Civil and Environmental Research
ISSN 2224-5790 (Paper) ISSN 2225-0514 (Online)
Vol.10, No.5, 2018

The Maintenance of Tertiary Institution Buildings in Ondo State, Nigeria: Practice, Problem and Prospect.

Alejo, Ayodele Oluwole

Building Technology Department, Rufus Giwa Polytechnic, Owo, Nigeria.

E-mail; ayourlejo@yahoo.com.

Abstract

Maintenance is the preservation of buildings in their initial functional, structural, aesthetic state, so that they continue to remain in such healthy state and retain their value and standard for a long period of existence. The aim of research is to know the maintenance techniques employed in the tertiary institutions, examine the physical state of building within the study area and evaluate the challenges facing maintenance of the tertiary institution buildings with proffer solutions. Data for this study were collected through personal observation, desk research, oral interview and convenient sampling techniques was used to distribute the questionnaire and it was concluded from the findings that: corrective maintenance is the most applicable technique employed in the study area: roof leakages was the major defects in buildings and major challenge facing maintenance of tertiary institution buildings is finance. Finding also revealed that most of the tertiary institutions in ondo state have works and maintenance unit with sustainable maintenance policy, their staff needs adequate training and necessary update on how to execute maintenance work. Furthermore, inadequate expenditure in maintenance, shortage of staff, lack of maintenance specialist and poor resources management are the deficiencies that inhibits maintenance discharge in the study area. It was recommended that there should be adoption of corrective maintenance buildings in the study area should be regularly maintained to guide against roof leakage, cracks on the wall and maintenance work should be adequately finance.

Keywords: Maintenance, Tertiary Institutions, Defects, Culture, Infrastructural facilities

Introduction

During the life span of a building, there is a wishful thought to produce buildings that are maintenance free, unfortunately it is very difficult to achieve due to the rate at which building deteriorate overtime because of its environmental conditions, initial design, construction technique, the nature and attitude of end user(s); hence such thought is left in the imaginary world to exist.

Majority of private and public buildings in Nigeria are faced with maintenance challenges resulting in ultimate defects and deteriorations of various degrees. It is common knowledge that the deplorable state of public facilities in Nigeria poses great concern to stakeholders, facilities at Nigeria's airports, hospitals, schools, roads e.t.c would give indication that the society lacks an agent that would have helped manage, ensure effective and efficient functioning of the facilities as well as fostering national development , Nahimah (2008)

One of the catalysts of national development is sound and qualitative education which could be achieved only in an orderly, safe and conducive learning environment that is hardly found in our society. The state of infrastructural facilities from the basic schools to the tertiary institutions is devastating and worrisome; the state of the facilities may truncate the Zeal of students to achieve best in their academic pursuit. Noted by Lateef et. al. (2010) that researches in the past have affirmed a strong correlation between the performance of educational buildings and quality of education, because buildings are critical factors in achieving desirable outcome for tertiary institutions. Universities buildings require maintenance in order to create a conducive environment that supports and stimulates learning, teaching, innovation and research.

Tertiary institution as argued by Akinsola et.al. (2012) is considered throughout the whole world to be key to both individual and societal aspirations. Furthermore, tertiary institution being known as high education of

studying is define as the aggregate to systematized knowledge and practical skills to be solved by a given type of training utilizing and creatively developing the modern achievements to science, technology and culture, Zavadekas (2006)

Adenuga (2010) opined that in Nigeria, public buildings are in very poor and deplorable conditions of structural and decorative disrepairs. Adejimi(2005) attributed the number of abandoned and epileptically functioning facilities in Nigeria to inadequate or lack of maintenance. This is directly in line with Fanie et.al.(2004) who reported that lack of maintenance by the authorities and occupants in tertiary institution buildings ultimately reduce the life of these buildings. This therefore promotes the need for study maintenance of tertiary institution buildings in Ondo state with view to proffering relevant solutions.

