

FACILITIES MANAGEMENT PRACTICES IN A SELECTED PUBLIC ACADEMIC BUILDING IN NORTH CENTRAL NIGERIA

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ABSTRACT

Buildings and their surrounding environments are important assets of an organisation, therefore they have to be well kept and maintained, so as to achieve the purpose of design. Maintenance is critical and should be well planned, because poor maintenance planning may cause negligence of some facilities, which will call for higher cost of repair when damaged. With the emergence of facilities management policies, maintenance planning can be improved, as maintenance is one of the key roles of facilities management. Therefore maintenance can be properly planned, especially for preventive maintenance, by daily maintenance and routine checks on facilities. The maintenance department are faced with challenges, which include cost of poor maintenance; laxity by users in reporting maintenance needs of the facilities they use, few maintenance officers, which makes routine checks difficult as it is time consuming and also, the process of approving maintenance needs is usually slow. Maintenance can be improved by employing more maintenance officers, educating facilities users on the importance of maintenance and its implications if not done on time and also there is urgent need for computerized maintenance which is being processed as this will bridge the communication gap between users and the maintenance department and also the maintenance department with the relevant authorities for approval of maintenance needs.

Keywords: Corrective Maintenance, Facilities Management , Planned Maintenance

INTRODUCTION

Facilities management as a profession that encompasses multiple disciplines to ensure functionality of the built environment by

integrating people, place, process, and technology Facilities managers enhance the organization's productivity and staff satisfaction through effective building operations and maintenance; and they provide the necessary facility support services to optimize organizational performance. Effective facilities management, combining resources and activities, is vital to the success of any organization. At a corporate level, it contributes to the delivery of strategic and operational objectives. On a day-today level, effective facilities management provides a safe and efficient working environment, which is essential to the performance of any business – whatever its size and scope. In order to establish effective facilities management principles, there is a need for organisations to engage in routine and sustained maintenance of their buildings. In Nigerian public buildings, routine maintenance of structures is not often the practice and academic institutions such as universities and other higher institutions of learning are no exception. This study examines these phenomena and proffer solutions to the problem by emphasizing the need for facilities management planning as an effective tool in maintenance of academic buildings. The resultant planning will positively affect the productivity efficiency and comfort of users (staff, students and visitors) in such buildings. Proper maintenance is a critical factor to be considered. It enhances work efficiency and also affects students' performance as a conducive and clean study atmosphere will mentally improve students' performance and organization.

THE CONCEPT OF FACILITIES MANAGEMENT

Facilities management can be defined as 'an integrated approach to operating, maintaining, improving and adapting the buildings and infrastructure of an organisation in order to create an environment that strongly supports the primary objectives of that organisation' (Barrel and Baldry, 2003). Facilities management is also defined as "the structuring of building plants and contents to enhance the creation of the end product" (Park, 1998). Lastly Facilities Management can also be defined as "the planning design, procurement and maintenance of all property assets and other associates support and customers services to achieve and sustain optimum environmental quality and efficiency to achieve best value

for investment within appropriate resource within the law". (Opaluwa, 2005) According to this definition, the building facilities process operates at three main levels namely:

- i. Strategic – where key primary decisions are made
- ii. Tactical – where analysis and design process take place
- iii. Operational – where implementation and day to day running of the facilities process are handled.

Facilities Management is one of the concepts developed to resolve the problem of poor maintenance. In the aftermath of the Second World War, towards the middle of the last century, there were needs for cities to be rebuilt; existing structures were to be renovated, some poorly planned building looked great from the outside but were not functionally conducive for their users and there were also no guidelines which could be used to help people maintain, equip and refurbish their facilities. Building Facilities Management emerged in 1970s. The International Association of Facilities Management was formed in 1980, but only found its way into Nigeria in the 1990s.

ESTABLISHING BUILDING MAINTENANCE POLICY

It is the duty of an organization to maintain its buildings efficiently through a program of continuous scheduling and completing of necessary repair, reconditioning or modelling and long range planning. The maintenance of the buildings should include annual and emergency maintenance of the buildings should include annual and emergency maintenance and also daily dealing is necessary. Other maintenance work should include repair to structures and redecoration of interior spaces, landscape planning and maintenance, repairing of roofs or foundations, replacement of windows and doors, upkeep of fire protection and other necessary maintenance works (Seeley, 1987; Teicholz,2001).

