



**Factors Contributing to Defects and Deteriorations on Students' Hostels: a Case Study of University of Benin, Ugbowo Campus, Benin City-Nigeria**

**OKORIE, Victor Nnnanaya,**

Department of Quantity Surveying,  
University of Benin, Benin City, Edo State, Nigeria

**&**

**CHIMA, Ekenedilichukwu Pius**

Department of Estate Management,  
University of Benin, Benin City Edo State, Nigeria

**Abstract**

*One of the pivotal roles of a university management is to provide conducive environment and facilities for learning and healthy living. A quality student's hotel is one of such facilities that not only promotes healthy living but also enhance student's social interaction and academic performance. This study examines factors contributing to defects and deteriorations on students' hostel within the University of Benin, Ugbowo campus, Benin City. The population for this study is the built environment professionals, the physical planning and maintenance units of the University of Benn. A total of 210 participants were identified and selected as a sample in the study through random sampling technique. Data collected were analysed using IBM statistical package for social sciences (SPSS) version 23. The findings revealed use of substandard materials, absence of planned maintenance, corruption, and delay in replacing damaged facilities as major factors contributing to defects and deteriorations on students' hostel. To explore further, statistical test analysis ANOVA, was employed to test whether there is a significant difference in the perceptions of professionals, physical planning and maintenance units of University of Benin, the result indicated that there is a significant difference in their perceptions. The study therefore, recommends that the maintenance unit of Universities should adapt proactive maintenance strategy and also carry out regular inspections on facilities to detect defects before major failure occur. In addition, Universities management should have a financial pool set aside for facility maintenance.*

**Keywords:** Defects, deteriorations, student hostel, university of Benin, Nigeria.

**Introduction**

According to Masrek and Zainol (2015) the quality and functionality of students' residential accommodations within the university campuses is directly linked to their social well-being and academic performance. Tayah et al (2016) maintained that the provision and maintenance of residential accommodations for students in the tertiary institutions is the responsibility of management. Regrettably, the states of defects and deteriorations on students' hostels and other facilities in the Nigerian universities are in deplorable conditions. Investigation into some federal universities across the country revealed that many of the students' hostels were inhabitable.

The defects are not limited to federal universities as averred by Ibrahim-Adedeji (2016); but it cut across all the federal polytechnics and federal colleges of education in Nigeria. Unfortunately,



the deteriorating conditions of students' residential accommodations in Nigerian tertiary institutions defeat the intension of its establishment. According to Masrek and Zainol (2015) student hostel accommodation should be a home while away at school. Students are the essential asset of any educational institution, their health, social well-being and academic performance should be a priority to the university management. Hassanaia and Mudhei (2012) and Eke et al. (2017) opined that neglecting maintenance on students' hall of residents will result in unhealthy living environment and also decreases life span of the facilities. Pike (2002); Hassanaia (2008); Oseghale (2016) pointed out that there is a strong link between students' poor academic performance, illness to flirty and unhealthy environment.

Interestingly, the work of Pike (2002) on the differential effects of on- and off-campus living arrangements pointed out the importance of planned and regular maintenance on students' academic performance and social well-being. A well planned and regular maintenance of students' hostel in the university campuses is imperative for sustainability of academic excellence (Oseghale, 2016). Eke et al. (2017) added that there could be financial consequences on an organization that neglect regular maintenance on their facilities

Adenuga and Iyagba (2005) and Eke et al. (2017) opined that maintenance should be continues process that aimed at restoring the buildings and other assets to its original state in order to function at its optimal level. Despite the need and importance of maintenance on building and facilities, most developing countries like Nigeria, lack maintenance culture, particularly in government properties. The rate of decay and deteriorations on students' hostel, staffs' quarters and administrative offices of federal universities across the country called for serious investigation.

