

ASSESSMENT OF BUILDING SURVEY AS A TOOL FOR BUILDING MAINTENANCE PROGRAM A STUDY OF AWKA, ANAMBRA STATE

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ABSTRACT: *Sequel to the inefficiencies found in building maintenance, which has reduced the satisfaction level and resulted in many ugly incidents like building collapse and fast dilapidation, this work was conceived with the aim of evaluating the building survey as a tool for efficient building maintenance. The study adopted a survey design involving literature review, personal interviews and questionnaire survey. The collated data was analyzed in percentages and it was found that building survey is a very vital tool in building maintenance and it has been neglected in the study area. The study therefore recommend that building survey should be put into consideration before any maintenance work will be carried out, both in private and public buildings and there should be full funding and monitoring of the process to yield better results.*

KEYWORDS: Assessment, Building Survey, Building Maintenance, Program, Awka, Anambra State

INTRODUCTION

Background to the Study

According to Amobi, 2011 building survey is a wide-ranging inspection of a property. It is the most comprehensive of the surveys available for residential properties and will provide a detailed evaluation of a property's condition. The building survey report will describe the condition of each element of the house and suggest which aspects are of concern and would need further investigation. Occasionally home buyers will use the format term, structural survey to refer to a building survey.

Building survey are conducted by chartered surveyors. It is important to check that the surveyor you select is regulated by RICS as they set the guidance for surveyors and this will ensure that the advice you are getting is independent, expert advice from appropriately trained professionals. Building survey are suitable for all properties but they are particularly appropriate for.

1. Listed buildings: these are buildings that are on the statutory list of buildings of social architectural or Historical Monuments.
2. Older properties: recommended for properties over 50 years old.

3. Buildings that you intend to renovate for change.
4. Buildings constructed in an unusual way regardless of age.
5. Building that have already been renovated or significantly altered, etc.

A building survey examines all accessible elements of the property and the survey will search for any structural problems or defects that are legally obliged to inform of all problematic defects within the final report. On the other hand, Building Maintenance is the regular inspections of all parts of the building and the execution of works necessary to keep the structure, furnishings and fittings in a proper and acceptable state of repair, including decoration both internally and externally (Cripps, 1988). According to British standard B.SC 3811 maintenance can be defined as the combination all technical and associated administrative actions intended to retain an item in/or restore it to a state on which it can perform its required functions. It can also be defined as the work done to keep something in proper condition.

For the sustainability of optimum performance of a building or any structure, there is need for a sound maintenance culture. Also for an efficient and effective maintenance programme or project to be designed, building survey is indispensable. Adequate building survey has been practiced and appreciated more in the western world and developed nations than in under-developed and developing nations like Nigeria. In a locale like Awka the capital city of Anambra State in the Southeastern part of Nigeria, most local builders and contractors do not see the need for building survey, as they feel that the enlistment of the various professionals in such a demanding task is a waste of time and resources. This results in shoddy maintenance, renovation and or rehabilitation plans and execution.

Statement of Problem

Inefficiencies in building maintenance and its consequent effects cannot be neglected, as cases of building collapse, building abandonment, building short life span and inability of buildings to serve the purpose of their construction proliferate. Inadequate examination of building maintenance problems before commencement of maintenance works, Lack of maintenance manual, Lack of building survey reports and Non-involvement of concerned professionals during the design of building construction and maintenance project(s) are factors that enhance these inefficiencies in building maintenance. To tackle these challenges, building survey becomes a necessity.

Aim of Study

The aim of this study is to evaluate the use of building survey as a tool for effective building maintenance programme. To achieve the above stated aim, the following objectives must be pursued;

- To understand the concept of building survey
- To identify building survey tools.
- To identify problems associated with building survey
- To determine the principles of building survey to actualize the goals of building maintenance.
- To identify measures of ensuring use and implementation of building survey.

Study Area

Awka is the Capital city of Anambra State in the Southeastern part of Nigeria. It is located between latitude $06^{\circ}06^1N$ and $06^{\circ}16^1N$ and longitude $07^{\circ}01^1E$ and $07^{\circ}10^1E$. There are six local Government Areas that make up the Awka Capital Territory is with a total population of 1,003, 911, according to the 2006 census and an average annual growth of 3.17% per annum recorded during the past sixteen years. Awka Territory covers about 120 km sq, which has rapidly developed into a mass of urban areas growing to merge with each other. Having the state capital and one of the biggest institutions of higher learning in the southeastern Nigeria (Nnamdi Azikiwe University) situated in it, it is rapidly being urbanized. The residential areas are made up of individual families' residential compounds, which are walled and linked with pathways and un-tarred roads providing access to the people. Housing is very dominant, but uses here are very mixed as commercial activities, informal activities are carried out within the curtilages of buildings, with every inch of the spaces around the homes, for air circulation and ventilation almost built over. The areas not built upon has been due to certain natural barriers for development such as several water/flood courses, erosion sites, ravines, deep valleys, shrines, religious forests and traditional sites.