TYPES OF MAINTENANCE

There are various types of maintenance, depending on what is to be maintained, why it is to be maintained, when it is to be maintained and how it is to be maintained.

Day to day maintenance

A daily check and cleaning of facilities usually of a minor nature.

Planned maintenance

Maintenance organized and carried out with thorough control and the use of records to predetermine plan. Such work can be divided into preventive and cyclical maintenance.

Preventive maintenance

Maintenance carried out at predetermined intervals or according to prescribed criteria and intended to reduce the probability of failure or the degradation of the functioning of a facility.

Cyclical maintenance

Maintenance carried out at specific times, irrespective of the condition of the element or components involved, the purpose is to minimize breakdown and to preserve integrity of the complete unit.

Corrective maintenance

This is the work carried out to restore a facility to an acceptable standard.

Breakdown maintenance

This entails maintenance work carried out after a failure. It cost more and it is more cumbersome to manage.

CAUSES OF FACILITIES FAILURE

When facilities fail or are run down there is a tendency to apportion blames on the immediate causes. It is important to point out the probable reasons of failure of facilities to ensure an early avoidance.

a. Failure at design stage

Failure at design stage occur at the planning and design stage where planning and design is critical and should be well detailed. An improper preliminary studies and feasibility studies of environmental impact, soil investigation, construction possibilities, maintenance possibilities etc., should be carried out before an appropriate design is done. In addition, there are inappropriate design specifications. Design errors such as wrong concept of the

project, wrong assessment of loading in the facility and wrong choice of contractor may cause designed objectives not achieved.

b. Failure at Implementation Stage

These are causes of failure that can be traced back to the action or inactions at the construction implementation phase of the project. Errors do take place during construction due to lack of supervision and monitoring and when the facility is put in place it becomes a major challenge for the facilities manager to handle. The use of poor quality materials is a major cause of facility management failure. The expectations of the design team are crippled once inferior inputs are made. The resultant effect is premature breakdown in extreme cases, collapse of entire facilities in use.

c. Facilities management failure in operational life.

This is the period that the facility is put to use and the conception objectives are expected to be realized.

A review of literature reveals a myriad of reasons why facilities experience failure as outlined in Table 1.

Table 1: Summary of Reviewed Literature

Lack of policy	There must be a concerted and systematic approach to the management of facilities in order for desired objectives to be realized. This therefore necessitates a policy, which may either be documented or imbibed by all concerned and supported by management of facilities in order for desired objectives to be realized. This therefore necessitates a policy, which may either be documented or imbibed by all concerned and supported by management.
Lack of funding	In most organizations, top management needs to be fully briefed in order to understand and appreciate the demands of facility management in the organization. Funds requested for preventive maintenance will usually need some explanation before release.
Misuse of facilities	A change of use midstream of a facility without adequate precautions is an invitation to failure. Sometimes, ignorance is the cause of misuse but it doesn't change the fact that abuse of facilities is a potent cause of failures.
Abuse of facilities	Many users of facilities fail to realize that specific constraints and values of loading on weight were employed in the design of these structures. Abuse occurs when a facility is subject to forces for which it was not designed or intended to resist

Alteration and modifications When the need for altering a facility comes, professional advice on the most appropriate way to do it is needed because improper management of such exercise could result in failure

Source: (Abdullah, Ali, Sipan, Awang, Abdul Rahman, Shikab and Jibril, 2012; Ikediashi, Ogunlana, Boateng and Okwuashi, 2012; Ikediashi, Ogunlana, Bowles, and Mbamali, 2012; Kasim, Nor and Masirin, 2012; Seeley, 1987; Shika, Sapri, Jibril, Sipan, and Abdullah, 2012)

