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Lump Sum Contracts in Construction: Benefits, Challenges, and Risk Allocation Strategies

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Abstract: Lump sum contracts are specific contracts used in the construction industry to give owners financial certainty and decrease risk while incentivizing contractors to finish projects on schedule and within budget. This article discusses the usage of lump sum contracts in construction projects, covering the types of projects appropriate for lump sum contracts, critical considerations for entering a lump sum contract, and the tender and preliminary expenses involved. The article also covers lump sum contracts' benefits and drawbacks and how owners and contractors allocate risk. Finally, the difficulties of implementing lump sum contracts, such as potential disagreements over scope changes and quality issues, are investigated. In general, lump sum contracts can be a valuable tool for managing construction projects, but their execution necessitates careful planning and collaboration to ensure successful completion.

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1. Introduction

There is broad consensus that the choice of contract types should depend on several factors, including product unpredictability, the desired risk allocation, the owner's internal capacity, and market conditions (Merrow, 2011; Walker & Rowlinson, 2008). A suitable contract type is established to encourage the owner and Contractor to collaborate rationally to get the most significant results in line with their shared goals and within the anticipated risk (Morris & Pinto, 2007; Turner, 2009; Walker Rowlinson, 2008).

Construction is a dangerous industry. From a contractor's perspective, the five distinct types of construction contracts identified by Carty (1995)—lump-sum, unit price, guaranteed maximum price (GMP), cost reimbursable, and construction management- involve varying degrees of risk.

Traditional procurement techniques like lump sum contracting include distinct phases for design creation, bid evaluation, contract award, and construction completion. Before calling for bids, the customer must first engage a design consultant. The lowest bid price is the general selection criteria (Walker & Hampson, 2008; Touran et al., 2008). (Walker and Hampson 2008; Touran et al. 2008).

The owner of a lump-sum contract is expected to have a firm grasp of the project's specific functionality and performance requirements. The Contractor is expected to execute the best solution and mode of delivery to achieve the specified functionality and performance standards (Smith, 2002; Turner, 2003). As the Contractor manages all project activities and associated risks, the owner needs to check in less frequently to ensure everything goes as planned (Berends, 2007; Müller & Turner, 2005). This leads to a decline in the owner's involvement in the project resulting in limited information interchange and coordination (Merrow, 2011; Müller & Turner, 2005).

The scope of the task must be precisely defined and agreed upon by all parties before this contract can be implemented. So, in addition to the Contractor's direct costs for labor and equipment, the lump payment must include all indirect costs, such as those for field and front office supervision, secretarial assistance, and equipment maintenance and support. Profit must also be a part of it.

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2. Suitable projects and Critical Considerations for Lump Sum Contract

Suitable projects

Lump sum contracts are most suitable for smaller projects that are less complex and have clearly defined scopes of work (Turner et al., 1999). This contract type is especially suitable for construction projects where the design and scope of work are expected to remain constant. Residential construction projects such as single-family homes and duplexes, small-scale commercial developments including retail outlets and office buildings, remodeling projects with clearly defined and unlikely-to-change scopes of work, and infrastructure projects with well-established and stable designs, such as road or bridge construction, are all suitable for lump sum contracts. The stability and predictability of these project types correspond to the financial certainty and risk reduction objectives connected with lump sum contracts in the construction sector.

Critical Considerations

To ensure the effective completion of a project under a lump sum contract, it is important to pay careful attention to essential factors. Establishing and delineating the extent of the tasks to be performed in the contract is crucial to minimize any misinterpretations and potential clashes during the construction process. The design and planning phases are vital, requiring meticulous and comprehensive work to ensure strict adherence to the agreed budget (Stone, 2010). An effective change management procedure is essential during the construction phase to handle any alterations to the project's scope of work or design that may occur. Furthermore, the Contractor must have the necessary skills and expertise to complete the project successfully within the predetermined financial limitations. To provide further protection against issues, it is necessary to set clear and specific payment terms in the contract. This will serve as a proactive approach to prevent any potential payment disputes that may arise over the course of the project.