LITERATURE REVIEW

According to Charlert, 2007 a building consist of an assembly of materials and components, joined together in such a way as to allow the building to fulfill its primary purpose, that of providing shelter to its occupants. This primary function may be augmented by other supplementary function, for instance, the building may be used for the manufacturing of products, a warehouse will be used for storage of goods, a leisure house will be used for the pursuit of leisure activities, for institutional purpose, residential purpose, Hospital etc nevertheless, the will all need to satisfy the primary objective of providing shelter to a occupants.

It is an accepted fact that all building deteriorate (develop fault and defects) to some extent as of that age. This deterioration may oven start as the individual components are incorporated into the building element during construction process. In certain prior circumstances the deterioration of the component of the building site. The rate and extent to which a building deteriorates is dependent on one or more of the following factors, maintenance, the environment, design and construction.

Building surveying emerged in the 1970's as a profession in the United Kingdom by a recognized profession in Britain, inland, Australia, and Hong-Kong. In Australia due to risk mitigation and limitation factors, the employment of surveyors at all level of construction industry is wide – spread. There are still many countries where it is not widely recognized profession. Mostly developing countries of the world.

Building Maintenance

According to Amobi (2011), Building maintenance has until recently been a neglected field of technology in the country yet every infrastructure or equipment requires being maintained to remain in functionality and up-to diet standard. Buildings are the nation's most voluble assets providing people with shelter and facilities for work and leisure.Maintenance starts, the day the contractor leaves the site, having completed the building. The design, material specification,

construction include workmanship, function and use will determine the amount of maintenance required during the life time of each building. Many building client establish the level of maintenance provision as an economic criteria and not by building/use/performance criteria. Little thought is given to the fact that as the building gets older, The likelihood of additional maintenance is high over and above that already carried out. Furthermore, if the owner/users are experiencing financial problems, maintenance is one of the first costs to be cut. It is a fact that the condition and quality of the building reflect attitude and behaviour of members of the community in their care or difference, the level of prosperity, social values and behaviour and all the various influences both past and present which combine to give a community it's unique character. According to (Seeley, 2003), A prime aim of building maintenance is to preserve a building in its initial state, as far a practicable so that, it effectively serves it purpose. Some of the main purpose of maintaining buildings is.

- 1) *Retaining value of investment*
- 2) *Maintaining the building in a good condition in which it continues to fulfill its function\present a good appearance.*
- 3) *Present a good appearance.*

Chudly (2001), identified the principle criteria which could influence the decision to carry out maintenance work such as cost, age and condition of property, available of adequate resources urgency, future use and possible sociological consideration.

Maintenance according to Seely (2003), comprises of three major components;

- 1) *Servicing*
- 2) *Rectification*
- 3) *Replacement*

Servicing is essentially a cleaning operation varying frequency and also sometimes termed day to day maintenance. As more sophisticated equipment are introduced so more complicated services schedules become necessary. The frequency of clearing varies typically frequencies being floor swept daily and polished weekly, windows monthly, flues swept every six months painting for decoration and projection every four years.

Rectification work usually occurs fairly early the life of a building and crises from short comings in design, inherent from or unsuitability of components, damage of goods in transit or installation and incorrect assemble. Rectification represent a recita point of which to reduce the cost of maintenance because it is avoidable. All that is necessary at any rate in theory as to ensure that components and materials are suitable for their purpose are corrected installed. These seemingly simple requirements are not always easy to achieve frequently, the same component must fulfill many functions such as weather shield, lead bearer, they are, thermal insulate and still be of good appearance. A failure to perform and of these functions satisfactorily can result in maintenance work.

Replacement is inevitable because service conditions cause materials to decay at different rate. Much replacement seems not too much from physical breakdown of the materials or element as

from deteriorate of appearance. Hence the length of acceptable life involves a subject judgment of aesthetics of change furthermore, the measurement of the durable or length of life of a material is very difficult technological problem, because of the complex nature of the environment and the difficulty of determining how much a material may change before it is discarded. The frequently of replacement could of then be reduced by the use of better quality material and components by it the economics of this merit careful study.