Literature

A building is an asset whose value changes in line with the quantity and quality of maintenance invested in and they are procured to create a conducive and adequate environment that can support, encourage and stimulate teaching and learning, innovation and research activities. Setback in the supply of these essential services is loss in value of the building to the institution, Olarenwaju (2009). Tertiary institution is believed to be a major engine of equal opportunity, social justice in order to serve the current population of students, tertiary institutions must be maintained, renovated and expand their buildings where necessary, workshops and laboratories must be equipped to meet the require standard for tertiary institutions, Akinsola et,al. (2012). The state and performance of the tertiary institution buildings and their components depends in large extend on continuous and planned periodical maintenance, which challenges the manager and management, to establish precise planning based on a well structure maintenance programe, Lateef et. al, (2010)

Maintenance of building received little attention from the users, designers and contractors, Siyanbola et.al, (2013). Gross neglect of maintenance coupled with other factors such as structural failure which may be due to poor design, poor construction, settlement, act of God, poor materials, defect of component part including joints and connections has led to the state of structures of most federal universities today, Samuel Oluwole et.al,(2016). Building maintenance has until recently been a neglected field of technology. It possesses little glamour and is unlikely to attract very much attention (Baba and Buba, 2013).

BS 3811(1984) defines maintenance as work undertaken in order to keep or restore every facility of the building that is every part of a site, building and contents to an acceptable standard. While Ajibola (2009) defined maintenance as the work that is done regularly to keep a machine, building or a piece of equipment in good conditions. Adeleye (2009) saw maintenance as involving keeping mechanized infrastructure and equipment in operational condition for conditional use. Bamigboye (2006) posits that maintenance is the art of bringing back the operating condition to asset into normal functioning at a minimal cost capable of enhancing the life span of the item. A thorough compliance to a well defined and developed maintenance strategy will take care of facility break down or malfunction there by allowing facility managers to concentrate on capitalization (Omotehinshe et.al. 2015 and Akinyemi et. al, 2016). Odediran et. al, (2012) stated that the ability of a building to provide the required environment for a particular activity is a measure of its functionality.

Hence, Kunya (2012) carried out maintenance operation on sub structural and super structural components in housing facilities, on substructure he catalogue rising dampness, foundation failure and floor slab failure while in super structure he catalogue peeling of wall surfaces, openings defects (doors and windows), sagging of beam and leaking roof. From his findings he opined that maintenance culture requires the correct diagnosis of defects, sound technical knowledge of material usage, current remedial measures, management resources as well as the formulation and implementation of integrated plan and policies to sustain utility. According to Survaibatel et. al, (2012), maintenance culture is the way of thinking , values, perception, behavior and the underlying assumption of any group or society or person that considers maintenance as a matter that is vital and practices it in their life. Notwithstanding, it will be reasonable enough if maintenance culture is revived with concise and effective mode of operation, this will result to an appreciable reduction in cost of building maintenance; eradication of building

collapse will evolve, high risk of endangering the life of students and their properties in the tertiary institutions of Ondo state will come to the end.

Methodology

The target populations for this research are tertiary institutions in Ondo state (both state and federal institutions): Federal University of Technology, Akure (F.U.T.A), Federal college of Agriculture (FECA), Adeyemi college of Education (ACE), Adekunle Ajasin University, Akungba- Akoko (AAUA), Ondo state University of science and Technology, Okitipupa (OSUSTECH), Rufus Giwa Polytechnic, Owo (RUGIPO). Data collection was obtained through the use of questionnaire, personal interview and observations. Census sampling was carried out with a total of 100 questionnaires administered, 92 questionnaires were retrieved representing 92% of the total population which is considered sufficient for the study. Data gathered were analyzed using statistical tools such as descriptive method, mean and ranking.

Table 1.1: Defects in Buildings.

Defects In Building	Very Evident	More Evident	Moderately Evident	Evident	Not Evident	Mean	Ranking
Crack in the wall	44	4	24	6	14	3.6	2nd
Rising of Dampness	8	6	42	22	14	2.7	5th
Failure of door lock	30	38	12	20	2	2.3	6th
Leakage of roofs	40	32	14	6	Nil	4.2	1st
Floor slab failure	8	16	16	10	44	2.3	6th
Paint work failure	8	26	32	6	20	3.0	4th
Crumbling structure	Nil	10	18	10	54	1.8	8th
Smelling wall	Nil	2	22	24	44	1.8	8th
Bulging wall	2	6	22	26	36	2.0	7th
Foundation failure	4	Nil	12	6	70	1.5	9th
Roof defeats	30	18	14	26	4	3.5	3rd

Source: Author's field of survey, June, 2018

Table 1.1: Shows the significant of defects in the tertiary institution buildings. Leakage of roof has the highest mean of 4.2 and was ranked as first most significant defects in buildings, followed by cracks in the wall with mean 3.6 while other aspect of roof defects took third in ranking with mean of 3.5. Followed by other defects in building ranking, foundation failure has the lowest means of 1.0 which shows that they are not significant.

