice for Metal Scaffolding Safety, Hong Kong: Occupational Safety and Health Branch

(2001)

---

8. Hong Kong SAR Government  
Code of Practice to enhance work safety in metal scaffolding [online] Hong Kong: Hong Kong SAR Government

(2017)

Article Link: <http://www.info.gov.hk/gia/general/200108/19/0817119.htm>

---

9. Chung, K.F. and Siu, Y. C  
Erection of bamboo scaffolds

(2002) Hong Kong: Hong Kong Polytechnic University,

---

10. Why Hong Kong Prefers Bamboo Over Steel Scaffolding

(2017)

Article Link: <https://expats.hk/1421-hong-kong-bamboo-vs-steel>

---

11. HKICM  
PNCM 2: Bamboo Scaffolding

(2003) Hong Kong Institute of Construction Managers,

Article Link: <http://www.hkicm.org.hk/pdf/HKICM-PNCM2-TW01.pdf>

12. Hong Kong's `spiders` stick to bamboo scaffolding

(2009)

---

13. Olaiya F

The Use of Bamboo in Nigeria

(2011) *University of Ado Ekiti*,

---

14. Ede A.N

Structural Stability in Nigeria and Worsening Environmental Disorder: the Way Forward

(2010) *The West Africa Built Environment Research Conference Accra Ghana, Page No 489-498*,

---

15. Oloyede, S. A., Omoogun, C. B., & Akinjare, O. A

Tackling Causes of Frequent Building Collapse in Nigeria

(2010) *Journal on sustainable development, Volume 3, Issue 3, Page No 127-132*,

---

16. Ayodeji, O

An Examination of the Causes and Effects of building Collapse in Nigeria

(2011) *Journal of Design and Built environment, Volume 9, Issue 1, Page No 37-47*,

---

17. Ede A.N

Measures to Reduce the High Incidence of Structural Failures in Nigeria

(2011) *Journal of Sustainable Development in Africa, Volume 13, Issue 1, Page No 153-161*,

---

18. Ede, A., Bamigboye, G. O., Omole, D. O., Olofinnade, O. M., Adeyemi, G., & Ngene, B. U

Impact of Reliable Built Structures in Driving the Sustainable Development Goals: a look at Nigerian Building Structures

(2016) *International Conference on African Development Issues, Page No 369-372*,

---

19. Ede A.N

Challenges Affecting the Development and Optimal Use of Tall Buildings in Nigeria

(2014) *International Journal of Engineering and Science, Volume 3, Issue 4, Page No 12-20*,

---

20. Ede, A. N

Building Collapse in Nigeria: the Trend of Casualties the Last Decade (2000- 2010)

(2010) *International journal of Civil & Environmental Engineering, Volume 10, Page No 32-36*,

---

21. Windapo, A. O., & Rotimi, J. O

Contemporary Issues in Building Collapse and Its Implications for Sustainable Development. Buildings

(2012) *Volume 2, Issue 3, Page No 283-299*,

---

22. Akinyemi, A. P., Dare, G. M., Anthony, A. I., & Dabara, D. I

Building Collapse in Nigeria: Issues and Challenges

(2016) *Conference of the International Journal of Arts & Sciences, Page No 99-108*,

---

Scope Database Link: <https://sdbindex.com/documents/00000001/00000-55010.pdf>

Article Link: [https://iaeme.com/MasterAdmin/Journal\\_uploads/IJCIET/VOLUME\\_9\\_ISSUE\\_9/IJCIET\\_09\\_09\\_161.pdf](https://iaeme.com/MasterAdmin/Journal_uploads/IJCIET/VOLUME_9_ISSUE_9/IJCIET_09_09_161.pdf)

---

## **About Scope Database**

What is Scope Database

Content Coverage Guide

Scope Database Blog

Content Coverage API

Scope Database App

© Copyright 2021 Scope Database, All rights reserved.

## **Customer Service**

Help

Scope Database Key Persons

Contact us