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Planning, Designing, and Sanctioning Process in Construction: Challenges and Role of BIM

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Abstract: Effective planning and sanctioning are crucial for the successful execution of construction projects, ensuring compliance with zoning laws, building codes, and safety regulations. However, traditional sanctioning processes in regions like Maharashtra often face challenges such as lengthy approval timelines, excessive paperwork, regulatory inconsistencies, and limited transparency. These inefficiencies frequently lead to project delays, cost overruns, and unauthorized constructions.

This research paper explores the integration of Building Information Modeling (BIM) as a transformative solution to these challenges. BIM offers a collaborative and data-driven approach that enhances project planning, design, and sanctioning through real-time digital modeling, automated code compliance checks, and cloud-based document management. The study evaluates the potential of BIM to improve coordination, reduce manual errors, and accelerate approval timelines, ultimately resulting in more efficient and cost-effective project execution.

Drawing from practical case studies and the implementation of BIM in a residential project in Maharashtra, the paper illustrates how BIM supports informed decision-making while aligning with client requirements, design standards, and budget constraints. Additionally, it discusses future advancements such as GIS-based urban planning tools that could further streamline the sanctioning process. The findings highlight BIM's role in enabling a transparent, efficient, and regulation-compliant construction ecosystem, marking a significant step toward digital transformation in the construction industry.

Keywords: Site investigation, Documents study of project, Project planning, Client Requirements, Estimation and Costing, Elevation Plan, Site execution, Software Tools.

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