CONDITION ASSESSMENT OF STUDENT HOSTEL BUILDING ON CAMPUSES OF FEDERAL UNIVERSITIES IN NORTH-CENTRAL NIGERIA

Anita Dzikwi ADAMU[1] and Winston SHAKANTU[2]

[1]Department of Construction Management, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa, 3031, PH (+27) (0) 810710367, Email: ninadzi@yahoo.com
[2]Department of Construction Management, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa, 3031, PH (+27) 413685582, Email: winston.shakantu@nmmu.ac.za

ABSTRACT

Universities and many tertiary educational institutions in Nigeria are under pressure to preserve their built environment. The focus of this study is to assess the condition of on-campus hostel buildings at Nigerian public universities with the aim of generating information about the maintenance requirement of the buildings. Condition assessment is the most common method for measuring building performance and identifying maintenance needs of facilities. In the process, the efficiency of the current maintenance management strategies is determined. Primary data were generated with the aid of a condition survey guide and rating sheets. The results were computed in percentages and presented on bar charts. The assessment results revealed the conditions of the components within the hostel building at the three universities studied. The walls, floors and ceilings of the most of enclosed spaces such as the bedrooms, kitchens and washrooms are in various degrees of deterioration. In most of the bedrooms, there are minor cracks and worn-out finishing with evidence of inadequate routine maintenance. There are many doors and windows with major problems such as damaged locking devices or door handles. Cracked or broken window panes and door panels are common. The toilets and bathroom facilities are almost not operational and are in need of urgent major maintenance works. The building facades (ceilings, walls and floors) in the male and female hostels at university C are in good condition, signifying that the surfaces of the facades show slight soiling or discolorations or fading that affects mainly the aesthetic value of the buildings. Generally, the electrical and plumbing services at the hostels across all the universities studied are in poor conditions, some of the facilities were rated unsuitable for use.

Key words: Condition, Hostels, Universities, Components

1. INTRODUCTION

Condition assessment of buildings provides 'face value' information about the relative state of facilities. It also provides essential data for building management to priotise and plan a mitigation schedule and remedial actions in line with the core objectives of the organisation and user requirement (Loy & Coleman, 2006). Quantifying the maintenance requirements of a facility necessitates an understanding of the gap between the desired condition and the current condition of the facility (Abbott *et al.,* 2007).

Universities and many tertiary educational institutions in Nigeria are under pressure to preserve their built environment (Akinsola, *et al* 2012). Studies related to student hostels at

Nigerian public universities (Ubong, 2007; Onyike & Uche, 2010; Adewunmi *et al.,* 2011; Pat-Mbano *et al.,* 2012) suggest a state of disrepair of the hostel buildings. According to Pat-Mbano, *et al.* (2012) student hostels provided at many Nigerian university are not given the desired maintenance attention, as a result, the hostels are in poor states that do not support the living and learning objectives of providing accommodation facilities besides othe academic buildings. The deterioration state in the physical conditions of students' hostels on the campuses of some institutions in Nigeria may be blamed for poor academic performance coupled with social problem such as student unrest, poor health poor academic and other negative behavioural patterns that are found in disadvantaged communities (Jolaoso, *et al* , 2012).

2. CONDITION ASSESSMENT OF BUILDINGS

Condition assessment is the most common method for measuring building performance and identifying maintenance needs of facilities. In the process, the efficiency of the current maintenance management strategies is determined (Abbott *et al*., 2007). Central to achieving the goal of creating a global framework is the development of performance measurement tools such as the condition rating instrument (Abbott *et al*., 2007). Mc Duling, *et al.*(2004) opined that the use of condition ratings is a current standard practice internationally for assessing conditions of buildings. In line with this, Loy & Coleman (2006) the global trend currently is that condition assessment tools are custom-made to suit the building type, environment and purpose of the survey.

An example of such condition rating tool is presented in Figure , which depicts the description of the conditions of components and the rating style with the aid of colours codes and numeric values assigned to each described conditions.

