

Construction Management Approach Towards the Repair and Maintenance of Industrial Buildings

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ABSTRACT - The connection between building and property management and building management system. It provides an insight into the concept of building management. Building management is a particular economic activity, a set of property maintenance, operation, repair, and maintenance. This is a legal and technical set of operations required for building maintenance and preservation of usable condition and functionally required for the maintenance of the land to ensure that property is used for the purpose. The continuous growth of socially responsible building management indicates that there is a need for a more effective management system of the building lifecycle to provide sustainable residential property development. Information regarding this paper discusses the review of Repair and Maintenance of Industrial buildings. In the current scenario of industrial building research, repair and maintenance place a vital role as it serves the important industrial building. Industrial outbuildings and other structures have a certain useful life. In industrial buildings, various defects are generated due to different causes e.g. in some cases defects are caused after the structure has been complete for a few years which results in a shortening of life and strength of other structures.

Key Words: Profoscope, bulges, myriad, dwelling, repair, man-made, complex.

LINTRODUCTION

Building Management and Maintenance is an organized and effective system of maintenance operations, which is set up to deal with problems related to the upkeep of a building. The main aim of maintenance is to protect a building at its preliminary stage and to retain the value of investments in the property. Keeping a building in a condition in which it continues to fulfill its purpose and making sure it presents an attractive exterior are also important factors

made possible through proper building maintenance. Building maintenance is an expensive process both from financial aspects (operational costs, real estate management, administration, a job with debtors, legal services, etc.) and environmental aspects (climate change, greenhouse emissions, and energy efficiency measures). Businesses aim to reduce the costs of buildings transforming them into a more efficient and sustainable infrastructure. Maintenance is often defined as the series of activities undertaken to take care of the building structure and services to ensure the intended functions and optimal performance of a building life cycle. The management department of a building is usually responsible for the enhancement of the indoor environment quality by service delivery and for boosting occupant productivity and satisfaction.

These are two closely related issues. Building management, apart from covering the basic security and cleanliness aspects of buildings, should also coordinate or even include the implementation of maintenance plans to ensure a safe and pleasant living environment. surveillance can be strategically combined with inspection for maintenance. It would be beneficial to owners in engaging the same personnel in carrying out both duties. Defects create hazards leading to serious or fatal injuries. Most defects can, at their early stages, be discovered through visible or detectable symptoms. If not promptly rectified, minor defects can develop into serious ones, causing failure or sudden collapse, endangering lives, and becoming more costly to rectify.

Industrial building maintenance and repair have one of the biggest problems we are facing today. Maintenance is work undertaken to improve every facility in every part of an industrial building. It is the service and surroundings accepted standards to sustain the utility values of the facility. The objective of maintenance is to preserve in good condition building and services, when deterioration occurs due to any

reason it is inevitable to restore it to its original standards, improve it whenever required. A good maintenance team has to ensure safety, efficiency, and reliability. Repair is the process of restoration of broken damages, failed devices, equipment, and repairs. Some types of repair such as patching up defects such as cracks and falls of plaster, repairing doors, windows, and replacement of glass panes. Checking and repairing electric wire.

Maintenance, Repairs, and operations involve maintaining, repairing, and replacing industrial, business, government, and residential installations. In maintenance, there are types such as preventive maintenance, corrective maintenance, and Predictive maintenance. Building in disrepair or unsanitary condition, unauthorized building works are potential hazards to the public. In any industrial building, many types of defects are occurred such attack stack by pollutants, defects occurring in various forms and the different extent in all types of buildings, irrespective of age, use of unsuitable construction details, Natural deterioration of defective concrete, or loose plaster in ceiling, etc. We find out all the above defects and their causes too. After findings the causes we will give preventive measures. Defects in building services installation such as water supply, electricity supply, fire services, lift and escalator, air conditioning, or heating.

