Research on the Bidding and Evaluation Methods for Engineering Supervision under a Highly Open Market Environment——A Case Study of a Large Public Building Project

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Abstract: Against the backdrop of changing competitive dynamics in the engineering supervision industry within a highly open market environment, this paper focuses on the issues of standardization and effectiveness in engineering supervision bidding and evaluation. It aims to systematize evaluation methods suitable for highly open markets through case analysis. Based on the supervision bidding practice of a large public building project, and employing case analysis and process decomposition methods, this study systematically analyzes the entire bidding and evaluation process of the project. It summarizes a four-dimensional evaluation framework emphasizing "comprehensive strength assessment, enhanced feasibility evaluation of proposals, focus on verification of past project performance quality, and inclusion of service response efficiency scoring." The operational essentials and time node management methods for each evaluation stage are elaborated. The purpose is to demonstrate that this four-dimensional framework can effectively adapt to the characteristics of diverse bidding entities and information transparency in highly open markets, improve the fairness and scientific rigor of evaluation results, and provide a reference for supervision bidding and evaluation in similar projects.

1. Introduction

With the increasing openness of China's construction market, the engineering supervision industry is breaking regional barriers and qualification monopolies, presenting a new landscape characterized by diverse bidding entities, upgraded competition dimensions, and higher service standards. The traditional price-centric evaluation model can no longer adequately meet the market's demand for supervision service quality. In this context, how to construct a set of evaluation methods that not only comply with the norms of a highly open market but also accurately select high-quality supervision units has become a focus for owners and industry regulatory authorities. Large public building projects, as typical examples, strictly adhere to market openness requirements in their supervision bidding and evaluation processes, integrating multiple dimensions such as comprehensive strength assessment and proposal feasibility demonstration, thus holding significant practical reference value. This paper takes such a project as the research object, delving into the design logic and implementation process of its evaluation methods, aiming to provide insights for optimizing the engineering supervision bidding and evaluation system in a highly open market.

2. Characteristics of Engineering Supervision Bidding in a Highly Open Market

2.1 Diversified Bidding Entities and Fiercer Competition

In a highly open market environment, the diversity of engineering supervision bidding entities is first reflected in the further lowering of market entry barriers. Besides traditional local supervision enterprises, chain supervision institutions with cross-regional service capabilities and professional supervision teams specializing in niche areas can all participate

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in competition, breaking the previous regionalized and homogeneous competitive landscape. Intensified competition also pushes supervision enterprises to shift from "price competition" to "value competition." Enterprises need to form differentiated advantages in areas such as supervision team configuration and process control mechanisms to meet owners' more stringent screening criteria, thereby forcing an accelerated upgrade of the industry's overall service level.

2.2 Significant Improvement in Bidding Information Transparency

Under a highly open market, engineering supervision bidding information is no longer limited to traditional offline releases or local platform announcements. Instead, it relies on national public resource trading platforms and industry-specific bidding websites to achieve "full-process publicity." All key information, from project bidding announcements and tender documents to the publicity of successful candidate publicity and announcement of winning results, is disclosed according to unified standards, avoiding "black box operations" caused by information asymmetry. Information transparency is also reflected in "process traceability." Some regions require that Q&A documents and clarification notices during the bidding process be simultaneously archived on the platform, and communication records between owners and bidders must be retained for future reference.

2.3 Increasingly High Requirements for Supervision Service Standards

As market openness increases, owners' demands for engineering supervision no longer be restricted to basic functions such as "quality supervision and progress control" but extend to "full-cycle value empowerment," driving supervision service standards towards higher dimensions[1]. In terms of quality control, supervision enterprises are required not only to identify problems but also to provide targeted solutions and involve third-party testing agencies for joint verification to ensure a closed loop in quality management. Regarding cost control, they need to assist owners with bill of quantities review, variation visa approval, and reduce unnecessary costs through meticulous management. In compliance management, familiarity with the latest industry regulations such as safety production rules and environmental acceptance standards is necessary to ensure the project's full compliance throughout the process. Additionally, emergency response capabilities are essential to quickly react and assist in developing countermeasures in proruption situations like construction safety accidents or natural disasters, comprehensively meeting the needs of high-quality project advancement.

3. Bidding Evaluation Methods for Engineering Supervision in a Highly Open Market

3.1 Emphasizing the Consideration of the Supervision Unit's Comprehensive Strength

During the document verification stage, the bid evaluation committee must first check the qualification documents submitted by bidding units, focusing on verifying whether the business scope of the business license matches the project requirements and the level of the supervision qualification. It also checks the validity of certificates for registered supervision engineers and technical professionals, and queries the industry regulatory platform for any historical harmful records of the enterprise, eliminating units with mismatched qualifications or questionable credit[2]. In the indicator quantification stage, comprehensive strength needs to be broken down into quantifiable indicators, setting four major dimensions: Enterprise Qualifications (weight 20%), Team Configuration (weight 30%), Technical Equipment (weight 25%), and Financial Status (weight 25%). Team configuration should be detailed to include "number of registered supervision engineers and professional coverage," "proportion of senior technical titles," and "allocation of dedicated safety supervision personnel." Technical equipment requires checking for the possession of engineering testing equipment and information management systems. Financial status needs to be assessed through audit

reports from the past three years to evaluate solvency and operational stability[3]. In the cross-review stage, a "dual independent scoring + collective deliberation" model is adopted. After each rater independently scores based on the quantitative indicators, average scores are calculated, and items with significant scoring differences are discussed collectively. The final comprehensive strength score is determined considering the enterprise's past industry reputation, avoiding the impact of a single rater's subjective bias on the result.