Condition Rating			Description
Colour Coding	Technical Terms	Layperson Terms	
5	As New	Very Good	The fabric, element or building is either new or has recently been maintained; does not exhibit any signs of deterioration.
4	Maintenance Required	Good	The fabric, element or building exhibits superficial wear and tear, minor defects, minor signs of deterioration to surface finishes and requires maintenance/servicing. It can be reinstated with routine scheduled or unscheduled maintenance/servicing.
3	Repairs Required	Fair	Significant sections or elements require repair, usually by a specialist. The fabric, element or building has been subjected to abnormal use or abuse, and its poor state of repair is beginning to affect surrounding elements. Backlog maintenance work exists.
2	Renovations Required	Poor	Substantial sections or elements have deteriorated badly, suffered structural damage and require renovations. There is a serious risk of imminent failure. The state of repair has a substantial impact on surrounding elements or creates a potential health or safety risk.
1	Replacement Required	Very Poor	The fabric, element or building has failed, is not operational or deteriorated to the extent that does not justify repairs, but should rather be replaced. The condition of the element actively contributes to the degradation of surrounding elements, or creates a safety, health or life risk.

Figure 1 Condition Ratings (Mc Duling, *et al.,* 2004)

3. RESEARCH METHODOLOGY

The study adapted the case study approach to survey the condition of hostel building facilities at Federal universities in the North- central geopolitical zone of Nigeria. There are five Federal universities within this zone, out of which three were selected for the study because they have hostels on campus and the age range of the buildings are between 30-35 years.

The condition survey instrument developed followed the concepts of Abbott, *et al.* (2007) and Straub, (2009). A pilot survey of the buildings was carried out to acertain the nature of the facilities. Major components (Ceilings, walls, floors, doors) were assessed. In addition, electrical and publumbing fittings within the hostel building surfaces were assessed. The conditions observed were described thereby informing the categories of defects. The instrument was tested for efficacy and to train research assistants for the main exercise. A rating sheets were designed and used to recording data during the condition assessment exercise. The data generated was enttered on spread sheet computed in percentages and presented on column charts.

Table 1 Condition Rating Instrument for Building Façade

component	Description of condition	Rating	Value Assigned
Ceiling	Appearance is as new, no defects, routine maintenance is adequate to uphold quality and performance.	Excellent	5
	Slight soiling or discolouration, only appearance affected. Minor & routine maintenance is adequate.	Satisfactory	4
	Soiled surfaces, few cracks or tears, due to aging or misuse, no signs of leakage from roof.	Fair	3
	Badly stained surfaces, broken and cracked surfaces, sagging panels & evident signs of leakage from roof.	Poor	2
	Unsafe & unhealthy for occupants due to severity of deterioration. Requires urgent major refurbishment to save the structure.	unsuitable	1
Floor	Appearance is as new, no defects, routine maintenance is adequate to preserve quality.	Excellent	5
	Slight or early signs of wearing due to use or aging. Minor & routine maintenance is required to improve appearance.	Satisfactory	4
	Worn-out finishing, minor cracks apparent, finishing due for renewal, no major defects.	Fair	3
	Early signs of structural defects such as major cracks, dampness, worn-out surfaces. Urgent and major repairs required to restore component.	Poor	2
	Severe deterioration such as major cracks and water seepage. Component is unsafe & unhealthy for occupants due to severity of damage. Requires urgent major refurbishment to save the structure.	unsuitable	1
Wall	Appearance is as new; no defect; routine maintenance is adequate to preserve quality.	Excellent	5
	Diminishing aesthetic appearance due to aging and use; no other signs of defect. Minor works such as re-decoration and routine maintenance is adequate to improve appearance.	Satisfactory	4
	Faded surface finishing; minor cracks that may not be connected to structural failure. Minor maintenance action and re-decoration is necessary to restore component.	Fair	3
	Early signs of structural defects such as major cracks, dampness, worn-out surfaces. Urgent and major repairs required to restore component.	Poor	2
	Severe deterioration such as major cracks; dampness and moulds on element. Unsafe & unhealthy for occupants due to severity of damage. Requires urgent major works to save the structure.	unsuitable	1

