

# “Analysis and Construction Management of Maintenance and Repair Work in Residential Building by Mobile Application”

Vikrant. M. Singh<sup>1</sup>, A. T. Pawar<sup>2</sup>

<sup>1</sup>P.G. Student, Construction Management, RMD Sinhgad School of Engineering Warje, Pune, India

<sup>2</sup>Assistant Professor, RMD Sinhgad School of Engineering Warje, Pune,, India

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**Abstract** - Building defects are common phenomena especially for those old residential apartments. Lack of maintenance management is one of the factors which lead to poor building condition. Despite the authorities in charge of building maintenance, the residents are also a factor contributing to poor maintenance on building. The aim of this research is to assist clients and customer in improving the maintenance quality in India. This study introduces to the fundamental concepts of construction management, with emphasis on increasing the efficiency and quality of residential building with the help of mobile. The conclusions include observations and suggestions that need to be considered while attempting such a job in practice. Mobile application can provide an efficient way to do repair and maintenance, which is always a requirement in building especially residential building. This research focuses on how mobile application can enhance the quality and accelerate the time required to get the work done.

**Key Words:** Residential Building, Cost Estimates, Repair, Maintenance, Repairman, Mobile Application.

## 1. INTRODUCTION

Now a days, construction activity is the second largest activity in the world. This construction activity provides largest economy to the country and helps in development of the country and provides important role in urbanization, development of economy and standard of living of peoples.

Maintenance is the process of ensuring that buildings and other assets can retain a good appearance and operate at optimum efficiency. Inadequate maintenance can result in decay, degradation and reduced performance and affect health and threaten the safety of users, occupants and others in the vicinity.

Data collected from respective sites are analysis through relative importance index and it helps to find out the major repair work post possession of the residents. The emergence of maintenance application can improve the efficiency of quality and duration of the work, as mobile applications enable user to have a quick access to services provider available, deciding upon the service provider to hire based on the ratings, scheduling according to user's convenience, giving an intimation of cost of the service user will have to bear.

## 2. RESEARCH OBJECTIVE

This research aims at concluding whether a mobile application is feasible or not for repair and maintenance of residential building. To achieve the aims,

Objectives have been identified as follows:

- To study the type of repair and maintenance are to be made in residential building.
- Thorough data collection regarding maintenance and repair of residential building.
- To study the various reasons for developing a mobile application for it.
- Collect data through survey or questionnaire with the help of Project Manager.
- Analyse the data and determine the feasibility and functionality of application for repair and maintenance.

## 3. PROBLEM STATEMENT

Many occupants in residential projects in various parts of the city are often running into difficulties in resolving maintenance and repair works. So, it sometimes results in an increase in time and unknown costing of the repair work. Many a Previous case studies had been shown the various factors and methods to minimize the maintenance issues faced by the residents but still these issues sometimes are delayed to achieve a solution due to various reasons. It indicates that there is either lack of awareness of the suggested construction practices or there are limitations for the effective adoption of their suggestion. It may vary from each case study of the construction projects.

Maintenance can help:

- Prevent the process of decay and degradation.
- Maintain structural stability and safety.
- Prevent unnecessary damage from the weather or from general usage.
- Optimize performance.

Sr. No.	Project Name
1.	Nano Homes, Ravet, Pune.
2.	Anshul Ballina, Ravet, Pune.
3.	Golden Paradise, Ravet, Pune.
4.	Vakratund Aaditya Terraces, Ravet, Pune.
5.	Jagtap Nano Spaces, Ravet, Pune.
6.	JAS Arihant Heights, Ravet, Pune.

- Help inform plans for renovation, refurbishment, retrofitting or new buildings.
- Determine the cause of defects and so help prevent re-occurrence or repetition.
- Ensure continued compliance with statutory requirements.

Therefore, it is necessary to give attention on the effectiveness of building maintenance practices and repair time to time.

#### 4. SCOPE OF RESEARCH

The Project scope is to research beneficial for organization therefore targeted at providing effective solutions to the following:

- To help to understand the necessity of building maintenance.
- To improve Professionals for the efficient & effective way to maintain infrastructure.
- To give solutions on how to maintain a building
- To give solutions on the criticality of Poor maintenance & approach.