3. Preliminary Costs of Lump Sum Contract and Tender

Preliminary Costs of Lump Sum Contract

Every sort of activity, or combination of activities, including research, design, supply, execution, management, and maintenance, may be covered by lump sum contracts (Clough at al., 2015). Nonetheless, it could be challenging to define the work's scope precisely enough. Therefore, the owner must be extremely clear about its objectives and the need for a lump sum contract to be most effective.

Often, contractors are required to bear the expense of putting together their bids (Clough at al., 2015). It can take significant work and money to refine a proposal to the point where a competitive lump sum fee can be offered. This preparation expense is an expense that is added to the bid. On some projects, owners may pay contractors. Many would contend that the owner should bear the expense of tendering because the owner benefits from competitive tendering, given that contractors may only win a tiny portion of the offers they submit (Clough at al., 2015). The financially sound position would be that a project should bear its costs and not pass them on to other projects.

When a site study is necessary, the owner may conduct it, and it would be advised that they do it to make the tender documents as comprehensive as possible (Brook, 2016). Since there is a slim chance they will win the tender, tenderers could be hesitant to spend on-site research. To avoid potential disputes should the material turn out to be inaccurate, proprietors may be reluctant to guarantee the information on their websites. However, if the site information is not guaranteed, the tenderer may increase its price to account for uncertainties.

Tender

The Contractor takes on all risks connected with performing the work at the tendered price, in the tendered timeline, and to acceptable standards (Laryea and Hughes, 2011). It is evaluated based

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on its performance relative to the lump sum amount it bid on. Nonetheless, in a competitive tendering environment, contractors may choose to refrain from pricing in some risks to avoid appearing noncompetitive.

Provisional amounts may be provided in the tender when some aspects of the job cannot be fully specified at the bid time. Another alternative is a premium cost or schedule of rates contract. A lump sum contract is not the best option if the scope cannot be fully defined (Brook, 2016). Certain major items may be included in a schedule of rates contract as lump sum components for their respective work phases.

The owner can expect an approximate total cost; however, adjustments for changes in scope and the like are typically built in. If the bidding procedure is open and fair, the owner is more likely to receive a fair price. Lump sum arrangements are frequently used in the public sector because of the increased certainty they provide over the project's timely and cost-effective completion (Wirick, 2011).

4. Advantages and Disadvantages of Lump Sum contract

Advantages

Lump sum contracts provide clear benefits for both owners and contractors in the field of construction projects (Chen et al., 2016). From the owner's standpoint, the arrangement offers the advantage of obtaining a reliable cost estimate and a reasonably guaranteed total cost prior to the start of the project. Owners are less involved in contract administration and oversight, creating a climate conducive to price competition. Significantly, the contractor assumes most job-related risks, which serves as a crucial incentive for efficient project implementation. In contrast, contractors working under a lump sum contract can generate more income by employing innovative and effective methods (Chen et al., 2016). Contractors have the freedom to set prices according to their expected profit margins, and the limited involvement of owners in project details further supports the contractor's independence in carrying out the task.

Disadvantages

The disadvantages of lump sum contracts, as delineated by Walker and Hampson (2008), are complex and affect both owners and contractors in diverse manners. Disputes over alterations to contracts and equitable pricing might result in harm to the connection, presenting a substantial obstacle. The segregation of the design team and the contractor hinders sharing critical information regarding construction management and constructability. From the owner's standpoint, the need for thorough documentation during the tendering phase and the possibility of a contentious relationship between the owner and contractor might hinder the project's ability to adapt and worsen problems that arise from changes or unexpected complications. Owners may encounter difficulties in overseeing the contractor's approach, which could result in the degradation of materials and workmanship due to insufficient profit margins (Kristensen et al., 2015). Unscrupulous contractors may take advantage of unclear aspects in design papers, requiring cautious implementation of solutions if the contractor fails to fulfill their obligations. Contractors may not receive full reimbursement for the expenses and time they put into creating tenders. Disagreements with the owner, who has authority over the funds, can lead to extra expenditures and delays. Contractors bear significant risks, such as those associated with weather and external factors, while facing difficulties in determining reasonable price adjustment methods and potentially relying on less experienced subcontractors to ensure price competitiveness (Kristensen et al., 2015).