Doors /windows	All doors and windows satisfy all functional and aesthetic purposes and are in best operational state. Routine maintenance adequate to uphold elements	Excellent	**5**
	Some of the elements show signs of wearing of finishing due to age and use. Routine maintenance and re-decoration is adequate to restore the elements.	Satisfactory	**4**
	All or most elements are in conditions described in 'B'; in addition, slight problems are observed such as cracked or broken panes, and early operational issues with locks and hinges, that require minor repairs.	Fair	**3**
	Significant problems affecting the operation of most elements such as locking devices & difficulty of operating. Damaged door handles and broken or cracked panels.	Poor	**2**
	Completely dysfunctional and damaged elements. Unsafe for use by occupants; cannot be repaired; require complete replacement.	unsuitable	**1**
Electricals	All electrical fittings for power, lighting, fans/airconditioners are functional; their appearance is as new.	Excellent	**5**
	A few of the fittings show signs of wearing due to age and use. Facilities are not at their best operational state; space is adequately lighted; all power sockets, fans/air conditioners and control switches are operational and safe for users.	Satisfactory	**4**
	Few fittings appear good but non-operational such as dead light bulbs or tubes; faulty control switches that require minor repairs. Rooms can be lighted partially; fans/air conditioners are not fully operational.	Fair	**3**
	Poor or non-operational fans/air conditioners, power and light fittings. There are some damaged light and power fittings, with signs of overloading and misuse.	Poor	**2**
	Exposed wires from lighting and power points. Fittings appear inferior and not properly fixed. Room is dark especially at night. Unsafe conditions and connections for users/occupant.	unsuitable	**1**
Plumbing	Pipes and sanitary fittings are as new; quality not inferior; users operate with ease. Routine maintenance is adequate for preservation of the current standard.	Excellent	**5**
	Pipes and fittings still in good operational states, but showing early signs of wearing due to age and use. Minor repairs and routine maintenance works are adequate.	Satisfactory	**4**
	Pipes and fittings show minor cracks; no signs of leakage; few missing or broken seat or tank covers, shower or tap heads. Facilities can only be partially operated and used.	Fair	**3**
	Early signs of leakage of pipes and fittings due to ageing, use or poor previous maintenance work or deferred maintenance. Severe conditions of 'C' observed partial blocked sinks, basins and shower drains. Major maintenance works can restore facilities.	Poor	**2**
	Severely damaged fittings, blocked sinks, basins and shower drains. Unsafe & unhealthy. Facilities cannot be repaired. Replacement and new works required.	unsuitable	**1**

(Source: Adamu 2014)

4. FINDINGS AND DISCUSSION

This section presents the results of the condition assessments of hostel buildings.

4.1 University A

Figure 3 shows results of the condition survey of forty-three building spaces at the female hostel block on the main campus. The spaces considered are thirty of the student bedrooms including a porters' office and a common room; eight lavatories, three kitchens and two laundry rooms.
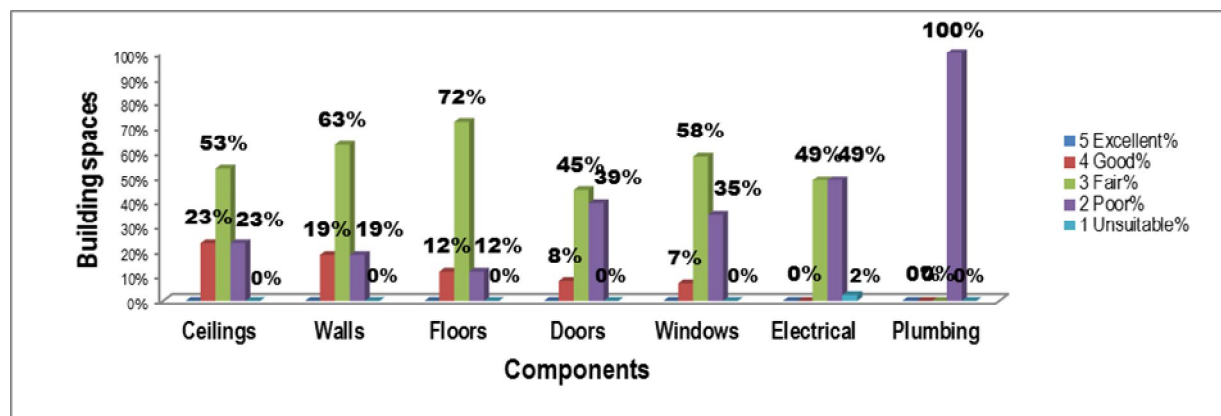