Amobi (2005), affirmed that a maintenance manual is a technical literature that exposes how maintenance is to be carried in a particular building. It guides on how to use and maintain the building. It is necessary that maintenance manual be prepaid for any new building. Maintenance should not be a subject of glues work after an ejection of the building but an integral part of design process, by striving for the production of good maintenance data for any good design. It is necessary that the design team feeds information on operating manuals and other basic relevant data to the professional staff responsible for the future maintenance and upkeep of the building. From this information, the maintenance staff can plan, organize and specify repair and maintenance procedure thereby optimizing the building life.

The planning and maintenance should start from guidance and information contained in the maintenance manual and in the as built drawing. Maintenance manual is still confidence into maintenance staff, who will appreciate having an authoritative guide avoidable for quiche and easy reference. He also went further to elaborate that the manual is a document which provides a lot of value added services such as:

- a) *Establishing policies and estimated resource*
- b) *Preparation of budget allocation and resources.*
- c) *Programming of work according to available resources.*
- d) *Determining maintenance activities to be undertaken for each asset.*
- e) *Providing guidance to personnel in preparation, cost of area and equipments to be used.*
- f) *Maintenance of the particular building to which it relates.*
- g) *Confirms assets service delivery i.e condition and functional performance.*
- h) *Help in keeping the building in good condition of rapid deterioration (dilapidation).*
- i) *Guidelines on operational practices*
- j) *Provision of valuable information in diagnosing the problem and designing repairs.*

According to Amobi (2003), a good maintenance manual incorporates the following section.

1. *Maintenance and Repairs: this section provides full details of material, facilities and constructional process.*
2. *Record of Maintenance Executed: This provides maintenance log to permit constant updating and inclusion of any changes or additions.*
3. *Plans and Drawings: This depicts on plans of each floor to a small scale with permission floor heading and usable areas, all as built and relevant service layout.*
4. *House Keeping: Details of surface finishes and decorations bother internally aid and externally with information concerning cleaning and periodic routic routine m maintenance.*
5. *Emergency and information: this provides names addresses and telephone number of contents in the event of emergence together with location of a appropriate equipment/ facilities.*

6. *Operation of Plant: This is a means of operating equipment with details of periodicals routine maintenance servicing.*
7. *Contract and legal particulars: This includes the design team, contractors and sub-contractors nature of tenure and details of contract particular.*
8. *Operational leaders: This is armed to give an after sales service.*

METHODOLOGY

The study adopted the survey design, which involved a field survey of sites, personal interviews, and a questionnaire survey methods in generating the needed data.

The major techniques used for the collection of relevant information regarding this study include the following:

- 1) Physical inspection and observation
- 2) Use of interview (oral interviews)
- 3) The use of questionnaires

DATA PRESENTATION / ANALYSES

Only 25 copies of the research questionnaire were distributed to the various firms and professionals in the building industry. The professional are in the form of builders, quantity surveyors, architects, civil engineers, estate values, land surveyors and project managers. A total of 21 copies were replied and 4 were not replied. The questionnaires were distributed to allow the firms and professional present their views on the use of building survey in the maintenance of building. These questions in the respondents so that meaningful answers could be gotten for deductions

Table 1 illustrates the response to the questions distributed.

	Number Distributed	No. Received	No Not Received
Number	25	21	4
Percentage	100%	84%	16%

Source (field work 2016).

From the information presented above, it is shown that 21 out of the 25 questionnaires distributed received which represents 84% and sample population and 4 were not received which represents 16% the sampled populations. It thus shows that the feedback is satisfactory.

Question One

Maintenance of building does it require the use of building survey?

Options	Yes	No	Double	No of the above
Response	14	3	4	0
Percentage	66.7%	14.2%	19%	0%

Source (field work 2016).

From the above response, it will be analyzed that the use of building survey is necessary in the maintenance of building.

Question Two

Does the problem of maintenance of buildings occurs as a result of improper specification?

Options	Yes	No	Double	No of the above
Response	10	7	3	1
Percentage	47.6%	33.3%	14.3%	4.8%

Source (field work 2016)

From the above response, it is observed that 47.6% of the sample population says that the problem facing the maintenance of building is as a result of improper specification which is satisfactory.

Question Three

Does the type and form of maintenance to be employed in the maintenance of building depend on the choice of the client?

Options	Yes	No	Double	No of the above
Response	10	10	1	0
Percentage	47.6%	47.6%	4.8%	0%

Source (field work 2016).

