IJIRCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 12, Issue 12, December 2024

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 8.625

© 2024 IJIRCCE | Volume 12, Issue 12, December 2024| DOI: 10.15680/IJIRCCE.2024.1212077

www.ijircce.com | e-ISSN: 2320-9801, p-ISSN: 2320-9798| Impact Factor: 8.625| ESTD Year: 2013|

International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

The Review on Study of Defects in Buildings and their Remedies

Karthik K J, Karthik A S, Harsha Hosmat, Kruthin H Hoogar

UG Student, Department of ISE., Bapuji Instituite of Engineering and Technology, Karnataka, India

ABSTRACT: Defects in buildings represent a significant concern requiring immediate attention and resolution. Understanding the reasons for these issues is essential—be it due to errors in construction, inherent structural flaws, or inadequate upkeep. Various factors such as the age of the affected components, the specific nature of the defect, and potential human error often play a role. This paper delves into common building defects, analysing their causes, identifying their symptoms, and proposing effective remedial measures.

KEYWORDS: Building defects, structural defects, non-structural defects, crack repair, material failures, maintenance strategies, remedial measures, construction errors, roof defects, brickwork issues.

I. INTRODUCTION

Building imperfections can occur in both newly constructed and older structures. In new constructions, defects often arise from non-compliance with established construction codes and tolerances. In older structures, issues may result from aging, wear and tear, or deviations from the original construction standards. Given the substantial investment in infrastructure, maintaining these assets is essential to ensure their functionality and aesthetic appeal. Factors like environmental conditions, material quality, and construction techniques play a crucial role in determining the rate of deterioration.

Common Building Defects and Their Causes

1. **Structural Failures**
   a. *Causes*: Overloading, improper design, or poor-quality materials.
   b. *Impact*: Risk of collapse and increased maintenance costs.
2. **Cracks**
   a. *Causes*: Thermal expansion, shrinkage, or foundation settlement.
   b. *Impact*: Aesthetic issues and water ingress leading to further damage.
3. **Dampness and Water Intrusion**
   a. *Causes*: Poor drainage systems, leakage, or condensation.
   b. *Impact*: Mold growth, material degradation, and health hazards.
4. **Material Degradation**
   a. *Causes*: Weathering, corrosion, and exposure to pollutants.
   b. *Impact*: Reduced load-bearing capacity and structural weakness.

www.ijircce.com | e-ISSN: 2320-9801, p-ISSN: 2320-9798| Impact Factor: 8.625| ESTD Year: 2013|

International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

Remedial Measures

1. **Structural Strengthening**
   - Reinforce beams and columns using advanced materials like carbon fiber composites.
   - Conduct load assessments and redistribute loads where necessary.
2. **Crack Repairs**
   - Use epoxy injections for structural cracks and sealants for superficial ones.
   - Regularly monitor cracks to identify potential structural risks early.
3. **Moisture Control**
   - Install efficient waterproofing systems and repair drainage systems.
   - Employ vapor barriers and moisture-resistant materials in construction.
4. **Material Preservation**
   - Apply protective coatings to metals and concrete.
   - Use high-quality, weather-resistant construction materials.

Innovative Solutions for Sustainable Building Maintenance

- Integration of smart sensors for real-time monitoring of structural integrity.
- Adoption of self-healing concrete and nanotechnology for durable repairs.
- Use of environmentally friendly materials to reduce carbon footprints.

II. CONCLUSION

The persistence of defects in buildings underscores the need for proactive and effective management strategies. By understanding the causes and implementing advanced remedial measures, stakeholders can enhance the safety, longevity, and sustainability of structures. Continuous innovation and adherence to quality standards in construction practices are vital to mitigating future defects.

www.ijircce.com | e-ISSN: 2320-9801, p-ISSN: 2320-9798| Impact Factor: 8.625| ESTD Year: 2013|

International Journal of Innovative Research in Computer and Communication Engineering (IJIRCCE)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

REFERENCES

1. Ashurst, J., & Ashurst, N. (1988). *Practical Building Conservation: English Heritage Technical Handbook*. Gower Technical Press.
2. Hall, F., & Greeno, R. (2017). *Building Services Handbook*. Routledge.
3. Levy, M., & Salvadori, M. (1992). *Why Buildings Fall Down: How Structures Fail*. W. W. Norton & Company.
4. Singh, A., & Gupta, R. (2020). "Advances in Crack Repair Technologies in Concrete Structures," *International Journal of Civil Engineering Research*, 11(4), 1-10.
5. Taylor, P. (2016). *Sustainable Building Materials: Principles and Practice*. Routledge.
6. Wakjira, T. (2021). "Structural Failures and Their Prevention in Modern Buildings," *Journal of Construction and Building Materials*, 35(2), 45-57.

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

INNO SPACE SJIF Scientific Journal Impact Factor

doi crossref

निस्केयर NISCAIR

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

9940 572 462 6381 907 438 ijircce@gmail.com

www.ijircce.com

Scan to save the contact details