No matter how simple or how complex a facility may be, without a defined order of maintenance management the facilities shall sooner or later not only become non-functional but may in addition constitute a hazard for its users (Abdullah, Ali, Sipan, Awang, Abdul Rahman, Shika and Jibril, 2012). It is therefore important to have a form of agreement as to how to operate and maintain each facility no matter its simplicity or complexity in its early life. For Facilities Management to be effective and efficient, a system of information should be in place. There are four signals of Facilities Management problems, namely:

- a. External
- b. Internal
- c. Structure/Fabric
- d. Policy

METHODS

This study consisted of both qualitative and quantitative methods. The study was completed in two distinct stages. The first stage was completed using quantitative methods involving a paper-based survey of undergraduate students housed in Building A. This survey reflected how the respondent view of the maintenance and Facilities Management practices employed in the management of Building A. The second stage was conducted using observational methods and followed by conducting interviews with staff of Physical Facilities Unit of the University and the Faculty cleaners and maintenance staff. Other qualitative data collection methods used in the study included informal interviews with students and selected lecturers of the building. The observational study *also* involved a field survey consisting building inventory and preparation of interim schedule of dilapidation was prepared.

RESULTS

The following results are derived from:

- a. Analysis of observations gathered from field survey
- b. Analysis of questionnaire
- c. Analysis of interviews

Building A is an old building used for academic purpose. There are twenty-three offices in the entire complex,. There are also 3 design studios in the complex, an exhibition gallery, a Data Room and a Computer Laboratory and 9 toilets in the building (figures 1 to 15).



Figure 1. Site plan, Building A



Figure 2: Ground floor Building A

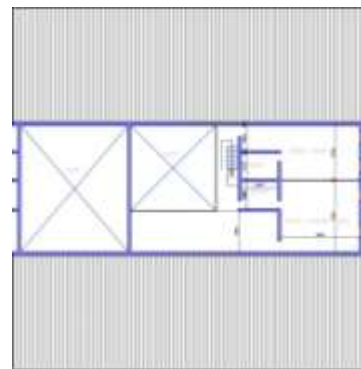


Figure 3: First floor, Building A



Figure 4: .Side of Building A



Figure 5: Building A



Figure 6: Water logged ceiling



Figure 7: Sagging ceiling



Figure 8: broken door panes



Figure 9: broken windowpanes



Figure 10: Poorly installed electrical fittings



Figure 11: Poorly installed electrical fittings



Figure 12: Broken water closets



Figure 13: Poorly installed plumbing fixtures



Figure 14: Broken furniture



Figure 15: Poorly stored furniture and equipment

Building A being an old one needs a lot of maintenance work or even remodelling. The building has some dilapidated facilities which has to be taken care of urgently, as regards to this maintenance needs, there are about 11 cleaners who keep the building clean and report to the directorate of physical facilities in case of urgent need for repairs. The cleaning of offices and toilets are done daily, while those of the studios were done weekly. Some of the maintenance problems of the building were observed in the course of the field survey in Tables 2 and 3.

Table 2: Fault Inventory

<i>Roof and ceiling</i>	<ul style="list-style-type: none"> i. Leakage in roof covering ii. Flapping of roof covering iii. Stains on ceiling sheets iv. Sagging of ceiling members
<i>Walls and floors</i>	<ul style="list-style-type: none"> i. Cracks on walls ii. Mould growth and blistering on painted surfaces iii. Dampness in wall
<i>Doors And Windows</i>	<ul style="list-style-type: none"> i. Rotten doors ii. Broken window panes
<i>Plumbing works/services</i>	<ul style="list-style-type: none"> i. Leaking taps ii. Broken pipes iii. Blocked wash basins iv. Broken water closet v. Broken soak away slab
<i>Electrical works/services</i>	<ul style="list-style-type: none"> i. Cut out fuses ii. Dangling electric cables iii. Broken bulbs and lambs
<i>Surrounding and landscape</i>	<ul style="list-style-type: none"> i. Unorganized green areas ii. Broken sit-outs
<i>Furniture</i>	<ul style="list-style-type: none"> i. Broken tables and chairs ii. Rough drawing boards and stools iii. Broken lockers iv. Some broken desk tops

