



# CONSTRUCTION RESEARCH JOURNAL

AN ANNUAL JOURNAL OF THE DEPARTMENT OF BUILDING  
UNIVERSITY OF LAGOS, LAGOS, NIGERIA  
*Promoting growth and development of the Construction Industry through Research*

VOLUME 1, NUMBER 1, DECEMBER 2007



## THE MAIDEN ISSUE OF THE JOURNAL

The maiden issue of the Journal contains eight research papers. The papers cover five main areas of construction namely: procurement, housing, management, health and safety and maintenance. The titles of the papers in each of the five areas are listed as follows:

	<b>Page</b>
<b>Procurement</b>	
• Priorities in Nigerian Public Project Implementation: Expectations from Consultants and Contractors .....	10 - 14
• Evaluation of the Use of Design-Bid-Build Procurement System in the Nigerian Construction Industry .....	15 - 25
<b>Housing</b>	
• A Study of Factors affecting the Affordability of Urban Housing in Nigeria	26 - 36
<b>Management</b>	
• Relationship Management in Relationship Contracting Projects: A Case Study of Adelaide Convention Centre .....	37 - 45
• Assessment of the Sustainability of Public Buildings in Lagos, Nigeria. ....	46 - 54
• Assessment of Buildability Performance in a Housing Estate in Lagos, Nigeria .....	55 - 64
<b>Health and Safety</b>	
• A Comparative Evaluation of Health and Safety Performance of Indigenous and Multinational Construction Firms in Nigeria .....	65 - 75
<b>Maintenance</b>	
• Appraisal of Maintenance Management Strategies used in Public Hospital buildings in Lagos State, Nigeria .....	76 - 86

The Editorial Board hopes that these papers will contribute towards the improvement of the construction industry in general.

Managing Editor

## CONSTRUCTION RESEARCH JOURNAL EDITORIAL BOARD

**Editor:** Head, Department of Building, University of Lagos, Lagos, Nigeria

**Editor in Chief:** Professor R. R. Iyagba, Department of Building, University of Lagos, Lagos, Nigeria

**Managing Editor:** Dr. G. I. Idoro, Department of Building, University of Lagos, Lagos, Nigeria

### Journal Publishing Board

Chairman - Head of Department of Building, University of Lagos, Lagos, Nigeria

Editor in Chief - Professor R. R. Iyagba,

Department of Building, University of Lagos, Lagos, Nigeria

Deputy Editor in Chief - Dr. K. T. Odusami

Department of Building, University of Lagos, Lagos, Nigeria

Managing Editor - Dr. G. I. Idoro

Department of Building, University of Lagos, Lagos, Nigeria

### Members:

Dr. O. E. Ogunsanmi, Department of Building, University of Lagos, Lagos, Nigeria

Dr. (Mrs) A. O. Windapo, Department of Building, University of Lagos, Lagos, Nigeria

Dr. M. O. Dada, Department of Building, University of Lagos, Lagos, Nigeria

Mr. H. O. Onukwube, Department of Building, University of Lagos, Lagos, Nigeria

Mr. J. O. Ameh, Department of Building, University of Lagos, Lagos, Nigeria

Secretary - Mr. O. A. Adenuga, Department of Building, University of Lagos, Lagos, Nigeria

### Editorial Advisers:

Professor S. O. Ogunlana - Asian Institute of Technology, P O Box 4, Klong Luang, Pathum Thani, 12120, Thailand

Professor R. R. Iyagba - University of Lagos, Lagos, Nigeria

Professor Akintola Akintoye - Glasgow Caledonian University, Glasgow, Scotland, UK