Table 1.2: Factors Affecting Building Expectancy

Factors	Extremely significant	Significant	Slightly Significant	Not Significant	Moderately Significant	Mean	Ranking
Quality of basic construction	22	52	12	Nil	6	3.9	2nd
Types of occupancy	26	54	8	Nil	4	4.1	1st
Quality of repair and maintenance	22	62	4	2	2	4.1	1st
Weather and environmental condition	Nil	30	30	30	2	3.0	3rd
Natural disaster	4	8	10	60	10	2.3	4th

Source: Author's field of survey, June, 2018

The above table indicates factors affecting building expectancy in the tertiary institution buildings. Types of building occupants and quality of repair and maintenance have the highest mean of 4.1 respectively. Quality of basic construction was ranked second with the mean score of 3.9, weather and environmental condition was third with mean of 3.0, while natural disaster had the lowest mean of 2.3 with no significant.

Table 1.3: Nature of Maintenance

Nature	Very applicable	More applicable	Moderately applicable	Applicable	Not applicable	Mean	Ranking
Servicing	18	24	36	6	8	3.4	3rd
Rectification	22	30	28	8	4	3.6	2nd
Replacement	4	40	36	10	2	3.4	3rd
Renovation and Modernisation	42	24	10	10	4	3.9	1st

Source: Author's field of survey, June, 2018

The table shows the nature of maintenance employed in the maintenance of tertiary institution buildings. The table shows that renovation and modernization have the highest mean 3.9 and indicated that renovation and modernization is the most practicable in maintenance of tertiary institutions buildings. Also, rectification work with mean of 3.6 was the second ranked most adopted nature of maintenance in tertiary institution buildings. While servicing and replacement with the least mean of 3.4 respectively shows that servicing and replacement are the least nature of maintenance adopted in tertiary institution buildings.

Table 1.4: Challenges facing building maintenance

Challenges	Extremely effective	Very effective	Effective	Slightly effective	Not effective	Mean	Ranking
Poor awareness and mobilization	28	24	12	12	16	3.4	4th
Finance	38	28	14	10	2	4.0	1st
Government Instability	10	24	26	20	12	3.0	6th
Social political factors	4	24	32	26	6	2.9	7th
Building materials	2	38	24	18	10	3.0	6th
Exotic taste	4	26	18	20	20	2.6	9th
Lack of maintenance	6	26	22	16	22	2.8	8th
Indiscipline/ignorance	12	26	10	28	10	3.0	6th
Bad economy	8	16	14	42	12	2.6	10th
Poor workmanship	6	22	34	18	12	2.9	7th
Inadequate maintenance tools	8	28	16	20	10	2.7	9th
Absence of maintenance plan	10	32	20	22	6	3.1	5th
Ineffective maintenance staff	32	16	26	12	8	3.6	3rd
Poor attitude to maintenance	36	32	8	8	8	3.9	2nd

Source: Author's field of survey, June, 2018

The above table shows the challenges faced on the maintenance of buildings and the survey revealed that finance has the highest means of 4.0 and was ranked as the first challenge confronted. Poor attitude to maintenance work has the second highest mean of 3.9 and was ranked the second, ineffective maintenance staff has the third highest mean of 3.6 and was ranked as third, while exotic taste and inadequate maintenance tools and bad economy has the least mean of 2.8, 2.7 and 2.6 respectively. They were ranked as the non- effective challenges to building maintenance.

Conclusion and Recommendation

The findings were done in the few selected tertiary institution in Ondo state, Nigeria and it clearer showed that maintenance of tertiary institution is very important. Maintaining the buildings of tertiary institution resuscitate the aesthetic of the institution. As academic performance influence the admission of the candidates, so also a well maintained institution structures entice students. The study has shown that maintenance has direct influence on the buildings of tertiary institutions. It was observed that corrective maintenance is a very common technique employed in tertiary institution, roof leakage was discovered, and it is also the major defect on buildings. Another major challenges facing maintenance of tertiary institution buildings are finance. Findings revealed that most of the tertiary institutions in study area have works and maintenance unit with sustainable maintenance policy and their staff needs adequate training with necessary update on how to execute maintenance work.

From the above finding analysis, the following measures are recommended in response to maintenance of tertiary buildings.

- There should be adoption of corrective and preventive maintenance as the most practicable techniques.
- Buildings should be well maintained to prevent cracks on the wall and leakage of roofs.
- Tertiary institution should maintain their buildings regardless the age of existence, to increase the building life expectancy, types of occupancy, quality of repair and maintenance should be put into consideration
- All tertiary institution should regularly finance the maintenance unit to adequately carry out maintenance work and every poor attitude to maintenance work should be sanctioned.

