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Review on Study and Assessment for Damages and Maintenance Management of Residential Apartment

Utkarsha M. Dhok¹, Dr. Manish. M. Bais², Prof. A. G. Kale³

P.G. Student, Department of Civil Engineering (Construction Engineering & Management), VYWS's PRMCOEM, Badnera-Amravati, Maharashtra, India¹

Assistant Professor, Department of Civil Engineering (Construction Engineering & Management), VYWS's PRMCOEM, Badnera-Amravati, Maharashtra, India²³

ABSTRACT: Apartment buildings constructed prior to the First World War are important examples of Polish buildings with regard to their historical significance – the technical maintenance of such buildings remains challenging. The purpose of the review was to study & identify an influence of widely considered maintenance of apartment houses on a degree and intensity of their elements'. The goal of this review has been achieved through the discussion of symptoms reflecting the decline of the inspected elements exploitation values that is identification of mechanics of arising their defects. The aim of the study is to provide information which would assist in the research about planning of maintenance work for the group of the apartment houses in question. Various methods of scientific research for calculating the technical wear of an apartment house and the detailed results of the technical wear of apartment buildings elements are presented in this study which was mentioned by different authors.

KEYWORDS: Inventory Control, Buildings, Damage & Maintenance, etc.

I. INTRODUCTION

Apartment buildings constructed prior to the First World War are important examples of Polish housing style – these types of buildings account for around 10.1% of the total number of urban apartments. Furthermore, the importance of this type of building is due to the fact that they contribute to the creation of the urban environment. Maintaining the value of the urban environment requires continued effort and is a responsibility that is passed down through the generations. The effort is effective if continuity of the following process is kept: erection, maintenance, repair, maintenance, modernisation, maintenance, etc. until the demolition of the object. Due to the political and economic conditions of the twentieth century developments in many countries have been destroyed over the course of history caused by the events of war.

After the Second World War, in plenty of countries in Central Europe, additional devastation factors have appeared as a consequence of a lack of houses, the migration of people and insufficient care and maintenance of buildings – a majority of them as a result of deprivation of a law of property belonged to proprietors of houses. There is currently a need to make efforts to repair and maintain such buildings. Cultural factors doubtlessly motivate such efforts. With regard to the economic and technical justification of such repair and maintenance projects, the degree of technical wear and tear of the buildings in question should be identified.

The terms residential building and apartment building are used interchangeably in this study. A residential building is a building containing separate residences where a person may live or regularly stay. Each residence contains independent cooking and bathroom facilities and may also be known as an apartment or a condominium. A residence is “a temporary or permanent dwelling place, abode, or habitation to which one intends to return as distinguished from a place of temporary sojourn or transient visit.” An apartment is “an individual dwelling unit, usually on a single level and often contained in a multi-unit building or development.” Apartment buildings are those structures containing three or more living units with independent cooking and bathroom facilities, whether designated as apartment houses, condominiums, or garden apartments. Apartments differ from multi-unit residential occupancies that are not considered homes, such as hotels and boarding homes, by the provision of individual cooking facilities, the number of sleeping rooms, and the less transient nature of the occupants.” Failures, defects and damages are common phenomena in

construction industry. Negative impacts may arise towards cost, duration and resources of project. Failures and damages can cause unnecessary expenditure and delays. They are also generating controversies among parties involved. Furthermore, if this situation is left unanswered and untreated, it will lead to more serious problems in the future upcoming construction projects in Pune, India. The reoccurrence incidences of defects and failures in government buildings concerning leaking pipes and ceiling collapse, including a leaking roof in the Parliament building, are an embarrassment and far too serious to be ignored. Furthermore, if these problems continue, those who are working in the construction industry also will be facing numerous procedures and regulation before being awarded a construction project. Therefore, it is essential to identify common contribution factors of structural defects and failures in construction project especially in Pune in order to minimize the effect to building and indirectly it will prolong the life span of the building.

II. LITERATURE WORK

Alberto De Marco, Diego Briccarello and Carlo Rafele (September 2009) - This paper overcomes the predicament of practicability and predictability of conventional estimates at final touch primarily based totally on early development dimension with the aid of using providing the empirical outcomes from the development undertaking of an commercial facility. The case can be a reference exercise for assessing time and price overall performance measurement of any building, whose format may be moderately partitioned into repeatable portions.