Dr. K. T. Odusami - University of Lagos, Lagos, Nigeria

Dr. H. A. Odeyinka - University of Ulster, Newtownabbey, Belfast BT 370QB, UK

Dr. (Mrs) M. M. Omirin - University of Lagos, Lagos, Nigeria

Dr. O. E. Ogunsanmi - University of Lagos, Lagos, Nigeria

Dr. I. A. Okewole - Obafemi Awolowo University, Ile-Ife, Nigeria

Dr. D. R. Ogunsemi - Federal University of Technology Akure, Nigeria

Mr. M. B. Olufowobi - University of Lagos, Lagos, Nigeria

Dr. O. S. Oyediran - University of Lagos, Lagos, Nigeria

Dr. M. O. Dada - University of Lagos, Lagos, Nigeria

Dr. (Mrs.) A. O. Windapo - University of Lagos, Lagos, Nigeria

Dr. G. I. Idoro - University of Lagos, Lagos, Nigeria

## APPRECIATION

The Editorial Board of the Journal expresses deep appreciation to the researchers listed below for their academic support for this maiden issue of the Journal.

Professor Stephen O. Ogunlana.  
School of Engineering and Technology, Asian Institute of Technology, P O Box 4, Klong Luang,  
Pathum Thani, 12120, Thailand

Dr. I. A. Okewole  
Department of Urban and Regional Planning, Obafemi Awolowo University, Ile-Ife, Nigeria

Dr. Leke Oduwaye  
Department of Urban and Regional Planning, University of Lagos, Lagos, Nigeria

Dr. Chotchai Chareonngam.  
Associate Professor,  
School of Engineering and Technology, Asian Institute of Technology, P O Box 4, Klong Luang,  
Pathum Thani, 12120, Thailand

Professor F. A. Falade  
Department of Civil and Environmental Engineering, University of Lagos, Lagos, Nigeria

Dr. B. H. W. Hadikusumo  
Assistant Professor,  
School of Engineering and Technology, Asian Institute of Technology, P O Box 4, Klong Luang,  
Pathum Thani, 12120, Thailand

Dr. S. O. Oyediran  
Department of Building, University of Lagos, Lagos, Nigeria

Dr. Ranjith Perera  
Assistant Professor,  
School of Environment, Resources and Development, Asian Institute of Technology, P O Box 4,  
Klong Luang, Pathum Thani, 12120, Thailand

Dr. O. E. Ogunsanmi  
Department of Building, University of Lagos, Lagos, Nigeria

Dr. Edsel E. Sajor  
Assistant Professor,  
School of Environment, Resources and Development, Asian Institute of Technology, P O Box 4,  
Klong Luang, Pathum Thani, 12120, Thailand

Professor Alfred Ngowi  
Faculty of Engineering, University of Botswana, Gaborone, Botswana.

Dr. Yoshitaka Kato  
Assistant Professor,  
School of Engineering and Technology, Asian Institute of Technology, P O Box 4, Klong Luang,  
Pathum Thani, 12120, Thailand

Professor Steve M. Rowlinson  
Department of Real Estate and Construction, University of Hong Kong, Pokfulam Road, Hong  
Kong.

Professor Moham Kumaraswamy  
Department of Civil and Structural Engineering, University of Hong Kong, Pokfulam Road, Hong  
Kong.

Dr. Andi  
Department of Postgraduate Programme in Construction Management, Petra Christian  
University, Jalan Swalankerto, Surabaya, Indonesia

Dr. K. T. Odusami  
Associate Professor  
Department of Building, University of Lagos, Lagos, Nigeria

Dr. Ruthavoot Ronthankoom  
Department of Civil Engineering, Siam University, Bangkok, Thailand

Dr. Wannawit Thaemthong, Department of Civil Engineering, King Monkut University of  
Technology, North Bangkok, Bangkok, Thailand

Dr. Sdhabhon Bhokha  
Associate Professor,  
Ubonratchatani University, Ubonratchatani, Thailand

Professor R. R. Iyagba  
Department of Building, University of Lagos, Lagos, Nigeria

Dr. Carlos T. Fomoso  
University of Rio Grande, Federal University of Rio Grande do Sul, Porto Alegre-RS, Brazil

Professor Akintola Akintoye  
School of Built and National Environment, Glasgow Caledonian University, Glasgow, Scotland,  
UK