Figure 3 Conditions of rooms at a female hostel at University A

Majority of the components evaluated in the rooms were rated "fair", with a high of 72% of the floor and 63% of the walls. There is no component in an excellent condition. Some of the ceilings, walls, floors, doors and windows are in good condition (23%, 19%, and 12%, 8% and 7% respectively). Only 2% of the spaces had unsuitable electrical connections, but 49% are in poor condition. All (100%) the plumbing services of the washrooms and kitchens are in poor condition. The result implies that most of the building services (electrical and plumbing) require major maintenance actions to restore the services to functional states for student occupants.
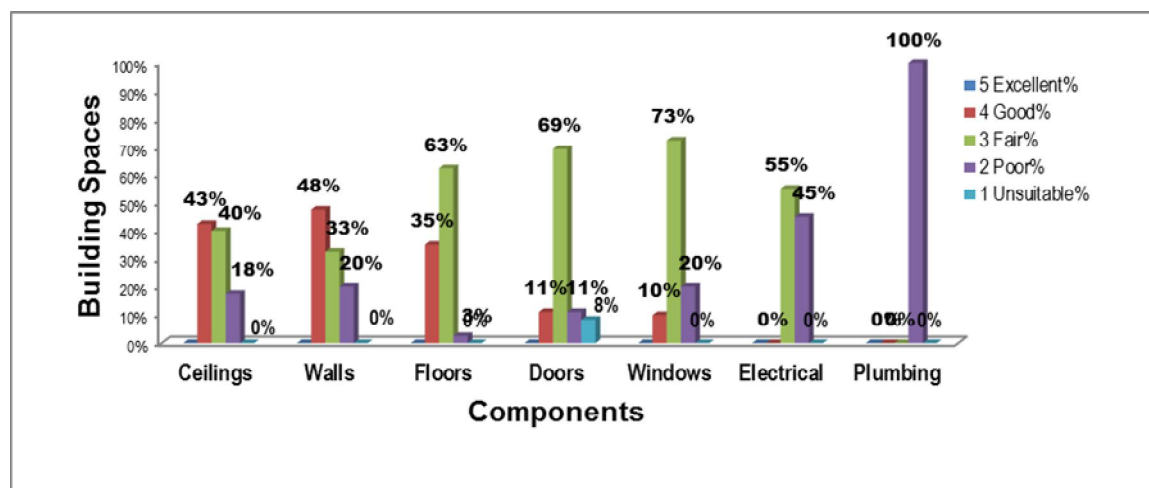

Figure 4 Physical conditions of rooms at the male hostel block at University A

The physical condition evaluation result of the male hostel block on the main campus of this university is as presented on Figure 4. A total of forty buildings spaces in the hostel were evaluated. They are twenty-eight bedrooms (including the common room and the porters' office),

eight lavatories, two kitchens and two laundries. The majority of the doors, windows and electrical fittings (over 60%) in the spaces evaluated are rated 'fair'. Notable percentages of the ceilings, walls and floors (43%, 48%, and 35%) of the spaces are in good condition. All (100%) plumbing and up to 45% of electrical services are in poor condition. Only 8% of the doors are unsuitable.

4.2 University B

A condition survey of the facilities of the two hostel blocks on the main campus of the University was carried out. Spaces/rooms that were accessible by the researcher for the condition survey are the building spaces considered in each block. Forty-four bedrooms and seven lavatories were surveyed at the female hostel block. At the male hostel block, forty-seven bedrooms and four lavatories were surveyed**.** Results of the survey are presented in Figures 5 and 6
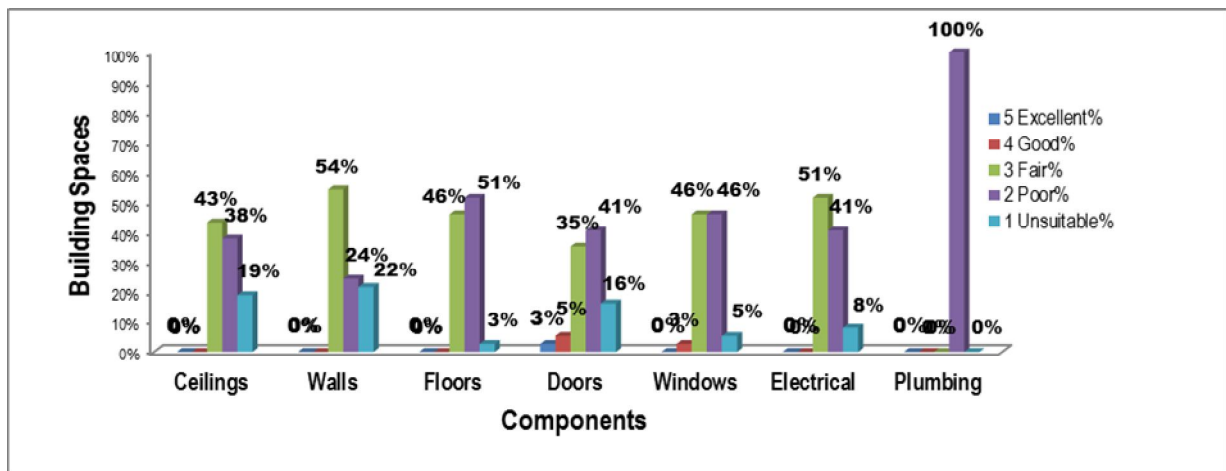