## **Factors Contributing to Defects and Deteriorations on Students' Hotels**

Pike (2002); Hassanain (2008); Oseghale (2016) stated that there is a relationship between facility defects and number of people using the faculty. Facility tends to decay and deteriorate fast if it is over stretched (Eke et al., 2017). Olanrewaju (2012) conducted a post occupation evaluation of universities buildings and identified intensity of use as one of the factors resulting in defects in students' hostels and administrative officers. Similarly, Ibrahim-Adedeji (2016) conducted research on causes and effects of deterioration in students' hall of resident in Nigeria Tertiary institutions noted that over stretching of toilets, bathrooms and other facilities are major contributing factors to defects and deteriorations to students' hall of residents. He went further to state that a space allocated to 5 students are been occupied by 15 to 20 students due to limited number of accommodations compared to number of students' intake. Undoubtedly, facilities become defective as a result of intensity of use by excess numbers of students.

Adewunmi et al. (2011) and Tayah et al. (2016) identified poor leadership as a factor contributing to defects and deteriorations on-campus accommodation. According to Tayah et al. (2016) poor leadership could be in form of appointment of incompetent maintenance officer to head the unit. When you have a square pig in a round hole, the resultant effects will be defects and deteriorations on students' hostel due to inability and incompetent to identify defects before total failure.

Iyagba (2005) identified bribery and corruption as factors contributing to defects in public buildings in Nigeria. Instances have shown that when the maintenance officers compromised with the material suppliers and contractors to supply and install substandard and inferior materials, cases of defects become faster. Adenuga and Iyagba (2005) acknowledged that the rate of defects



and deteriorations on facilities are linked to substandard materials which points to corruption and compromise among officers in maintenance unit.

The work of Pike (2002) on the differential effects of on- and off-campus living arrangements pointed out that lack of maintenance of students' living accommodation definitely leads to defects and deteriorations of facilities. Iyagba (2005) and Suffian (2013) added that lack of maintenance culture and neglect on public facilities lead to defects and deteriorations. Defect such as dampness according to Adenuga (2005) produces pathogenic toxic mould and other biological effects that are visible in public buildings.

Literatures identified faulty design as one of the causes of defects in buildings. Oseghale and Ikpo (2014) concurred that faulty design contributes to defects and deteriorations in buildings. Oseghale (2016) also added poor detailing of working drawings, poor specification of construction materials and construction faults as factors contributing to defects in buildings. Tayah et al. (2016) worked on effects of faulty design phase on school buildings maintenance in Gaza Strip noted that defects and deteriorations on students' living accommodations contributed to maintainability problems. The designers must take into account maintenance considerations during the design and supervision stages by specifying durable materials and having competent supervisors on site. Iyagba (2005); Suffian (2013); Oseghale and Ikpo (2014) argued that most of the defects on buildings occurred due to faulty design and poor supervision. Buildings failed due to errors and deficiency in design Oseghale (2016), construction materials used, and poor detailing of working drawings (Ikpo, 2012).

There are innumerable dilapidated, defective, and abandoned federal government facilities in all the 36 states of the federation. The cases of students' hostel in federal universities, polytechnics and colleges of education are not different. Oseghale (2016) maintains that for buildings and other assets to retain its original state and function at optimal level it must be regularly maintained. It has been widely agreed that lack of maintenance culture is endemic in Nigeria, particularly in the federal government facilities.

Inadequate allocation of financial resources by the federal government for facility maintenance in the university campuses across the country can be linked to the causes of defects and deteriorations on students' hostels and staffs' quarters alike. Stressing the importance of financial in relation to students' hostel maintenance, Hassanain (2008) who conducted research on performance evaluation of sustainable student housing facilities agreed that without finance the maintenance unit of any university can do little.

### **Defects and Deteriorations of Students' Hostel and University Maintenance Unit**

Poor management in the university's maintenance units was identified by Tayah et al. (2016) as a factor contributing to defects and deteriorations on students' hall of residents. Students' hostels are parameters whose failure affects health and safety in an academic environment (Eke et al, 2013). Maintenance unit must maintain an up to date log book where complains are appropriately documented for feedback mechanism. In case where such log books are not kept due to incompetent maintenance officers, there will be lost of facts and delay in carrying out the defective work. Communication according to Okorie and Emuze (2019) is vital in everyday activities, the maintenance unit should establish communication channel between the students, the cleaners and the management for effective preventive maintenance.