Maintenance Performance

Complex man-made artifacts can only survive using regular reinvestments in maintenance and adaptation. Maintenance is required to maintain a building's initial performance capacity. Without maintenance, performance will not meet the demand and eventually will drop below the limit of acceptance of residents. In practice, both the demand and the limit of acceptance will gradually rise over time as a result of improved technology, rising standards, and growing prosperity. Improvement and renewal are required to answer the accordingly rising expectations. As a result, the total life cycle costs will generally be a multiple of the initial building costs. Maintenance is a combination of all technical and associated administrative actions during the service life to retain a building or its parts in a state in which it can perform its required functions. All building components have during their service lives to contend with degradation and performance loss through aging use, and external causes.

Objective

- 1) To study Industrial building construction maintenance systems.
- 2) To find causes and sources for maintenance of buildings by taking a suitable case study.

3) To suggest methods for maintenance work for Industrial buildings from the perspective of construction management.

II. LITERATURE REVIEW

Davidson et al. (1): In this paper, we learn that the repair and rehabilitation of concrete structures are very challenging. It is a real challenging task to repair/rehabilitation work when the structure has already undergone major structural damages/deterioration. As such, there is a requirement for periodical/timely assessment and maintenance with the latest available techniques and materials as described in this paper.

Straub A et al. (2): This paper talked about how such selection & evaluation of the right repair material and protective coatings will save enormous money & time by reducing the frequent repair costs of already repaired concrete buildings/structures.

Muhammad et.al.(3): Repair and maintenance works are creating a nuisance for sustainability and, apart from a myriad of internal and external drivers, "waste regulation" is dictating R&M decisions, which are not aptly streamlined with the established PRM framework. The story is even more aggravated in the case of developing countries where environmental concerns are further burdened by weak economies and indifferent and dispassionate societies.

Naveen et. at (4): It is possible to conclude that AR offers opportunities for industrial maintenance by permitting the user to Enable/disable 3D parts. But, the main contributions of the paper, related to maintenance efficiency and AR fields include improving efficiency with adaptive data management and to make Non-programmers create AR content.

III. METHODOLOGY

A) The Repair Process

We would advise a householder to contact their household insurer if cracks develop in a property. They are likely to appoint a specialist structural surveyor to monitor the situation before any works are deemed necessary. This surveillance can take a while, but the right diagnosis is always worth waiting for. If structural repairs are eventually needed the good news is these can now be undertaken with far less disruption than was commonplace in the past. In short, structural repair and stabilization offers an accost-effective, low-impact, and environmentally sound alternative to demolition and rebuilding – and is vital to preserve and protect buildings in the UK. However, protecting the building and achieving a successful remedy to structural instability whilst carrying out structural repairs, presents several challenges.

B) Repair Techniques

There are several methods available to deal with the various types of structural repair. For example, cavity wall tie corrosion, a common problem in cavity walled properties, has reasonably simple and well-established remediation strategies. New stainless steel ties can be installed, either fixed into the walls using resins or mechanically. The defective or corroded ties can be isolated or removed when necessary but, in some specific situations, can even be left in situ. One problem we can come across is cracking as a result of movement in the ground supporting the walls and floors. This movement in a building's structure is commonly referred to as subsidence, and again there are several ways that the cracks and bulges occurring in the wall as a result of ground movement can be repaired.

C)Types of Building Repair and Maintenance Services

The types of building repair and maintenance service works are in addition to above, additions and alterations Work in the buildings, Supply & maintenance of furniture & furnishing articles should also be done.

1) Day to Day Repairs

Day-to-day repairs include service repairs which arise from time to time in the services of the buildings such as in plumbing works, water supply, etc. Examples of such repairs are removing choking drainage pipes, manholes, restoration of water supply, replacement of blown fuses, repairs to faulty switches, watering of plants, lawn mowing, hedge cutting, stand seeping of leaf fall, ls, etc. The purpose of this maintenance service is to ensure the satisfactory continuous functioning of various services in the buildings.

2)Annual Repairs

This maintenance service is carried out to maintain the aesthetics of buildings and services as well as to preserve their life, some works like whitewashing, distempering, painting, cleaning of lines, tanks, etc. are carried out periodically. These works are planned on year to year basis.