Table 3: Interim Schedule of Dilapidation

S/N	ITEM	COMPLAINT	REMEDIAL WORK REQUIRED
1	Roof	i. Leakage in roof covering ii. Flapping of roof covering	Roof covering of the entire building should be replaced
2	Ceiling	i. Stains on ceiling sheets ii. Sagging of ceiling members	Ceiling sheets should be replaced for all studios and offices, preferably with PVC sheets, for a clean and modern outlook.
3	External walls	i. Cracks on walls ii. Mould growth and blistering on painted surfaces iii. Dampness in wall	Asphalt should be used to control dampness, Cracks should be filled while external walls should be assessed and repainted, following recommended standards of at least once in three years so as to maintain aesthetics.
4	Internal walls	i. Some of the walls are dirty.	Glossy paint should be used in internal walls for easy maintenance.
5	Floors	i. There are just few broken tiles.	Floors should be regularly cleaned and checked for any case of replacement.
6	Doors	i. Rotten doors ii. Broken doors	The broken wooden doors in the building should be replaced with modern and stronger ones. The two entrance doors should also be replaced with strong burglary proof doors.
7	Windows	i. There are broken window panes.	Window frames should repainted and panes should be replaced.
8	Plumbing works/services	i. Leaking taps ii. Broken pipes iii. Blocked wash basins iv. Broken water closet v. Broken soak away slab	Broken pipes should be replaces, blockages should be checked, broken sanitary fittings should be replaced, soak away covers should be replaced.
9	Electrical works/services	i. Cut out fuses ii. Dangling electric cables iii. Broken bulbs and lambs	Genuine and durable electrical appliances and fittings should be used in replacing the faulty ones.
10	Surrounding and landscape	i. Poor organisation green areas ii. Broken sit-outs	The sit-out and archi-villa should be rebuilt and shrubs and grasses should be planted and watered in the provided green areas.
11	Furniture	i. Broken tables and chairs ii. Rough drawing boards and stools iii. Broken lockers iv. Some broken desktops for drawing boards	Standard modern drawing boards with storage attached to them in studios, a replacement of some office cabinet, tables and chairs, also modelling boards should be provided to avoid cutting on drawing boards.

Questionnaires were distributed to undergraduate students housed in Building A of the university because they are the main users of the building along with the lecturers and non-academic staff. An estimated 500 users make use of Building A with over 75% of them being students.

Table 4: Summary of Statements

S/N	STATEMENTS	SA	A	U	D	SD
1	Facilities management is a necessity not optional	20	5	5	0	0
2	Studios are always clean and well kept	1	10	1	11	7
3	Drawing boards are good and to standard	0	5	1	11	13
4	Studios are secured even for students working overnight	1	5	7	10	7
5	The surrounding environments are clean and well kept	4	6	5	10	5
6	Ceiling sheets need to be replaced	17	10	2	0	1
7	Entrance doors need to be replaced	13	14	2	0	1
8	Floors are in good condition	4	18	0	6	2
9	External walls need to be repainted	25	5	0	0	0
10	There is need for modelling boards in all studios	25	5	0	0	0
11	There is need for toilet facilities for students use	20	10	0	0	0
12	Electrical fittings are functioning well	0	2	0	13	15
13	Poorly maintained environment affects student performance	18	10	1	1	0
14	There are sufficient drawing boards and stools for students use.	2	8	4	6	10

Table 5: Cleaning Schedule for Building A

Space	Studio	Offices	Toilets	Corridors & Surrounding Areas
Frequency	twice week	a Daily	cleaned daily	twice a week

Table 6: Maintenance and Minor Repairs of Building A

TYPE	Minor Repairs	Major Repairs
ITEMS FOR REPAIR RESPONSIBILITY	Furniture and Equipment University Equipment Maintenance Workshop	Electrical, Plumbing and Building Structure and Fabric Directorate of Physical Facilities
RESPONSE TIME	Immediate	Lengthy

FINDINGS

Based on interaction with the staff, the schedules put forward appear reasonable in theory but in practice is not realised. Building A remains one of the least maintained and cleaned building in the university. Informal interaction with selected lecturers however revealed that the users observed the trend of broken down facilities and has revived the Building users Facilities Management Committee and has recently assigned supervisors among the senior non-academic staff of the department, to ensure that the building, particularly the data room, computer lab alongside the studios are cleaned and well maintained.