5. Challenges and Risk allocation in Lump Sum contract

Challenges

Unless the work is clearly defined and recurring, lump-sum contracting for design services is a relatively challenging undertaking (Willoughby, 1995). A sizable contingency allowance is needed to

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estimate and agree on a price for unknown elements. This is frequently challenging to negotiate for clients.

Without previous experience finishing a project of a similar nature, it is strongly advised against undertaking a lump-sum design because the chances of success are slim (Hartman, F., & Snelgrove, 1996). It is beneficial to have prior experiences to draw from when creating a plan and to apply the lessons learned to handle issues when they arise during contract execution (Hartman, F., & Snelgrove, 1996).

Contrary to what many designers and owners believe, a contractor's mentality is a good thing. To succeed, contractors must take significant risks and rely on their talent and experience to create an all-encompassing strategy with time, money, and quality responsibility. In addition, it requires tremendous management talent to use their understanding of planning, scheduling, and estimating to compete against other highly skilled organizations to get a job and profit (Willoughby, 1995).

A contractor's mentality is necessary when the design is covered by a lump-sum contract with payment based on some physical accomplishment. Success depends on your management ability to create a thorough work plan and build a way to evaluate performance while applying knowledge of planning, scheduling, and budgeting. Once total controls are in place, the lump-sum design's issue lies in the quality of the results. Working under a lump sum agreement with constrained resources and time constraints allows one to cut corners, restrict the analysis of alternatives, and put more emphasis on the schedule than the final output (Willoughby, 1995).

Risk allocation

The ability of a contract to allocate risks between contractual parties is one indicator of its efficacy and efficiency. When there is a clear risk assignment, both contracting parties are on the same page about risk allocation and risk management responsibility (Hartman et al., 1998). Contracting parties with different ideas of risk accountability may improperly handle a risk event by assuming they are not responsible for the incident or its effects. Project inefficiencies and hostile contract relationships are the results of poorly managed occurrences. Project costs ultimately rise because of the effects on how the project is carried out (Hartman, 1993). Owners or consultants draft a construction contract for use in the project's bidding, awarding, and construction processes. The document that specifies each party's obligations and liabilities is the contract. This indicates that the owner will always assign some risks to one of the contracting parties more than the other. When receiving a bid request, contractors assess the project's construction costs and, intentionally or not, include risk-related contingencies. Contractors would cease operations very quickly if contingencies were not included.

In many cases, contingency premiums are added to the bid cost "intuitively" because there is frequently no formal risk analysis, making it impossible to calculate the premiums precisely (Lam et al., 2007). Risk contingencies result from previous events omitted or buried from view during the bidding process. They then submit their bid to secure the job. Bid contingencies might raise the bid price, push back the deadline, or both. In the case a danger occurs, contingencies protect the Contractor's interests. The Contractor must read and analyze the contract to understand which risks are assigned to them under the terms and circumstances of the contract. Thus, it is crucial that the contract language dividing up the risk is precise and explicit (Hartman et al., 1998).. The Contractor should read the document to reflect the owner's intended intention.

6. Conclusion

In the construction sector, lump sum contracts are a prevalent form of contract. They provide benefits including financial certainty, reduced risk for the owner, and incentives for the Contractor to complete the project on schedule and under budget. Nevertheless, they can create obstacles, such as potential scope change disagreements and quality difficulties.

The success of a contract for a lump sum largely depends on meticulous planning and preparation, including a comprehensive scope definition, risk assessment, and contract negotiation. Also, efficient communication and coordination between the owner and Contractor throughout the project are crucial for mitigating any concerns and ensuring success.

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An additional study can be performed to investigate the application of lump sum contracts in specific construction industries or locations and the efficacy of various risk management measures in minimizing conflicts and accomplishing project goals.

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