Figure 5 Condition rating of a female hostel block at University B

All components of the building are in states of disrepair, with every component at different stages of deterioration. All plumbing works, and over 50% of the floors are in poor conditions. Over 50% of the spaces surveyed in the hostel have components that are rated unsuitable for occupants. However, some rooms have percentages of the components in fair conditions. During the survey, the researcher observed that one wing of the hostel block is not as affected by dampness and algae as the other wings. The survey revealed the general state of critical structural disrepair of the hostel facilities.
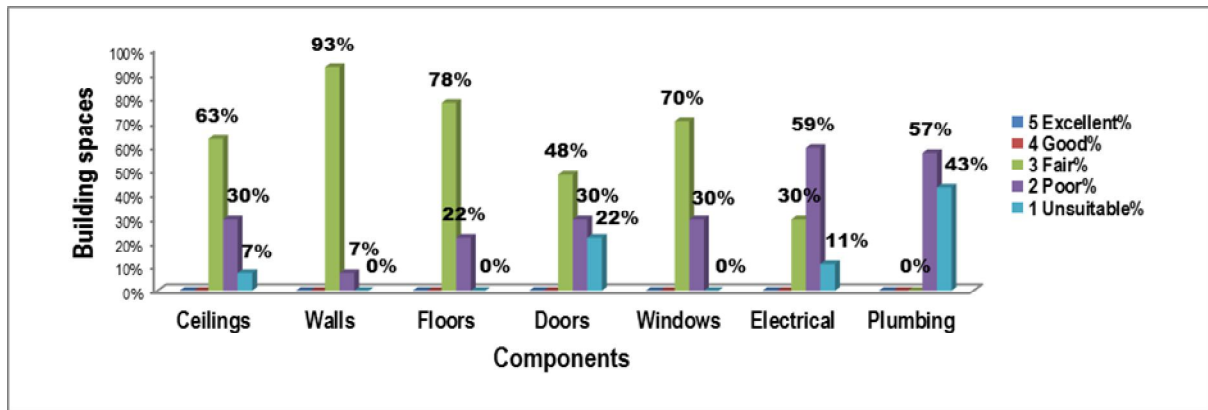
Figure 6 Condition rating of a male hostel block at Case B

Most of the ceilings, walls, floors and windows of the male hostel block evaluated are in fair conditions and up to 93% of the spaces have walls in fair condition. The majority (57%) of the plumbing services in the lavatories are in poor condition, and the other 43% are in condition unsuitable for the users. Many of the bedrooms are still in habitable condition with defects that can be attributed to aged facilities and lack of adequate maintenance.