Routine checks are not planned due to its time consumption and a shortage of maintenance staff. Checks are only done when complaints from various users of facilities are similar, at this time the maintenance officer goes round the facilities under his division to check. Checks are also done when maintenance request form has been filled. When a facility user has any maintenance needs of any facility, the process is usually to get a maintenance request form from the Maintenance Department officer of the Physical Facilities, where they fill in their complaints and forward it back to the Maintenance Department. After getting the request form, the maintenance officer checks the facility and prepares the bill or material schedule of the maintenance need and forwards the complaint and bill to the Director, Physical Facilities for approval wherefore the maintenance officer through the Director, writes to the Vice Chancellor for approval, then to the Bursary for funding.

Before sending a request to the Vice-Chancellor for approval, the users or Maintenance Department has to indicate a vote of charge to be used for funding. A vote of charge is a funding body for example; TETFund, the Students Developmental Levy (used for hostels and laboratory maintenance work, as students benefit more), the rent deduction (used for maintenance of the staff quarters), the Public Maintenance Funds (used to maintain offices and academic buildings) and also the Social Health Insurance Program, (used to maintain the Health Centre).

There is currently no computerized maintenance management system in the Physical Facilities Directorate, but it is been processed in the I.C.T unit of the university. When this is completed and implemented, it will help bridge the communication gap between the facility user and the Maintenance Department. From the studies taken, the researcher has identifies the following problems faced by the Maintenance Department, which makes maintenance difficult, slow or high cost;

- a. Most times users don't report any facility failure, till the situation gets worst, which usually will call for higher cost of maintenance.
- b. The process usually takes a long period before approval, which may curse the condition to deteriorate. This is mainly because processes carried out manually.
- c. Sometimes, the funds allocated to maintenance, especially public buildings (academics and offices) are insufficient for the maintenance needs of such buildings.

CONCLUSION

The study has been directed toward assessing the relevance of facilities management on maintenance of buildings. The study closely examined the fundamental function of a Facilities Management Department of an organization and has also looked into the needs of maintenance of a building. Based on the findings, it is of no doubt that buildings needs proper maintenance at all times to maintain its purpose of design and also to enable better productivity and comfort of its users.

The physical survey of the case studied building and analysis of the questionnaires administered to users shows that the building has been inadequately maintained as a result of the following:

- a. The communication gap between the users of the facilities and the Maintenance Department, due the absence of a computerized maintenance management program which will make maintenance report easier.
- b. Slow report and approval process.
- c. Sometimes the funds allocated to maintenance of such building are usually not sufficient.
- d. Shortage of maintenance staff make routine checks difficult as it is time consuming.

The state of disrepair and dilapidation as a result maintenance challenges stated above speeds up the deplorable state of the facilities and components of the structures as well as surroundings. It is hoped that this research work will create awareness of government and relevant authorities and to finding lasting solutions to the maintenance challenges faced by the university.

RECOMMENDATIONS

Safe, sound constructed and clean and well maintained buildings with sufficient, appropriate space have a significant impact on the self-esteem of users, thereby enabling better productivity.

- a. Budgets should be properly planned and allocated funds for maintenance and should be effectively utilized to cover all aspects of maintenance needs of the buildings.
- b. Embark on fully planned maintenance policy, which is subject to review at the end of every year.
- c. Carry out regular and detailed inspection of the existing structure not only when there is need for repair.
- d. Make sure that the maintenance department monitors all fund allocated for maintenance are judiciously used for what it is meant for no matter how little.
- e. Ensure that maintenance personnel acquire proper training, so as to effectively execute the responsibilities required of them.
- f. Users of the facilities should be enlightened on the needs of proper use of facilities to reduce the act of vandalizing facilities.

- g. Proper records of maintenance work and maintenance plan should be kept for references, to avoid negligence of some buildings within the university.
- h. All necessary tools needed for direct labour maintenance should be provided to the maintenance department by relevant authorities.
- i. The computerized maintenance management program in process should be taken seriously and with immediate effect should be implemented as it will ease maintenance processes.

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