Anthony W. Y. Lai and Peggy S. M. Pang (August 2010) - This study aims to evaluate the quality of service of contractors. The evaluation method is based on the SERVQUAL approach. Expectations and representations of direct representatives of the homeowner in the work of the contractor. The results indicate: The deficiencies in the quality of service indicators are related to the willingness of the contractor to respond quickly to requests. the owner's tenants or agents and the availability of sufficient resources to reliably perform the promised services; Accurate in terms of time, cost and quality. The results of this study will allow you to identify contractor weaknesses and allocate resources appropriately across these critical variables.

Emma Marinie Ahmad Zawawi, Syahrul Nizam Kamaruzzaman, Azlan Shah Ali, Raha Sulaiman (November 2010) - This article examines the system of constructing maintenance and control in Malaysia with the purpose of figuring out elements causing negative maintenance in numerous forms of buildings, and turning in a new advanced system. The observe makes a speciality of the control of building maintenance, inclusive of putting in organisations, regulations and quality standards. It makes enormous use of questionnaires and surveys as a manner of records collection. The surveys cowl all elements of maintenance control in Malaysia, inclusive of occupant satisfaction, number of team of workers contributors and the techniques utilized in preservation delivery.

N. Ahzahar, N.A. Karim, S.H. Hassan, J. Eman (December 2011) - In this study authors were expected to distinguish commitment variables to building deformity and disappointments, which as often as possible happen in development project particularly in Penang region to limit time and cost included. The information was gathered by analysts in poll from different players in development industry. This study was prevailing with regards to recognizing the normal commitment elements of primary deformities and disappointments in development project. Essentially this study worked on the adequacy of overseeing evaluation cycle of disappointments and imperfections later on.

Alcnia Z. Sampaio, Augusto M. Gomes, Ana Rita Gomes, Daniel P. Rosrio (Jan 2011) - In this paper a form of Virtual Reality version turned into created so as to assist with inside the preservation of outdoors closures and interior finishes of partitions in a building, which lets in the visible and interactive transmission of facts associated with the physical conduct of the elements, described as a feature of the time variable. Also, the fundamental understanding approximately fabric most regularly utilized in partitions, anomaly surveillance, strategies of rehabilitation, and inspection making plans had been studied via way of means of the authors.

Melesse Workneh Wakjira, Ajit Pal Singh (Feb 2012) - The motive of this paper is to assess the contributions of total productive maintenance (TPM) projects toward enhancing production overall performance in Ethiopian malt production industry. The correlations among diverse TPM implementation dimensions and production overall performance enhancements had been evaluated and confirmed via way of means of using overall equipment effectiveness (OEE) in boiler plant. In this research, authors centered upon the substantial contributions of TPM implementation fulfillment factors like pinnacle management leadership and involvement, conventional renovation practices and holistic TPM implementation projects, toward affecting enhancements in production overall performance withinside the Ethiopian industry.

Nima Amani, Nasly Mohamed Ali, Abdul Hakim Mohammed, Roslida Abd Samat (January 2012) - This research has been conducted by author to observe the effect of maintenance-associated problems on centers

maintenance control device. Building maintenance consists of cleaning, inspecting, repairing, and changing the building's numerous structures and components. Questionnaires had been dispensed in huge towns of Iran. The findings recognized the extent of agencies' understanding in centers maintenance-associated problems; the diploma to which government team of workers is uncovered to education in centers maintenance-associated matters; the quantity to which agencies seek advice from maintenance consultants; the relative significance of facilities maintenance (FM) problems to different overall performance elements and the extent of trouble in cleaning, inspecting, repairing, and changing numerous constructing components.

A.V. Kizim (2013) - This paper describes a complete technique to making sure device maintenance and restore company (MRO) performance in fixing obligations with helping equipment and a scientific method. Types of guide for MRO, class of MRO methodologies, primary organisation elements of the program, data and methodical assist for MRO, which makes maintenance and restore body of information (M&R BOK) are presented. The approaches of enhancing MRO through the usage of the device technique, correlated desires and key overall performance indicators, and additionally a few techniques of enhancing the MRO company performance are proposed.

Marcin Gajzlara (2013) - This research paper provides a overview of the equipment, specially an individual repair advisory device for the restore and maintenance work. Building control is accomplished for the duration of the section which follows the constructing segment of a constructing's existence cycle - the operational phase. In this phase numerous control activities amongst which the maximum crucial consist in technical renovation of a constructing are includes. Author stated that the abandonment of those activities may also restrict the capability of a constructing and, in severe case, shorten a facility existence cycle.

Oleg Kaplinski (2013) - This article covers the economic and psychological aspects of the decision-making process. Maintenance and repair area. Change the risk assessment criteria from expected values Maximizing expected utility is at the heart of the approach under consideration. some aspects Risk preference and risk aversion were discussed. utility theory busy. Results from individual studies of risk appetite are presented. Diversity The environment was investigated, including so-called small and medium-sized enterprises (SMEs) in the construction sector. industry. Research findings indicate differentiation in attitudes towards risk, which in turn influences risk. solution selection.

