



Research Article

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Structural Assessment for Improving Energy Efficiency in Public Buildings

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Abstract

This paper explores the pivotal role of structural assessment in enhancing energy efficiency within public buildings. Structural assessment, a systematic evaluation of building components and systems, is essential for ensuring safety, longevity, and sustainability. By identifying weaknesses and improvement opportunities, structural assessment provides valuable insights for stakeholders to enhance operational efficiency and compliance with safety standards.

The symbiotic relationship between structural integrity and energy efficiency underscores the significance of prioritizing structural considerations in sustainable building design. Material selection, design principles, and maintenance practices are crucial factors influencing energy performance. Structural assessments aid in pinpointing critical issues contributing to energy loss, such as air leaks, thermal bridging, and inadequate insulation. Recommendations derived from these assessments enable targeted interventions to improve energy performance and occupant comfort.

Case studies of three schools highlight the tangible benefits of energy efficiency retrofits informed by structural assessments. These retrofits result in significant reductions in energy consumption, enhanced indoor comfort, and a diminished carbon footprint. A structured strategy for conducting seismic structural assessments and subsequent energy efficiency improvements is proposed, emphasizing the importance of a comprehensive approach to building sustainability.

In conclusion, structural assessment serves as a linchpin for advancing energy efficiency in public buildings. By leveraging insights from structural assessments, stakeholders can drive transformative change towards a greener and more sustainable future, fostering environments that promote human well-being and environmental stewardship.

Keywords: Structural Assessment, Energy Efficiency, Public Buildings.

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