4.3 University C

The hostel facilities provided for the male and female students on the main campus of the university were evaluated. All eighty-two bedrooms of a male hostel block, four of six general lavatories, three kitchens and three laundries were considered. At the female blocks, seventy of the bedrooms with bathrooms enclosed were evaluated. Three general kitchens and three laundries were also evaluated, and all results are presented in Figures 7 and 8.
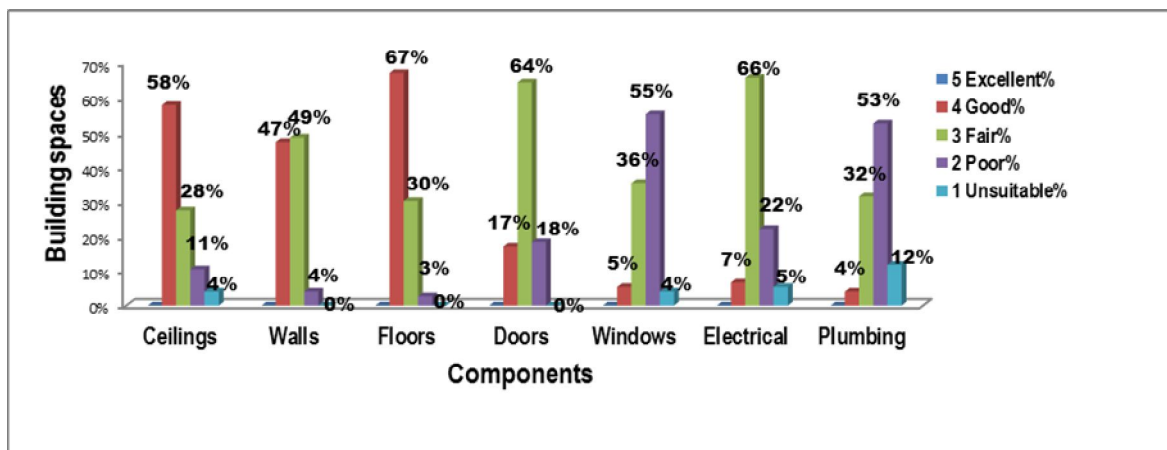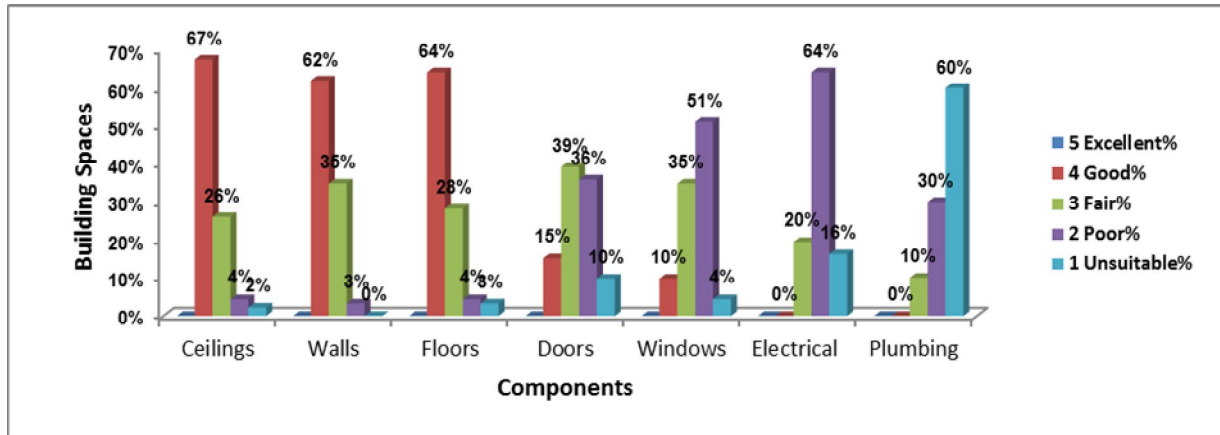

Figure 7 Condition rating results of the female hostel blocks at Case C

The results shown in Figure reveal that most of the floors (67%) and ceilings (58%) are in good condition; conditions of most electrical services (66%) and doors are fair. Conditions of the plumbing services (53%) in the hostel blocks are poor, and a notable 12% are unsuitable for use.

Figure 8 Condition rating of male hostel block at University C

The results on Figure 8 shows that most of the building spaces have their ceilings (67%), walls (62%) and floors (64%) in good condition. This implies that the building facades require only minor maintenance works to improve majorly the aesthetics of the buildings. However, most (64%) of the electrical services are poor and 16% are unsuitable for the occupants. Many doors (46%) and windows (55%) have major defects. 60% of the plumbing services were rated 'unsuitable' implying that the fittings are damaged beyond repairs; the facilities require replacement because they are unsafe for use by occupants of the hostels

5. CONCLUSION

The building facades (ceilings, walls and floors) in the male and female hostels at university C are in good condition, signifying that the surfaces of the facades show slight soiling or discolorations or fading that affects mainly the aesthetic value of the buildings. The conditions of the facades in university A and B revealed majority of the facades are either fair or poor, indicating the need for major maintenance actions to restore the components to suitable states. Generally, the electrical and plumbing services at the hostels across all the universities studied are in poor conditions, some of the facilities were rated unsuitable for use.

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