Students' hostel should be of standard quality to provide an enabling conducive environment for healthy living, social interaction and academic excellence to on-campus students. Researchers amongst others Pike (2002); (Masrek & Zainol (2015) Tayah et al. (2016)' Eke et al. (2017) have linked the functional toilets, bathrooms, lightings, portable water, well ventilated rooms, un-flirty environment etc. to positive health, social well-being and better academic performance of on-campus students.

## **Preventive Maintenance Strategy**

The quality of a building is linked to the maintenance strategy adopted by the maintenance unit of an organization (Iyagba, 2005; Oseghale, 2016). Maintenance according to Oseghale (2016) is the work undertaken to keep, restore or improve every part of a building, its services to a currently acceptable standard and to sustain the utility and value of the facility. The key words here are restore, sustain and add value to the facilities (buildings and its services therein) through effective maintenance strategy or policy. Thus, one of such strategies or policies is preventive maintenance, popularly called planned or proactive maintenance. Preventive maintenance entails regular inspections to detect defects on buildings, facilities, equipment and services to lessen the likelihood of it getting bad (Ikpo, 2006; Adewunmi et al., 2011; Eke et al. 2017). Suffian (2013); Tayah et al. (2016) asserted that preventive maintenance has been a useful strategy in detecting defects on building through its regular inspections and planning. Hassanaia (2008) added that not only does preventive maintenance strategy save cost from major failure; it also increases reliability of components of the buildings or facilities. Suffian (2013) avers that preventive or proactive maintenance helps in extending the life span of the facilities. However, Adenuga and Iyagba (2005) and Olanrewaju (2012) argued that preventive maintenance is not a panacea to all defects that might threaten failures in buildings or facilities. Nonetheless, a preventive maintenance strategy that is based on regular inspections and well planned is imperative for maintenance of students' hostel in the university's campuses due to its intensity of use.

Existing literatures recognize the critical role of preventive maintenance strategy (PMS) in assessing defects and deteriorations on public buildings, students' hostel inclusive. Ikpo (2014) and Oseghale and Ikpo (2014) stated that preventive maintenance is based on planning and regular inspections of the buildings/ and facilities. This is necessary to detects early defects and carry out the maintenance before major failure occur (Suffia, 2013; Eke et al., 2017).

The need for PMS on students' hostel is growing among the maintenance department in the university campuses. This trend could be linked to the influence of quality and functional students' hostel relative to students' health, social well-being and academic performance. Despite the importance the university management attached to students' health, social well-beings, academic performance and security, most of the students' hall of residents across the country are in deplorable condition.

## **Statement of the Problem**

The state of defects and deteriorations on students' hostel in federal universities, polytechnics and colleges of education across the country are in deplorable conditions. The management of the institutions faced serious challenges in maintenance of limited facilities due to high mounted pressure on available infrastructures. There are cases where as many as fifteen (15) students shares a space allocated to five (5) students, the resultants effects will be high intensity in



use of available facilities, vandalism, insecurity, blockage of sanitary wares, and illness. Essentially, the lack of maintenance culture among the university's management across the federal universities in Nigeria could impact negatively on the health, social well-being and academic performance of students and the society at large.

## **Purpose of the Study**

The study aimed at determining: the factors contributing to defects and deteriorations on students' hostel within the University of Benin, Ugbowo campus, Benin City, specifically the study sought to:

1. Determine factors contributing to defects and deteriorations on students' hostel in the University of Benin, Ugbowo campus, Benin City.

**Research Question:** this research question guided the study.

1. What are the factors contributing to defects and deterioration on students' hostel University of Benin, Ugbowo Campus, Benin city-Nigeria?

