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## Appraisal Of Building Conditions In Public Secondary Schools In Onitsha, Nigeria

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### Abstract

*Part of the functional requirements of buildings is to provide safe and enabling environment for the performance of various human activities. Most buildings, however, begin to exhibit signs of deterioration with the advancement of time, even when all the original elements are replaced. A poorly maintained school building in a dilapidated environment hampers the quality of life and contributes largely to unfriendly behaviour amongst users and threatens its socio-political environment. There is an increased awareness that the conditions of buildings in public secondary schools in Nigeria are in deplorable conditions of infrastructural disrepair due to poor maintenance practices. This study therefore focuses on building conditions in public secondary schools in Onitsha, Nigeria with a view to determining the underlying factors responsible for the present conditions of buildings in the schools. A survey of seven (7) schools out of twenty three (23) public secondary schools was conducted. Data were obtained using structured questionnaire and observation schedule. These were subjected to descriptive statistical analysis. The results indicated that majority of the building elements in the schools were in deplorable conditions requiring either minor or major repairs. The results also showed that building dilapidations in the schools were due to lack of documented maintenance manuals to guide maintenance operations, engaging the services of unskilled professionals in maintenance, age of buildings, neglect, poor maintenance culture and poor maintenance funding. Based on the findings, the paper recommended that adequate measures be put in place to address the existing deficiencies in the building conditions in order to attain secure, comfortable and user-friendly environments that effectively support the delivery and realization of educational goals and objectives in those schools.*

**Keywords:** building conditions, environment, maintenance, public schools

### INTRODUCTION

Evidently, the conditions of buildings in schools in Onitsha, Anambra State, Nigeria, are not different from the general scenario in Nigeria, as a pilot survey of structures in public secondary schools there in 2018 confirmed. There was overwhelming evidence of the deplorable conditions of such buildings in the area. Some of the buildings were in various states of disrepair and would require some measures of maintenance to bring them to expected standards and structural quality. It was also observed during the survey that some of the buildings of the institutions had not been maintained since inception of the schools. It is noteworthy that Chukwumah and Ezeugbor (2015) corroborated this when they affirmed that the condition of many secondary schools in Anambra State (in general) and Onitsha in particular requires urgent attention, as shown by deteriorated buildings and other essential facilities such as furniture and equipment.

The consequences of these identified deficiencies constitute a major challenge in the quality of learning environment in the public secondary schools in Onitsha, Anambra State, Nigeria.

Furthermore, it has been stated that the condition and quality of buildings in which people live and carry out their daily activities reflects the well-being of the nation (Wordsworth, 2001). According to Abbot, Duling, Parsons and Schoeman (2007), the condition of buildings explains the quality of maintenance activities carried out on them as the quality of maintenance determines the remaining useful life of components. Basically, it is required that buildings provide safe and enabling environments for users to carry out various human activities. However, most buildings start deteriorating rapidly with age, even if all original components are replaced (Lyons, 2001). Therefore, as the building fabrics begin to age and impair in quality, it becomes pertinent that necessary measures are taken to ensure that the desired features of the building, which provide safety and convenience, are preserved by means of adequate maintenance.

It has been established in literature that some building standards and specifications are not in accordance with the expected changing needs of users, consequently, users are not always satisfied with the performance of their buildings (Ukoha, & Beamish, 1997; Kaitilla, 1993; Meir, Garb, Jiao, & Cicelsky, 2009; Zeiler & Boxem, 2008). It is evident that a number of reasons may be adduced on poor building performance leading to failure in meeting users' needs and expectations. One of the reasons is lack of building maintenance. Izobo-Martins, Ekhaese and Adewale (2015), highlighted that neglect of building maintenance, in most cases, gives rise to rapid increase in state of disrepair of the building elements and finishes which is also accompanied by harmful effects on the contents and users. It also stated that maintenance plays a crucial role in the performance of public secondary schools as their conditions can have an impact on performance of students. A school building that is poorly maintained in a decaying environment subdues the quality of life and could also give rise to anti-social behaviour amongst users which threatens the socio-political environment it finds itself in. Mutlaq (2002) emphasized that poor building conditions, can hamper learning as the physical conditions directly impact the general learning environment and the users. This, therefore, gives rise to the necessity for adequate maintenance works on the buildings to ensure safety of users and building contents as well as preserve the physical and operational conditions of the buildings at all times. In the light of this, Zubairu (1999) therefore, emphasised that assessment of a building's performance over a period is important as this fosters improvement in future endeavours.