The above response shows that 47.6% affirm to the fact that the choice of the client depends on the type and form of maintenance to be employed in the maintenance of building.

Question Four

Does any professional in the building industry qualified to undertake a building survey?

Options	Yes	No	Double	No of the above
Response	8	11	2	0
Percentage	38%	52.4%	9.5%	0%

Source (field work 2016).

From the above analysis, 52.4% believed that building survey cannot be undertaken by any professional in the building industry.

Question Five

Can maintenance work in building be delayed because of lack of building survey?

Options	Yes	No	Double	No of the above
Response	11	5	3	2
Percentage	52.4%	9.89%	14.3%	14.3%

Source (field work 2016).

From the above response, it is observed that a maintenance project can be delayed if there is an incomplete maintenance survey.

Question Six

Can lack of effective survey of building leads to poor maintenance?

Options	Yes	No	Double	No of the above
Response	19	2	0	0
Percentage	90.5%	9.5%	0%	0%

Source (field work 2016).

The response here strongly belief that lack of effective survey in the maintenance of building can lead to poor maintenance.

Question Seven

Can proper survey reduce the cost of achieving an effective maintenance project?

Options	Yes	No	Double	No of the above
Response	17	0	3	1
Percentage	80.9%	0%	14.3%	4.8%

Source (field work 2016).

The responses have shows that 80.7% of the sample population agrees to the fact that a proper maintenance survey can reduce the cost of achieving an effective maintenance project.

Question Eight

Maintenance manual should not be a reference book during the maintenance of buildings?

Options	Yes	No	Double	No of the above
Response	4	15	1	1
Percentage	19%	71.4%	4.8%	4.8%

Source (field work 2016).

From the response, 71.4% of the sample population disagree that maintenance manual should not be a reference book during the maintenance of buildings.

Question Nine

Maintenance manual should not be a reference book during the maintenance of buildings.

Options	Yes	[NO	Double	No of the above
Response	4	15	1	1
Percentage	19%	71.4%	4.8%	4.8%

Source (field work 2016).

From the response, 71% of the sample population disagree that maintenance manual should not be a reference book during the maintenance of buildings.

Question Ten

Can proper maintenance of building enhance the lifespan of the building?

Options	Yes	No	Double	No of the above
Response	19	2	0	0
Percentage	90.5%	9.5%	0%	0%

Source (field work 2016).

The response shows that when there is an adequate and proper maintenance of building will enhance the lifespan of that building

Question Eleven

Can building be efficiently maintained without taking proper look at the building survey report?

Options	Yes	No	Double	No of the above
Response	8	9	4	0
Percentage	38%	42.9%	19%	0%

Source (field work 2016).

From the above response, 42.9% of the sample be maintained agrees that a building can only be maintained effectively, if there is a proper look at the building survey report.

Question Twelve

One of the major objectives of applying the use of building survey in the maintenance of building is to control dilapidation of the building?

Options	Yes	No	Double	No of the above
Response	19	2	0	0
Percentage	90.5%	9.5%	0%	0%

Source (field work 2016).

From the above response it is observed that the use of building survey in the maintenance of building is for the purpose of accessing degree of dilapidation in that particular building.

Question Thirteen

Are there buildings that do not require maintenance survey before the commencement of remedial work?

Options	Yes	No	Double	No of the above above
Response	2	16	3	0
Percentage	9.5%	76.2%	14.3%	0%

Source (field work 2016).

From the analysis above, 76.2% of the respondents are of the opinion that the money spent in undertaking ability survey in the maintenance of building is not a west.

Question Fifteen

Does survey and maintenance have something in common in the building industry?

Options	Yes	No	Double	No of the above
Response	14	3	3	1
Percentage	66.7%	14.3%	14.3%	4.8%

Source (field work 2016).

The analysis above shows that 66.7% of the respondent are of the opinion that survey and maintenance have something in common.

Question Sixteen

Does the use of building survey in project maintenance produce good result?

Options	Yes	No	Double	No of the above
Response	14	6	1	0
Percentage	66.7%	28.6%	4.8%	0%

Source (field work 2016).

From the analysis above, it is observed that 66.7% of the sample population agrees to the fact that the use building survey in project maintenance produces a very good.

Question Seventeen

Does the building surveyor need to take into consideration, the use of maintenance manual before carrying out any maintenance operation?

Options	Yes	No	Double	No of the above
Response	19	1	1	0
Percentage	90.5%	4.8%	4.8%	0%

Source (field work 2016).

The response gotten above shows that 90.5% of the respondents strongly recommend the surveyor to take into consideration, the use of maintenance manual.