Reference:

Adejimi, A. (2005). Poor Building Maintenance are Architects Free from Blames? A Paper Presented at the ENHR International Conference on Housing: New Challenges and Innovations in Tomorrow's Cities. 2005.

Adenuga, O. A. (2010). Maintenance management practices in public hospital built environment: Nigeria case study. Journal of Sustainable Development in Africa 14(1), 185-201.

Adeleye, S. I. (2009). Maintenance practice in Nigeria: Policy, budgeting and legislative issues. A paper presented at sensitization campaign on Maintenance Culture Organized by National Orientation Agency, Oyo State Directorate, Ibadan.

Ajibola, J.K. (2009). Maintenance culture in Nigeria: problems and challenges. A paper presented at sensitization campaign on Maintenance Culture Organized by National Orientation Agency, Oyo State Directorate, Ibadan.

Akinsola,O.E, Hussain, P.O, Oyenuga S.O,Fatokun, A.O (2012) Critical Factors Influencing Facility Maintenance Management Tertiary Institutional Buildings in South west Nigeria. Meditarianean Journal of Social Science. Vol.3. No.11 P.490-49

Akinyemi, A. P., Gambo, M. D., Ankeli, I. A., & Dabara, I. D. (2016). Building collapse in Nigeria: Issues and Challenges. Conference of the International Journal of Arts and Sciences, 1st to 4th December 2015. Katholische Akademie der Erzdiozese Freiburg Germany. 09(01), 99 - `108. Available online at http://universitypublications.net/proceedings/0901/html/toc.html

Baba, S. W. & Buba, A. V. (2013) Evaluation of Factors Affecting Residential Building Maintenance in Nigeria: Users' Perspective. Civil and Environmental Research, No.8, available at www.iiste.org. Retrieved on May, 2018

Bamgboye, O. A (2006). 'Capacity Building As A Strategy For Sustainable Infrastructures Maintenance Culture", Paper presented at National Engineering Conference, Nigerian Society of Engineers, Gateway 2006,Abeokuta,Nigeria,December .

British Standard Institution (BS 3811) (1984). Glossary of general terms used in maintenance organisations. Blackwell Science Ltd, Oxford. U.K.

Fanie Buys and Raymond Nkado, (2004). A survey of Approach to Maintenance Mangement in Tertiary Institution in South Africa. Vol.5 No.9 Page 20-23.

Lateef, O. A., Khamidi, M. F. & Idrus, A. (2010). Building maintenance management in a Malaysian university campuses: a case study', Australasian Journal of Construction Economics and Building, 10 (1-2), 76-89.

Nahimah A.N. (2008). Poor Aircraft Maintenance Hinders Aviation Safety. Daily Trust, Pp 10-12.www.allafrica/stories/200804280730.

Odediran, S.J., Opatunji, O.Y. and Eghnure, F. O. (2012). Maintenance of Residential Buildings: Users' Practices in Nigeria. Journal of Emerging Trends in Economics and Management Sciences 3(3):261-265

Olanrewaju. A. (2009).Case for Alternative Approach to Building Maintenance Management of Public Universities. Journal of Building Appraisal. VOL. 5. Page 2-4.

Omotehinshe, O. J., Dabara, I. D. & Guyimu, J. (2015a). Design Inadequacies and the Maintenance of University Buildings in Ile Ife, Nigeria. Journal of Environment and Earth Science. 5(2), 175-187.Available online at http://iiste.org/Journals/index.php/JEES/article/view/19478

Samuel Olusola,.O, Douglas Omoregie, A, Ayodeji Emmanuel, O & Akinkunmi, T.(2016) Assessment of Maintenance Management Culture of Tertiary Institutions in Nigeria; Civil and Environmental Research www.iiste.org ISSN 2224-5790 (Paper) ISSN 2225-0514 (Online) Vol.8, No.6, 2016

Siyanbola, A.B., Ogunmakinde, O.E. and Akinola, A.A. (2013): Analysis of the Factors Affecting Building Maintenance in Government Residential Estates in Akure, Ondo State, Nigeria.

Zavadskas, E.K & Vilutiene T. (2006). A compararision of the Roof Maintenance Management System of Two Public Sector Organisation , Annual Conference of Canadian Society for Civil Engineering.