This paper is part of a wider research on assessment of physical conditions of buildings for maintenance operations in the public secondary schools in in Onitsha, Anambra State, Nigeria. The study is aimed at assessing the physical conditions of buildings in public secondary schools in Onitsha, Nigeria, with a view to developing a framework for improved building maintenance operations in the area. This part of the study specifically sought to:

1. Examine the physical conditions of the building elements in the public secondary schools in Onitsha, Anambra State, Nigeria.
2. Determine the underlying factors responsible for the present conditions of building in the public secondary schools in Onitsha, Anambra State, Nigeria.

## **LITERATURE REVIEW**

### **Theoretical Framework**

#### **Harold Koontz's Condition Based School of maintenance theory**

This was among the six identified schools of maintenance theories proposed by Harold Koontz in 1961. The theory gives insight on the actual condition of the component or building assessed. It is concerned with the identification and measurement of parameters that can be used to identify or predict the onset of building failure. The information obtained from this predictive measure is then used to correct the condition of the building before the failure actually occurs. In the context of this research, the condition based school of thought approach to maintenance management was adopted to undergird this study. It focuses on the identification and measurement of parameters which can be used to identify or predict the onset of failures in buildings. The adoption of this approach was to ensure optimum service for buildings in the study area.

### **Review of Empirical literature**

#### **Overview of building conditions in the public secondary schools in Nigeria.**

The condition of buildings in public secondary schools in Nigeria has been variously established in Literature. Results from these studies indicate that most of the buildings in the schools were in poor conditions. The Federal Minister of Education, following a nation-wide tour of the schools in 1997, reported that the physical condition of most schools were pathetic which has negatively affected the education system at all levels (Teboho , 2000). The study also revealed that the existing building stocks in the schools were in a state of decay due to lack of maintenance and repair. Izobo-Martins, Dare-Abel, and Kunle (2014) similarly confirmed that most public secondary school buildings in Ogun State Nigeria are in very poor and deplorable conditions of infrastructural disrepair. Asiyai (2012) also reported that the condition of school facilities in the public secondary schools in Delta State, Nigeria were generally in a state of disrepair and the maintenance operations carried out on the school facilities were inadequate for majority of the facilities which led to excess pressure on available facilities. Some of the reasons for the deplorable situation in the schools are that the education sector, particularly its infrastructure, suffers lack of adequate maintenance attention. Teboho (2000) similarly noted that insufficient planning, funding and monitoring processes for the implementation of national policy on education as part of reasons for the deplorable condition of schools.

Furthermore, Tijani, Adeyemi and Omotehinshe (2016) attributed poor leadership, corrupt practices, attitudinal problem and lack of maintenance policy as part of the contributing factors to the menace. Other factors responsible for the current state of the buildings in the public secondary schools were users' attitude, maintenance culture and lack of fund (Izobo-Martins, Dare-Abel, & Ayo-Vaughan, 2014).

### **Factors Responsible For the Poor Building Conditions In The Public Secondary Schools**

Poor building conditions in public secondary schools have been caused by a number of factors. Some of those documented in literature are:

#### *Lack of maintenance manual*

Research has shown that there is no specific process adopted for maintenance activities in most public schools in Nigeria as maintenance works were done without documented guidelines for proper maintenance programmes. Segun and Onovughakpor (2014) confirmed that most schools do not have maintenance schedule based on properly drafted manual. This therefore, suggests that no clear performance indicators are set from the outset to measure effectiveness of the building maintenance in the schools. Some building conditions are therefore left to degenerate to very low grade as there are no guidelines or benchmarks for maintenance activities in the schools.

#### *Unskilled Professionals in maintenance operations*

It is evident from literature that buildings in the public schools are managed by people without basic knowledge of the negative impact of maintenance on building performance in the schools. Poor building conditions have been reported to be pervasive because of lack of local professionals with the technical knowledge and specialized training in conducting maintenance operations. Mutlaq (2002) affirmed that the development of the human resource for maintenance has been neglected as the staff are not trained to improve their skills. Segun and Onovughakpor (2014) also posited that lack of understanding of the maintenance management process among school maintenance staff is one of the basic causes of maintenance issues in the public schools in Nigeria. In addition, Jusoff, Mustapa and Adnan, (2008) reported that maintenance staff have no specialized knowledge in building design, construction or management and virtually do not embark on any effective effort to improve their management skills in building maintenance. The situation thereby accounts for majority of excessive deterioration of some of the facilities and also creates dissatisfaction and discomfort for the users (Yusof, Keith , & David, 2007).

#### *Neglect*

Researchers have stated that most public schools in Nigeria are in deplorable state of repairs due to maintenance neglect. The neglect has massive results which rapidly increase the rate of deterioration of the building fabrics and finishes often associated with harmful effects on the contents and users (Seeley, 2010). Similarly, Asiyai (2012) emphasised that negligence of school building maintenance has largely impacted on the buildings because lack of proper management and maintenance of the buildings constitute health hazards to the users.