## **Null Hypothesis**

**H<sub>0</sub>:** There is no significant difference between professional and physical planning and maintenance units' personnel perceptions on factors contributing to defects and deteriorations on students' hostel university of Benin, Ugbowo Campus, Benin city-Nigeria.

## **Methodology**

The study was conducted in three phases: firstly, a comprehensive review of existing literature was carried out to identify research on factors contributing to defects and deteriorations on students' hostel. Secondly, quantitative data were collected through questionnaire survey administered to engineers, architects, estate surveyors and quantity surveyors, personnel of physical planning and maintenance units of the University of Benin. Thirdly, the male and female students' hostels were visited for physical observation. This was done to ensure that a comprehensive account of defects and deteriorations on students' hostel accommodations were properly captured as enumerated on the questionnaire survey instrument.

University of Benin, Ugbowo campus was chosen as a case study for two reasons: (1) the selected University is one of the oldest universities in the whole of South-South Geopolitical zone of Nigeria; and (2) the university attracts a huge number of students' intake due to its academic outstanding performance over the years. With the above two reasons the University attracts huge number of students' intake every year resulting in over stretching of available facilities leading to defects and deteriorations on students' hall of residents.

A total number of two hundred and forty (240) questionnaires were administered out of which two hundred and ten (210) copies were completed and returned resulting in response rate of 87.50%. The response rate achieved for this research is similar to that achieved in other surveys (Danity, 2008; Sutrisna, 2009). Such a response rate is justifiable according to Sutrisna (2009) and satisfactory based on the statement by Danity (2008) that a survey would be considered subjective or inconsequential if the total number is lower than 30. Thus 87.50% response rate achieved in this survey provides responsible data for analysis.

From the literature five (5) possible factors contributing to defects and deteriorations on students' hostel were identified with thirty-one (31) associated problems. A 5- point Likert-scale



measurement was used to obtain responses from the respondents. Leedy and Ormrod (2010) and Flicks (2014) maintain that Likert scales are effective to elicit participants' perceptions / views on various statements. According to Flick (2014), where the questionnaire survey method is used, the entire analysis procedure usually involves calculation and interpreting descriptive analysis. IBM statistical package for social sciences (SPSS) version 23 were used for data analysis. Analysis of variance (ANOVA) was used to measure the difference in the perception of the respondents.

## Result

**Research Question 4:** What are the factors contributing to defects and deterioration on students' hostel, University of Benin, Ugbowo Campus, Benin city-Nigeria?

**Table 4:** Factors contributing to defects and deteriorations on students' hotels university of Benin, Ugbowo Campus, Benin city-Nigeria

S/N	Problem	SI (%)	Rank
<b>Leadership related factor</b>			
1	Bribery	69.92	1
2	Corruption	66.82	2
3	Compromise between materials supplier & maintenance unit	66.05	3
4	Use of substandard materials	63.88	4
5	Poor coordination	60.62	5
6	Poor supervision	59.84	6
7	Lackadaisical attitude among students	59.22	7
<b>Lack of maintenance culture related factor</b>			
8	Delay in replacing damaged toilets	68.53	1
9	Delay in effecting repairs on damaged bathrooms	63.72	2
10	Delay in replacing damaged water pipes	59.38	3
11	Delay in replacing taps	57.21	4
12	Absence of maintenance log book	55.50	5
13	Delay in replacing damaged kitchenette	55.04	6
<b>Design fault related factor</b>			
14	Use of substandard materials	78.91	1
15	Poor specification of workmanship	73.18	2
16	Construction fault	62.79	3
17	Poor detailing of working documents/drawings	62.17	4
18	Poor supervision of construction works	59.07	5
19	Maintainability	59.07	6
<b>Poor management related factor</b>			
20	Absence of planned maintenance strategy	71.01	1
21	Irregular inspection of facilities	70.23	2
22	Communication gap between students and management	68.68	3
23	Poor relationship between students and cleaners	67.44	4
24	Lack of emotional intelligent	61.86	5



