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Key Drivers for Nighttime Construction under the EPC Contract

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Abstract : In the construction industry, engineering procurement and construction (EPC) projects are becoming increasingly prevalent; they provide clients with benefits such as decreased workload, streamlined execution, and a singular point of accountability. EPC projects entail round-the-clock operations, which calls for an analysis of the variables that impact productivity during nocturnal hours. The current body of research on the distinctions between daytime and nighttime construction lacks a comprehensive examination of nocturnal attributes. The objective of this research is to ascertain the critical factors that influence the productivity of nighttime construction by conducting site investigations and reviewing relevant literature. The influence of factors such as illumination conditions, equipment deployment, quality procedures, and government regulations on productivity is subject to careful examination. The studies rank the significance of these factors in accordance with the relative importance index (RII) and entropy weighted method (EWM). The primary determinants identified in the study are temperature (RII: 0.8444), weather conditions (RII: 0.8222), and material and apparatus maintenance (RII: 0.8222). The findings function as recommendations for project managers and EPC contractors to reduce setbacks and increase efficiency. By comparing the outcomes of EWM and RII, the most effective approach to resolving the most crucial characteristics is achieved.

Keywords : productivity, nighttime work, statistical methods, construction, entropy weighted method, relative importance indexing
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