Carol K. H. Hon; Albert P. C. Chan; and Michael C. H. Yam, M.ASCE (May 2013) - This paper presents the work on determinative safety climate factors within the repair, maintenance, minor alteration, and addition sector of Hong Kong. The accident record of the repair, maintenance, minor alteration, and addition (RMAA) sector has been alarmingly high; however, analysis in the RMAA sector remains limited. Unsafe behavior is taken into account one amongst the key causes of accidents. Thus, the structure factors that influence individual safety behavior at work still be the main target of the many studies.

Zul-Atfi Ismail, Narimah Kasim (August 2013) - The motive of this look at is to enhance the traditional approach practices which have a tendency to be useless in Malaysian Polytechnic. The case research had been carried out with eight Polytechnics from four state of Malaysia which had been Selangor, Melaka, Negeri Sembilan and Johor. The decided Polytechnic is primarily based totally on traditional approach practices and its fundamental problems, try and implement computerised generation and the willingness of body of workers to percentage their experiences. The responses from semi-dependent interview with engineer and assistant engineer had been recorded the use of video digital digicam and transcribed verbatim.

V.V. Panteleev, V.A. Kamaev, A.V. Kizim (2014) - In this paper authors observed improvement as a version of device maintenance and restore procedure at carrier repair organisation using agent-primarily based totally technique for growth of performance of use the to be had finances for maintenance and restore of device, lessen the load on specialists. We have analyzed the MRO technique of restore-carrier facility. The fundamental items of the version and the functions they carry out are described on this paper. They used agent-primarily based totally technique to simulate the MRO technique. The conceptual and logical fashions of MAS of the MRO technique were developed.

Ayman Alshehri, Ibrahim Motawa, and Stephen Ogunlana (June 2015) - The motive of this paper is to locate out the not unusualplace issues going through the operation and preservation departments. In order to discover the cutting-edge reput of the constructing preservation in Saudi public sector, twelve interviews with specialists who're running in operation and maintenance departments had been conducted. Data collection from those interviews had been analyzed to discover the not unusualplace issues which classified into 3 grouped, control issues, human useful resource issues and technical issues.

C. Okoh, R. Roy, J. Mehnen (2016) - This paper presents the improvement of the thru lifestyles overall performance method. The technique ascertains whilst the system desires to go through renovation, restore and overhaul before failure takes place. Authors stated predictive renovation needs to forecast the numbers of

rejections at any overhaul factor earlier than any failure happens to be able to appropriately and proactively take good enough renovation action. In healthcare, prediction has been carried out to predict while and a way to administer medicine to enhance the fitness circumstance of the patient. The identical is real for renovation wherein the utility of prognostics can assist make higher decisions.

Darli Rodrigues Vieira, Paula Lavorato Loures (Feb 2016) - Authors presented the maintenance, restore and overhaul (MRO) and aeronautical enterprise literature review, presenting insights associated with techniques of MRO commercial enterprise fashions on this paper. The basics of MRO offerings and the aeronautical enterprise had been recognized thru literature work. then they investigated the effect of the MRO and a outsourcing version changed into from. First, MRO fundamental principles have been recognized: how FAA divides repair and how MRO is performed. Authors additionally research a simplified components and MRO offerings float withinside the aeronautical enterprise, characterizing vital stakeholders: clients and restore shops.

Kajol Mevawala, Liza Hirpara, Kavita Choksi, Darshan Mehta (March 2016) - In this research paper a case study about repair and rehabilitation of RCC structure is covered. It is stated that buildings and different structures have a some beneficial existence, which relies upon specs adopted. The massive numbers of monuments, that are cherished historical past structures have stood nicely over a long period of time. But a number of those have proven signs of misery because of age, competitive natural environment/commercial pollutants etc. Further, distress receives irritated because of overloading and misuse of buildings.

S. Raja Subramaniam (April 2016) - In this paper author mentioned approximately the Review of Repair and Rehabilitation of Heritage Buildings. He stated in present day situation of Building Research, Repair and Rehabilitation performs a important position because it serves critical in constructing packages and it act as an inevitable answer in preserving the Integrity of Structures, in case of Heritage structures. He mentioned that Repair and Rehabilitation of historical past homes has turn out to be a subject of more significance over the world, appreciably in the advanced countries.