#### *Poor Funding*

Inadequate maintenance fund has been recognized by many authors and researchers as the major factor which hinders the effectiveness and efficiency of most maintenance programs which in turn, results in deterioration and poor building conditions in the public secondary schools. Wordsworth (2001) posited that maintenance management is given a lower priority in capital budgeting and allocated funds for maintenance works, repairs and major renovations in some public schools are mostly not sufficient because maintenance activities are seen as antiquated,

regulated according to one's discretion and hence deferrable . The consequences of this low prioritization of maintenance apparently result to poor building conditions which negatively affects the learning abilities of the students and the workers output.

#### *Pressure from usage*

Misuse of buildings has been identified as a contributory factor that can accelerate deterioration in buildings and contribute largely to the deplorable conditions. According to Okosun and Olagunju, (2017), the users of the building contribute largely to its deterioration in various forms such as vandalism, graffiti, overuse, overcrowding and sometimes the buildings are converted to different uses from the initial design purpose which results to rapid deterioration of the buildings.

#### *Poor maintenance culture*

Maintenance culture is reported to have been generally lacking in Nigeria and its effect on buildings has become a major concern to both the public and private sectors (Usman, Gambo, & Chen, 2012 ). Adejimi (2005) similarly, averred that indolent attitude of Nigerians to maintenance has negatively affected infrastructural development which is critical and essential to a Nation's development. It noted that poor maintenance culture has drawn the nation backward and suggested the need to rescue the country from the total mess of infrastructural decay through proper maintenance.

#### *Building age*

According to Sharma and Gahlot (2006) maintenance needs of buildings increase with age. This indicates that as a building reaches its full life span, it dilapidates rapidly, thus leading to potential danger to the lives and property of the users, if appropriate measures are not taken to ameliorate the situation.

## **RESEARCH METHODOLOGY**

A field survey was conducted. The research instruments were questionnaire and observation schedule designed to gather data from the survey. A comprehensive list of 23 public secondary schools was obtained from Anambra State Ministry of Education Board. Stratification of the schools was done based on ownership structure prior to government takeover (see Table 1). The use of this as a basis for stratification was because of its potential to affect funding for maintenance. Following the stratification, random sampling by balloting within the different strata was carried out and a sample of 7 schools was selected according the ratio of their contribution to the population. The respondents' population were the staff of the schools (academic and non-academic. Applying Cochran formula to the staff population, a sample size of 209 was obtained. A total of two hundred and nine (209) copies of questionnaires was raised and administered to the respondents, out of which one hundred and seventy one (171) copies were returned for analysis giving a response rate of 82%. The questionnaires were of closed type and consisted of items on building conditions and the underlying factors. The items were structured along a five-point likert scale rating. Analysis of data was carried out using descriptive statistics. Data were summarized using tables and plates.

**Table 1: Categorization of Schools according to ownership structure**

S/N	Church	Private	Government
1	Dennis Memorial Grammar School, Onitsha.	Eastern Academy, Onitsha.	Girls' Secondary School, Onitsha.
2	Queen of Holy Rosary College, Onitsha.	Washington Memorial Secondary School, Onitsha.	Ado Girls' Secondary School, Onitsha.
3	St. Charles Secondary School, Onitsha.	Patterson Memorial Secondary School, Onitsha.	New Era Girls' Secondary School, Onitsha.
4	Anglican Girls' Grammar School, Onitsha	Prince Memorial Secondary School, Onitsha.	Inland Girls' Secondary School, Onitsha.
5	Christ The King College, Onitsha.	Metropolitan College, Onitsha.	Army Day Secondary School, Onitsha.
6		Modebe Memorial Secondary School, Onitsha.	Govt. Technical College, Inland Town.
7		Metu Memorial Secondary School, Onitsha.	Onitsha High School, Onitsha.
8		Our Lady's High School, Onitsha.	Urban Girls Secondary School, Onitsha.
9			Urban Boys Secondary School, Onitsha.
10			Special Sec. Sch. (Deaf And Dumb) Odoakpu, Onitsha.

## RESULTS AND DISCUSSION

### Conditions of building elements

With regard to the conditions of each of the seven building elements investigated, it is evident from the results of the analysis that the condition of floors, wall finishes, doors/windows, stairs and sanitary fittings were rated 'poor' following some notable amount of damages on those elements such as pronounced peelings on the floors and walls, structural cracks, efflorescence, discolorations, broken louver blades, leaking and broken sanitary pipes and rusted rails. However, the roof members and electrical fittings were found to be in moderate condition. The result implies that majority of the building elements in the schools were in deplorable condition requiring either minor or major repairs. The results are illustrated in Table 2, Plate 1 and Plate 2.