#### 5. JUSTIFICATION FOR THE RESEARCH

The literature study identified that various issues and effects of poor maintenance and delay in the repair works of buildings. and these studies are based on questionnaire survey and interview technique to find out most contributing factors that cause a delay in the maintenance and repair of a structure. Above literature studies showing the rank importance of those factors by analytical means with the help of relative importance index method and showing the need for proper maintenance and different methods feasible for it.

#### 6. LIMITATIONS OF THE RESEARCH

After the recognition, many works of research had certain limitations. For that research, there is small investigation relating to residential construction projects in Pune city areas and mainly focused on the only residential projects in Pune city areas and which are belonging as certain cost range of that projects. Data collected from respective site is taken as confidentially and data of the construction projects collected from respective sites only.

#### 7. RESEARCH METHODOLOGY

Initially, review of literature is made to know the factors and groups of delays in construction projects and this factor are classified according to their groups and questionnaire survey format is made. This questionnaire survey format is carried forward to receive feedback from experts in construction projects like contractors, owners and consultants, etc.

#### 8. DATA COLLECTION

In that, data of the questionnaires survey is carried through the construction project of the Pune city through visiting their particular sites and got responses from the survey and further they are classified according to sampling methods. A questionnaire is sent to the owners of 6 residential project of Pune city areas. This questionnaire is completed through respective response of the residents. The above questionnaires devised with the help of the project manager focusing on parameters of cost and time.

#### 9. DETAILS ABOUT THE SELECTED CONSTRUCTION PROJECT

After the convenience sampling study of section, A of questionnaire survey, according to specific interval study with help of site manager as a type of respondent for exact price and time that should have been taken,

## 10. RECOMMENDATION

Many residents in Pune city are often running into troubles regarding cost and time due to inefficient reach to services.

### Problems faced due to inefficient services

- Damage to the structure.
- Delay in repair.
- Unknown charges.
- Extensive research required to get issues resolved.

Building defects are common phenomena especially for those old residential apartments.

Lack of maintenance management is one of the factors which lead to poor building condition.

From the study, it is observed that most repair and maintenance was delayed because:

- 1) Difficulty in approaching the right person for the repair.
- 2) Unavailability of repairman.
- 3) Complex repair work.
- 4) Inconvenience in accessing to the maintenance man.
- 5) No knowledge about the cost of the repair.

- Many Previous case studies had been shown the various factors and methods to increase the maintenance alertness.
- Based on the interpretation of my research I suggest more people should opt for a mobile application for residential repair and maintenance services.
- Out of the sample set majority of the people would opt for a mobile based repair and maintenance application.
- This method is more organized and hassle-free method of procuring residential repairs and maintenance services.
- The Future of India is digital and it is constantly booming.
- At present a specific application for these services is not functioning in India.
- This type of application can reach out to majority of the urban population who faces difficulty to resolve such issues, hence the scope/potential of growth is better.

## 11. CONCLUSION AND DISCUSSION

1. 94% of the sample size have not come across any specific application for these services, whereas 6% of sample size have come across an application like URBAN CLAP who's forte is not repair and maintenance services but it provides a few services.

2. The survey carried out at **Nano homes**, Ravet, Pune, **Anshul Ballina Apartment**, Ravet, Pune, **Arruj Golden Paradise**, Ravet, Pune, **Vakratund Aaditya Terraces**, Ravet, Pune, **Jagtap Nano Spaces**, Ravet, Pune and **JAS Arihant Heights**, Ravet, Pune. with the help of above Questionnaire shows that most of the maintenance issues that were faced consisted of 27% of electrical work, 34% of plumbing issues, 15% of tiling work, 10% of wall crack issues, 8% of painting issues and 5% of fabrication issues.
3. While 69% of residents took 2-6 days to have get it repaired while 31% took a 7-10days.
4. Every resident paid eventually more for the services as they were unaware of the exact charges for the services Because of the unavailability of a proper resource to know about such services.
5. 54% of the residents came to know about the service provider through friend and other associates, while 25% from the internet, 14% of the residents contacted the project developer team for such repairs and maintenance and rest of the 7% approached via advertisement.
6. 41% knew the type of services provider to approach rest of 40% were not sure about it while the 19% knew nothing about hence 31% of the residents faced a lot of difficulty while 24% found it quite difficult, 27% few difficulty and 18% found no difficulty at all to the repair work done.
7. Hence it is necessary adoption of new technology-based module in civil industry which has a brighter future and makes such services easily accessible

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