3)Special Repairs

Special repairs of buildings are undertaken to replace the existing parts of buildings and services which get deteriorated with the aging of buildings. It is necessary to prevent the structure & services from deterioration and restore original conditions to the extent possible.

4)Additions and Alterations

The works of additions/alterations are carried out in buildings to suit the special requirements of occupants for functional efficiency. The facilities in buildings are updated by carrying out such works.

5)Preventive Maintenance

Preventive maintenance is carried out to avoid the breakdown of machinery the and occurrence of maintenance problems in buildings and services. Works of preventive maintenance are carried out based on regular inspection surveys. Survey maintenance includes works to prevent deterioration of building parts (which depends on climatic conditions), pollution, fungi, the attack, subsidence, flooding, the intensity of usage, careless usage, seepage, etc.

IV. DATA COLLECTION

Causes that Lead to Deterioration of Industrial Buildings The deterioration of buildings mainly depends on the type of building and the maintenance time.

1. Human cause leads to the deterioration of industrial buildings due to failure to clean and carry out routine maintenance, ignorance of the causes of deterioration and decay, inadequate planning for proper maintenance, and failure to raise awareness of the maintenance needs of all people using the buildings and adopting negative attitudes require urgent measures.

2. Chemical cause leads to the deterioration of buildings due to the interaction of certain cleaning agents with materials and/or components leading to decomposition, softening, or discoloration, and the interaction of certain dissimilar materials in close contact with each other in a corrosive environment.

3. Atmospheric cause leads to the deterioration of buildings due to the reaction of structure, exterior fabrics, finishes, and cladding with atmospheric elements (for example, wind, rain, sunshine, frost, and snow in cold weather, air pollution, and the reaction of building to the penetration of the above atmospheric elements).

4. Structural cause leads to the deterioration of buildings due to the reaction of structural elements to precipitation, moisture, shrinkage, and thermal movement, the reaction of structural elements to changes in load patterns, the natural aging of structural elements, the response to corrosive elements, and deterioration due to the lack of inspection and maintenance.

5. Moisture cause leads to the deterioration of buildings due to penetration of the external fabric of cladding, or the moisture generated through ground-floor constructions, which may create suitable conditions for the growth and invasion of fungi, while excessive moisture in the internal atmosphere may lead to excessive condensation and corrosion, irrigation and faculty plumbing.

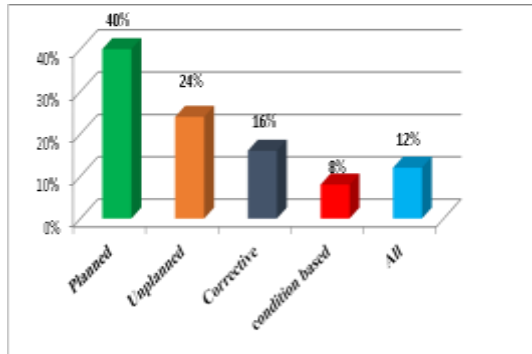


Fig.No.1 Industrial buildings are maintained using different concepts

Defects In Industrial Building

1. Defective concrete, loose in ceilings.
2. Water seepage from external walls, windows, roofs, or ceilings.
3. Structural cracks in column and beam.
4. Non-structural cracks in plaster and other finish.
5. Defective external wall finish / mosaic tiles.
6. Structural cracks in the wall.
7. Defect due to design failure.
8. Defect due to construction failure.
9. Defect due to material failure.
10. Lack of supervision.
11. Climatic condition.
12. Chemical reaction.
13. Manufacturing defects.
14. Patterned cracks.
15. Roof defect.

V.CONCLUSION

From the inception stage of construction up to the period of residence stage, the entire buildings need maintenance as well conducting the inspection process during use or occupation. Carelessness and recklessness of the users of the property are also a direct effect of defects and subsequent maintenance work which will affect the performance of a building. The building owners should maintain their properties at regular intervals including keeping maintenance records. Every facility and property should have a well-detailed maintenance plan, program, and schedule to aid in the effective maintenance operation.

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