Question Eighteen

Does extent of dilapidation in a particular building exposed, when a building survey is carried out in that building?

Options	Yes	No	Double	No of the above
Response	21	0	0	0
Percentage	100%	0%	0%	0%

Source (field work 2016).

From the analysis above, 100% of the response gotten strongly accepts the fact that the extent of dilapidation in a particular building project is exposed when a building survey is carried out in that building.

Question Nineteen: is building survey do or die affair in building maintenance program?

Options	Yes	No	Double	No of the above
Response	11	9	1	0
Percentage	54.4%	42.9%	4.8%	0%

Source (field work 2016).

From the analysis above shows that a good number of the people says that building survey is a do or die affair in maintenance program.

Question Twenty: Is the engagement and use of building survey in the maintenance of building a waste of money to tax payers.

Options	Yes	No	Double	No of the above
Response	6	12	2	1
Percentage	28.6%	57.1%	9.5%	4.8%

Source (field work 2016).

The analysis above shows that good and complete practice of building survey in the maintenance of building can not lead to increase in the contract sum of the project, thus not a waste of resources when compared with the end gain.

DISCUSSION

The maintenance of building in Nigeria has so far been a neglected field of technology which has lead to bad state of buildings and its facilities. The users and management of these buildings are known to be the major factors of the dilapidated state of buildings in Nigeria which arises either by omission or commission.

This neglect of good maintenance of our facilities which has inevitably led to the present gross dilapidated state of affairs generally in building and engineering infrastructure does not just come from users of the building and its facilities alone, but the professionals in the building industry who have been undertaking building maintenance are also involved. These professionals have given little or no attention to the use of building survey in key factor affecting building maintenance industry today. The principal factors causing this problem of neglect might be the following:

- a. Unnecessary savings from the contractor, by trying to save the cost of undertaking a building survey in order to maximize profit.
- b. Unnecessary saving from building owners
- c. Non involvement of maintenance experts in the maintenance of buildings.
- d. Unethical behavior from the contractor.
- e. Absence of proper maintenance training to the professionals in the building industry this training might be in form of seminars, conferences etc.
- f. Incompetence of the professionals
- g. Corruption, which a major problem facing Nigeria, with building industry not exempted.
- h. Ignorance from the building owners, building surveyors and property developers.

SUMMARY OF FINDINGS

The response gotten were analyzed and the following deductions were made:

1. One of the problems facing the maintenance of building is improper specification.
2. Lack of effective survey in the maintenance of building can lead to poor maintenance.
3. Proper maintenance survey can reduce the cost of achieving an effective maintenance project.
4. Adequate and proper maintenance of buildings enhances the-lifespan of the building.
5. Building can only be maintained effectively if there is a proper look at the building survey report.
6. The use of building survey in the maintenance of building is for the purpose of accessing the degree of dilapidation in a particular building.
7. Most buildings require maintenance survey before the commencement of any remedial work.
8. The use of building survey in project maintenance produces a good result.
9. The building surveyor need to take into consideration, the use of maintenance manual before carrying out any -maintenance operations.

CONCLUSION AND RECOMMENDATION

In conclusion, the study found that the application of this activity (building survey) by individual building owners, professionals in the building industry and the government is very low and in some cases are not used at all. This has lead to the present state of despair with some attendant problems facing the Nigeria building industry. Most developed countries like Britain and United State of American, have adopted the use of building survey in the maintenance of building and this has contributed immensely in the good and healthy state of buildings in their country regardless of the age of these buildings. Therefore, Nigeria building owners and professionals in the building industry and the government should welcome this fact and fully adopt and implement it to enhance the sustainability of our buildings and maximization of serviceability and satisfaction. This will also enhance the development of the economy and comfort of the users of these buildings.

Mainly, buildings generally known as government buildings, though they may be owned by private individuals may be institutions, court buildings, National library, National Assembly Building, National Hospital etc; it should be the sole responsibility of the government to regulate how these buildings are being maintained and used.

1. There should be implementation of policies majorly concentrating on the use of building survey in the maintenance of buildings.

2. Also a body or committee should be formed to monitor the execution of buildings maintenance in all aspects and ramification.

3. Commercial and public structure, owned by government should be well funded for both building surveying and maintenance aspects; in order to keep up the building service.
4. Building survey is a very vital tool in building maintenance and it, should be put into consideration before any maintenance work should be carried out, both in private and public buildings.
5. Multi-storey buildings like Hotels, churches, schools, should undertake in cooperate building survey as part of maintenance management.

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