

The Role of Computer-Aided Design (CAD) in Welding and Fabrication Projects

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Abstract: *The integration of Computer-Aided Design (CAD) into welding and fabrication projects has brought significant advancements to modern manufacturing. This study explores the multifaceted role of CAD in these processes, investigating its influence on design accuracy, manufacturing efficiency, and cost-effectiveness. Through surveys, case studies, and expert interviews, the study uncovers a substantial adoption rate of CAD among engineers and highlights its positive impacts. Design iterations are reduced by 20%, manufacturing efficiency gains a 15% lead time reduction, and cost-effectiveness improves by 18% due to minimized material wastage. However, challenges like the learning curve and interoperability issues persist. Recognizing these benefits and challenges, this research contributes to the understanding of CAD's transformative influence on welding and fabrication, enabling industries to optimize processes and enhance product quality.*

Keywords: Computer-Aided Design (CAD), Welding, Fabrication Projects

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