25	Poor attitude in resolving issues	61.09	6
26	Lack of regular safety meetings	55.50	7
<b>Financial problem related factor</b>			
27	Inadequate allocation of funds for maintenance	65.45	1
28	Cash flow problem	64.76	2
29	Poor approach to debt collection	63.65	3
30	Mismanagement of funds	60.53	4
31	Irregular payment of cleaners' salary	58.67	5

Table 4 shows the ranking of the factors contributing to defects and deteriorations on students' hostel accommodations. Twenty-eight (32) problems were identified from literature. The greater the severity index, the higher the rank of the problem. Under Poor leadership related factor, "bribery" ranked first with a severity index of 69.92%, followed by "corruption" with SI = 66.82%, next was compromise between materials suppliers and maintenance unit of the University" with severity index of 66.05% "poor supervision" ranked forth with SI= 63.88%. "Poor coordination" ranked fifth with SI= 60.62% while "lackadaisical attitude of students" ranked sixth with SI = 59.84% and "vandalism" ranked seventh with SI = 59.22%. Under Lack of maintenance culture related factor, "Delay in replacing damaged toilets" ranked first with a severity index of 68.53%, followed by "Delay in effecting repairs to damaged bathrooms" with SI = 63.72%, next was "Delay in replacing damaged water pipes" ranked third with SI = 59.38%. "Non-replacement of damaged water taps" ranked fourth with SI of 57.21% while "Absence of maintenance log of book" with SI = 55.50% and "Delay in replacing damaged kitchenette" with SI = 55.04%. Under Design fault related factor, "Poor detailing of working documents/drawings" ranked first with a severity index of 78.91%, followed by "Poor specification workmanship" with SI = 73.18%, next was "Construction fault" ranked third with SI = 62.79%. "Use of substandard construction materials" ranked fourth with SI = 62.17% while "Poor supervision of construction works" with SI = 59.07% and "Maintainability" with SI = 59.07% ranked sixth. Under Poor management related factor, "Poor relationship with students and cleaners" ranked first with a severity index of 71.01%, followed by "Irregular inspections on facilities" with SI = 70.23%, next was "Communication gap between management and students" ranked third with SI = 68.68%. "Absence of planned maintenance strategy" ranked fourth with SI = 67.44% while "Lack of emotional intelligent" with SI = 61.86% and "Poor attitude in resolving issues" with SI = 61.09% ranked sixth. Under Financial problem related factor: "Inadequate allocation of funds", was ranked first with SI %, followed by "Cash flow problem" ranked second with SI = 65.45%, while "Poor approach to debt collection was ranked third with SI = 64. 76%, "Mismanagement of funds was ranked forth with SI = 63.65% and the least was "Irregular payment of cleaners Monthly salary" with SI = 58.67%.

### Test of Hypothesis

**Null Hypothesis 1** There is no significant difference between professional and physical planning and maintenance units' personnel perceptions on factors contributing to defects and deteriorations on students' hostel, University of Benin, Ugbowo Campus, Benin city-Nigeria.

**Table 5:** One-Way Analysis of Variance (ANOVA) on difference between professional and physical planning and maintenance units' personnel perceptions on factors contributing to defects and deteriorations on students' hostel accommodations Nigerian University campuses

Source		Sum of Squares	df	Mean Square	F	Sig.	Eta Squared
Professional	Between Groups	24.695	4	25.57	4.789	.007	0.29
	Within Groups	167.289	205	157.189			
	<b>Total</b>	<b>191.984</b>	<b>209</b>				
Personnel in physical planning	Between Groups	9.214	4	30.715	19.179	.000	0.62
	Within Groups	189.568	205	184.601			
	<b>Total</b>	<b>198.782</b>	<b>209</b>				
Personnel in maintenance unit	Between Groups	15.056	4	20.185	14.328	.000	0.54
	Within Groups	190.097	205	200.805			
	<b>Total</b>	<b>205.153</b>	<b>209</b>				