Dr. (Mrs) A. O. Windapo  
Department of Building, University of Lagos, Lagos, Nigeria

Dr. M. O. Dada  
Department of Building, University of Lagos, Lagos, Nigeria

Professor Richard Fellows  
School of Built and Natural Environment, Glasgow Caledonian University, Glasgow,  
Scotland, UK

Mr. M. B. Olufowobi  
Associate Professor  
Department of Building, University of Lagos, Lagos, Nigeria

Dr. Henry Agboola Odeyinka  
School of Built Environment, University of Ulster, Newtownabbey,  
Belfast BT 37 OQB, UK

Dr. G. I. Idoro  
Department of Building, University of Lagos, Lagos, Nigeria

The Editorial Board equally appreciates the support of the following organisations in providing the fund used for the production of the Journal:

UACN Property Development Company Plc, Lagos, Nigeria  
Intercontinental Homes (Savings & Loans) Limited, Victoria Island, Lagos, Nigeria

Dr. G. I. Idoro  
Managing Editor

## APPRAISAL OF MAINTENANCE MANAGEMENT STRATEGIES USED IN PUBLIC HOSPITAL BUILDINGS IN LAGOS STATE, NIGERIA.

O. A. Adenuga, R. O. Iyagba, K. T. Odusami, and O. E. Ogunsanmi  
Department of Building, University of Lagos

### ABSTRACT

*This study focuses on the evaluation of maintenance management strategies used in public hospital buildings in Lagos state. It also assesses the labour composition of maintenance operations. In achieving these objectives, opinions of maintenance officers of ten (10) hospitals in different local government areas of the state were sampled through well-structured questionnaires. The data collected were analyzed using descriptive and inferential statistics. From the analysis, the study reveals that majority of public hospitals do not have specific budget for maintenance programmes, maintenance policies, maintenance log book and maintenance manual to guide the operatives. About 98% of the sample does not understand the type of maintenance strategy being used for their maintenance operations. 78% of the maintenance work are only executed when there is a breakdown or in response to users' request. For labour composition, the cleaning of interior and exterior of the building, inspection of building elements, repairs and replacements of building elements are mainly carried out by in-house staff, while the repair and replacement of equipment is by outsourcing. The study also reveals that executing maintenance programmes using outsourcing gives latest innovations in technologies to work done and better access to special skills than in-source. In-source method, gives reduction in cost of operation, higher security, more flexibility in staffing, better adjustment to workload fluctuation and reduction in equipment downtime than out-source. Both methods claim to produce special expertise in labour, better control of services and higher quality of work. The study recommends proactive measures such as providing necessary training and support for maintenance staff and users of*

*these facilities and the provision of sufficient funds for maintenance programmes.*

**KEYWORDS:** Maintenance management, Maintenance strategy, Hospital building and Public hospital.

### BACKGROUND TO THE STUDY

It is highly desirable but hardly feasible to produce buildings that are maintenance-free, although much can be done at the design stage to reduce the volume of subsequent maintenance work. All elements of buildings deteriorate at a rate that is dependent on materials and methods of construction, environmental conditions and the use of the building. Building maintenance has often been neglected in the industry especially in the public sector. This is due to the fact that there is a preference for new buildings compared to the maintenance of existing ones. However, lack of adequate maintenance of buildings makes the environment decay and depress the quality of life. The condition of buildings also reflects public pride and affects the value of the buildings as well as adjoining buildings. Currently and for the future, the public needs to be re-educated that management and maintenance of existing properties is part of the overall process of building development. This means that planning, designing, construction and management is a cycle. Also, the availability of funds for capital developments calls for a need to have a better maintenance culture. Maintenance according to Smith (2003) means to keep in its existing state, preserve, continue in good operating condition; and protect. The RICS/ISVA working committee defined maintenance as "work undertaken in order to keep, restore or improve every facility, to an acceptable standard and to sustain utility and