**Table 2: Conditions of building elements**

Value Label	Floor Finish	Wall Finish	Doors/ Window	Stairs	Roof members	Sanitary Fittings	Electrical fittings
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	Valid %	Cum%	Valid %	Cum %	Valid %	Cum %	Valid %	Cum %	Valid %	Cum %	Valid %	Cum %	Valid %	Cum %
Very poor	20.1	20.1	9.1	9.1	25.6	25.6	0.0	0.0	20.1	20.1	50.0	50.0	0.0	0.0
Poor	47.6	67.7	53.7	100.0	20.7	46.3	53.7	53.7	0.0	0.0	29.9	79.9	16.5	16.5
Moderate	32.3	100.0	37.2	46.3	12.2	58.5	46.3	100.0	26.2	46.3	0.0	0.0	83.5	100.0
Good	0.0	0.0	0.0	0.0	41.5	100.0	0.0	0.0	53.7	100.0	20.1	100.0	0.0	0.0
Very good	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0		100.0		100.0		100.0		100.0		100.0		100.0	

Source: Field work, 2019



Plate 1: Showing classroom without ceiling boards and dilapidated sanitary fittings in a school building

Source: Field work, 2019



Plate 2: Showing dilapidated classroom blocks in the schools in the study area.

Source: Field work, 2019

**Causes of Building Dilapidations in the Schools**

Investigation of this variable showed that respondents largely agreed that building dilapidations in the schools were largely due to lack of maintenance manual to guide maintenance operations, engaging the services of unskilled professionals in maintenance, age of buildings, poor maintenance culture and poor funding (resulting from stakeholders apparent lack of interest in maintenance, shown by their not providing sufficient funds for maintenance). Conversely, the respondents largely disagreed that building deterioration in their schools were due to pressure from misuse of facilities. This may not be surprising as users may not be willing to take responsibility of any damage to the physical facilities in their schools. The results are illustrated in Table 2.

**Table 2: Causes of Building Dilapidation in the Schools**

Value Label	Lack of building maintenance manual		Unskilled Professionals in maintenance		Pressure from misuse		Age of buildings		Neglect		Poor maintenance culture		Poor maintenance funding	
	Valid %	Cum%	Valid %	Cum%	Valid %	Cum %	Valid %	Cum %	Valid %	Cum %	Valid %	Cum %	Valid %	Cum%
Strongly Disagree	21.2	21.2	17.6	17.6	15.2	15.2	11.5	11.5	12.8	12.8	17.0	17.0	17.6	17.6
Disagree	21.8	93.9	23.0	93.9	35.8	50.9	19.4	30.9	31.7	44.5	31.5	48.5	13.9	73.9
Neutral	13.3	72.1	11.5	70.9	11.5	62.4	5.5	36.4	6.7	51.2	2.4	50.9	6.1	100.0
Agree	37.6	58.8	41.8	59.4	29.1	91.5	40.6	77.0	27.4	78.7	25.5	76.4	42.4	60.0
Strongly Agree	6.1	100.0	6.1	100.0	8.5	100.0	23.0	100.0	21.3	100.0	23.6	100.0	20.0	93.9
Total	100.0		100.0		100.0		100.0		100.0		100.0		100.0	

Source: Field work, 2019

## CONCLUSION AND RECOMMENDATIONS

As stated, in order to address the existing deficiencies in the building conditions of public secondary schools and attain secure, comfortable and user-friendly environments that effectively support the delivery and realization of educational goals and objectives in those schools, the users' needs should form part of the guiding tool. The analysis of data showed that the conditions of majority of the building elements in the schools were deplorable requiring some measures of repairs. It is based on this therefore, that the following recommendations are made:

- i. The Anambra State Government and other stakeholders in education should effectively collaborate and contribute significantly towards the improvement of physical conditions of buildings in public secondary schools in Onitsha, Anambra State, Nigeria. This will create a more enabling environment for a sustainable high-quality education.
- ii. Skilled professionals should be engaged in maintenance operations in those schools. They should be kept abreast of good practices with proficiency standards in advanced technologies in maintenance as practiced in other developed countries.

- iii. Government and stakeholders responsible for maintenance in those schools should ensure adequate provision of funds and other inputs for timely maintenance of the buildings to ensure effective performance and enhanced conditions of the buildings in the public secondary schools in Onitsha, Nigeria. This is because maintenance needs of buildings increase with age.
- iv. There is need to develop a documented maintenance manual for strategic maintenance planning and effective management of building maintenance works to ensure improved conditions of the buildings in the schools.
- v. There should be regular training sessions/sensitization programs towards creating awareness for the public secondary school maintenance managers and the users on the need to imbibe good maintenance culture.

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