Iveta Puķīte, Ineta Geipele (2017) - This research paper examines the relationship among constructing and assets management and constructing control device. It presents a perception into the idea of building management. Building management is a specific financial activity, a fixed of belongings maintenance, operation, restore and maintenance. This is a legal and technical set of operations required for constructing maintenance and renovation of usable condition, in addition to functionally required for the protection of the land to make certain that belongings is used according with the purpose. The intention of the paper is to behavior a literature evaluation of various techniques to defining building control and building maintenance.

Rohit Newale, Yogesh Sartape, Ashish Ramane, Shreya Telrandhe, Sachin Vairal, Prof. Girish Joshi (March 2017) - This paper brings out the present state of concrete structures & the predominant regions in which development is needed for the duration of its carrier existence level for sustainable development & the author additionally provided the technique of carrying out Repair, Rehabilitation & Retrofitting. Research work has been introduced in details withinside the paper along side literature work, case studies, wherein the authors of the paper were at once concerned in planning and execution of the jobs. We recognize the construction material particularly reinforced concrete is getting used substantially for numerous sorts of construction projects.

Budi Agus Kombino, Benny Hidayat, Taufika Ophiyandri (2019) - The purpose of this studies is to perceive the implementation of PU Ministerial regulation number: 24/PRT/M/2008, about: Guidance of Maintenance and Building Care at UNP. The studies approach is a descriptive technique. Data is amassing with the aid of using direct observation, dispensing questionnaires to 70 respondents divided in keeping with their functions (sixteen leaders, 12 managers, 30 executors, and 12 students), and amassing renovation files and building drawings, literature from studies outcomes, journals, building maintenance, and care manuals.

Fahirah Fahrudin, Donny M Mangitung, Andi Rizal (2019) - The motive of this study is to find the extent of harm and cost estimate of building maintenance of standard school in North Morowali District. The study technique used on this work consisted of several stages, particularly primary and secondary data collection. Primary data collection becomes amassed information via direct survey to the region and interview with associated peoples. It is discovered that there are 5 (five) school buildings in North Morowali District.

Vikrant M. Singh, A. T. Pawar (June 2020) - In this paper, research was executed on analysis and construction management of maintenance and repair work in residential building via way of means of mobile software. In this study authors introduces the essential principles of construction management, with emphasis on growing the efficiency and high-satisfactory of residential building with the assist of mobile. They made conclusions on observations and recommendations that need to be taken into consideration while trying this type of task in practice. Also stated that a cell software can offer an green manner to do repair and maintenance, which is

constantly a demand in building in particular residential building. Basically, this study specializes in how mobile software can enhance the high-satisfactory and boost up the time required to get the work done.

Elysé Masengesho, Nadine Umubyeyi, Theoneste Bigirimana, Marie Judith Kundwa, Theogene Hakuzweyezu, Rosette Niyirora, Charles Ntakiyimana, Nura Ineza (2021) - The main purpose of this paper is associateanalyze} however maintenance operations are done to confirm the performance of buildings in capital of Rwanda city. the information employed in this study were obtained from primary and secondary sources. The secondary data was earned through an elaborate literature review of assorted books, articles, and papers relating to this research to outlining and describing the chief ideas of this research title. the first data was compiled through a form survey that was directed to ninety five elite professionals within the construction comes in Rwanda to gather data from the various kinds of industrial buildings for statistical analysis of the analysis to check the hypothesis.

Vikrant. M. Singh, Kamlesh. A. Nanaji (May 2021) - Authors worked on the content by carrying the aim to help purchasers and client in rising the maintenance quality in India. in this study the elemental ideas of construction management, with stress on increasing the potency and quality of residential building with the assistance of mobile application are introduced. As literature review to work out a possible or not for maintenance of residential building authors conducted analysis study on building maintenance is used in this research. They featured some key concerns and issues that are highlighted therefore on broaden the understanding of the subject.

III. DISCUSSION

The maintenance works is turning into essential to ensure the serviceability and protection of the constructed facilities. The first step for development and improvement of maintenance is figuring out and comparing the present day practice. Therefore, the motive of these papers is to discover some common issues going through the operation and maintenance public industry. In order to discover the contemporary fame of the building maintenance, authors performed interviews with specialists who're running in operation and renovation departments, additionally gathered information with inside the form of questionnaire surveys from these interviews and that information was analysed to discover the not unusual place issues which classified into 3 grouped, management issues, human useful resource issues and technical issues. Many of the studies says the interviews found out that loss of monetary aid, loss of skilled manpower to behaviour the specified works in a brief and expert way and renovation contract law are key regions for development. In addition, it turned into clean that the renovation departments do now no longer get more aid from pinnacle control and their efforts are taken into consideration secondary to the primary work.

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