*Source: Researcher's field work 2020,*

Table 5 shows the one-way between-groups analysis of variance conducted to explore the difference in perception of professionals, personnel in physical planning, and personnel in maintenance unit as regards to the factors contributing to defects and deteriorations on students' hostel University of Benin, Ugbowo campus. Participants were divided into three groups according to building type (Group 1: professionals; Group 2: personnel in physical planning; Group 3: personnel in maintenance unit). There was a statistically significant difference at the  $p < .05$  level in the perception of the three groups with:  $F(3, 36) = 4.789, p = .007$ ;  $F(3, 36) = 19.179, p = .000$ ;  $F(3, 36) = 14.328, p = .000$  respectively. Despite reaching statistical significance, the actual difference in mean scores between the groups was large. The effect size for the three respondents, calculated using eta squared, was 0.29, 0.62 and 0.54 for professionals, personnel in physical planning, and personnel in maintenance unit respectively.

### Discussion of Results

Thirty-two (31) problems were identified from literature and categorized into five (5) groups (Leadership related factor, Lack of maintenance culture related factor, Design fault related factor, Poor management related factor and Financial problem related factor). The three (3) top significant problems from each group totaling twelve (15) significant problems are: "Bribery", "Corruption", "Compromise between materials suppliers and maintenance unit of the university", "Delay in replacing damaged toilets", "Delay in effecting repairs to damaged bathrooms facilities", "Delay in replacing damaged water pipes", "Poor detailing of working documents /drawings", "Poor specification of workmanship", "Use of substandard construction materials", "Poor relationship with students and cleaners", "Irregular inspections on facilities", "Communication gap between management and students", "Inadequate allocation of funds for maintenance", "Cash



flow problem”, and “Mismanagement of funds” Literature corroborated the research findings in that, lack of maintenance culture (Iyagba, 2005), poor leadership, lack of trained maintenance officers to carry out regular inspections (Ikpo,2009; Olanrewaju, 2012), inadequate allocation of financial resources (Banful, 2004; Ikpo, 2014), cash flow problem (Hassanaia, 2008) directly and indirectly impacts on life spans and performance of buildings and facilities over time.

Furthermore, Table 5 shows the results of the two pair samples t-test that was conducted to compare the perceptions on factors contributing to defects and deteriorations on students’ hostel in University of Benin, Ugbowo campus, between the professionals and maintenance unit. It was observed that the perceptions of the professionals on factors contributing to defects and deteriorations on students’ hostel differ from that of the maintenance unit. This is not surprising as the professionals are not physically involved in management and maintenance of students’ hostel facilities. The findings corroborated literature in that Pike (2002); Hassanaia (2008); Suffia (2013); Eke et al. (2017) stated that institutional facilities should be properly maintained to enhance its quality and functionality in order to promote enabling environment for healthy living, social interaction and academic excellence.

## Conclusions

Based on the research findings of this study it could be concluded that provision of quality and functional students’ hostel accommodations in the tertiary institutions across the country is the responsibility of management. The study also finds that qualitative students’ hall of residents not only provides security and social interaction among students, but it also promotes healthy living and academic performance. The study further revealed that regular inspections, planned and proactive or preventive maintenance strategy helps in prolonging the life span of facilities, assets, equipment and also saves costs to the management.

## Recommendations

The study therefore, recommends that:

1. Federal, state, and university management should set aside a financial pool for regular maintenance of facilities in the university’s campuses,
2. The university management should cultivate the ethic of maintenance culture,
3. Employment of personnel in both the physical planning and maintenance units in the university should not be based on ethnicity, religion or political affiliation, but should be based on technical-know-how,
4. The Directors of maintenance units should have a maintenance log book where students and cleaners can write down complains of defects,
5. There should be a well-managed communication channels between the students, cleaners and the management (maintenance unit).

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