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Subcontractor Development Practices and Processes: A Conceptual Model for LEED Projects

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Abstract : The purpose is to develop a conceptual model of subcontractor development practices and processes that strengthen the integration of subcontractors into construction supply chain systems for improved subcontractor performance on Leadership in Energy and Environmental Design (LEED) certified building projects. The construction management of a LEED project has an important objective of meeting sustainability certification requirements. This is in addition to the typical project management objectives of cost, time, quality, and safety for traditional projects; and, therefore increases the complexity of LEED projects. Considering that construction management organizations rely heavily on subcontractors, poor performance on complex projects such as LEED projects has been largely attributed to the unsatisfactory preparation of subcontractors. Furthermore, the extensive use of unique and non-repetitive short term contracts limits the full integration of subcontractors into construction supply chains and hinders long-term cooperation and benefits that could enhance performance on construction projects. Improved subcontractor development practices are needed to better prepare and manage subcontractors, so that complex objectives can be met or exceeded. While supplier development and supply chain theories and practices for the manufacturing sector have been extensively investigated to address similar challenges, investigations in the construction sector are not that obvious. Consequently, the objective of this research is to investigate effective subcontractor development practices and processes to guide construction management organizations in their development of a strong network of high performing subcontractors. Drawing from foundational supply chain and supplier development theories in the manufacturing sector, a mixed interpretivist and empirical methodology is utilized to assess the body of knowledge within literature for conceptual model development. A self-reporting survey with five-point Likert scale items and open-ended questions is administered to 30 construction professionals to estimate their perceptions of the effectiveness of 37 practices, classified into five subcontractor development categories. Data analysis includes descriptive statistics, weighted means, and t-tests that guide the effectiveness ranking of practices and categories. The results inform the proposed three-phased LEED subcontractor development program model which focuses on preparation, development and implementation, and monitoring. Highly ranked LEED subcontractor pre-qualification, commitment, incentives, evaluation, and feedback practices are perceived as more effective, when compared to practices requiring more direct involvement and linkages between subcontractors and construction management organizations. This is attributed to unfamiliarity, conflicting interests, lack of trust, and resource sharing challenges. With strategic modifications, the recommended practices can be extended to other non-LEED complex projects. Additional research is needed to guide the development of subcontractor development programs that strengthen direct involvement between construction management organizations and their network of high performing subcontractors. Insights from this present research strengthen theoretical foundations to support future research towards more integrated construction supply chains. In the long-term, this would lead to increased performance, profits and client satisfaction.

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