3.2 Strengthening the Feasibility Evaluation of the Supervision Proposal

During the proposal completeness review, the bid evaluation committee first checks whether the supervision proposal covers core modules such as "project overview analysis, definition of supervision scope, setting of supervision objectives, organizational structure setup, key process control measures, and emergency plans," ensuring no content is missing. It also checks whether the proposal compilation complies with industry standards and project-specific requirements, eliminating frameworking, non-specific proposals[4]. In the technical detail breakdown stage, the assessment focuses on core supervision work modules. For quality control, it examines whether "acceptance standards for sub-division works, inspection frequency for concealed works, material incoming inspection procedures" are clearly defined, and whether a "closed-loop mechanism for quality issue rectification" is established. For progress control, it verifies whether "supervision progress control nodes, delay warning thresholds, progress correction measures" are formulated based on the project schedule, and whether the impact of seasonal construction on progress is considered. For safety supervision, it checks whether a "list of potential safety hazards, review process for specialized construction plans, emergency drill plan" is clearly defined[5]. In the risk point demonstration stage, rater are organized to assess the relevance and feasibility of the supervision measures against the project risks mentioned in the proposal. Using the logic of "risk identification - measure matching - effect prediction," they judge whether the proposal can effectively avoid or address potential problems. The feasibility score is finally calculated based on the weights: Completeness (30%), Technical Rationality (40%), and Risk Response Capability (30%).

3.3 Focusing on Verification of Past Project Performance Quality

For performance authenticity verification, the bid evaluation committee requires bidding units to provide performance proof materials for similar projects in the past 3-5 years, including "Letter of Acceptance, key pages of the supervision contract, project completion acceptance report." It queries the project filing information through the construction department's regulatory platform and public resource trading platform in the project location, checking for consistency between information such as project name, construction unit, supervision period, supervision scope, and the submitted materials. Simultaneously, it conducts phone follow-ups with the construction units of some projects to verify the actual performance of the supervision unit, eliminating performances whose authenticity cannot be verified[6]. In the project matching analysis stage, the matching degree between past performance and the bidding project is assessed from three dimensions: "project scale, project type, technical difficulty," prioritizing bidding units with highly matching performance[7]. In the quality achievement evaluation stage, the quality control capability of the supervision unit is judged by reviewing the "quality acceptance reports, awards, evaluations from industry regulatory departments" of past projects. It also checks whether the projects have any "records of quality accidents, records of administrative penalties." Performance with serious quality issues is subject to a "one-vote veto." The final performance verification score is calculated based on the weights: Authenticity (40%), Matching Degree (35%), and Quality Achievements (25%), ensuring the evaluation results align with the project's actual needs.

3.4 Adding a Service Response Efficiency Scoring Item

In the response mechanism review stage, the bid evaluation committee first checks the

"Supervision Service Response System" submitted by the bidding unit, focusing on the daily communication response mechanism, problem handling response process, and personnel deployment response mechanism, ensuring the response mechanism has clear time standards and operational procedures, avoiding vague expressions[8]. In the response capability assessment stage, the evaluation is conducted from two aspects: "Personnel Configuration" and "Technical Support." For personnel configuration, it checks whether a "dedicated coordinator" is assigned to handle owner requests and whether the responsibilities of various positions are clearly defined. For technical support, it assesses whether an "online communication platform" is available to enhance communication efficiency and whether an "expert database" is established to ensure quick technical support for complex issues[9]. In the emergency plan verification stage, be directed against potential emergencies of the project, the supervision unit's "Emergency Response Plan" is reviewed, focusing on evaluating emergency response time limits, emergency handling procedures, and emergency resource reserves. Operability is verified through "simulated scenario questions." The final service response efficiency score is calculated based on the weights: Response Mechanism Completeness (30%), Response Capability Adaptability (40%), and Emergency Plan Feasibility (30%), ensuring the scoring meets the project's actual needs for service timeliness.

4. Case Analysis

A large public building project with a total area of 20,000 m², including a super high-rise hotel and commercial complex, followed a strict 45-day bidding and evaluation timeline adhering to highly open market norms. Days 1-3: The owner published the bidding announcement and tender documents simultaneously on the national public resource trading platform, specifying that bidding units must submit qualification documents and performance materials within 15 days, fully reflecting the characteristic of full-process information publicity. Days 4-18 were the period for preparing and submitting bids. On day 10, the owner published a Q&A document on the platform, providing unified replies to questions from bidders regarding "definition of supervision scope" and "technical equipment requirements," with all communication records archived for traceability. Days 19-20: The bid evaluation committee conducted preliminary review, spending 1 day verifying the qualifications of 8 bidding units, eliminating 1 unit with insufficient qualification level and 2 units with questionable performance materials, leaving 5 for detailed evaluation. Days 21-23 were for detailed evaluation, focusing on 1-2 evaluation methods per day: Day 21 involved quantitative scoring based on weights (Enterprise Qualifications 20%, Team Configuration 30%, Technical Equipment 25%, Financial Status 25%), focusing on checking the professional match of registered supervision engineers and the list of testing equipment for each unit. Day 22 involved reviewing supervision proposals, scoring control measures for key processes like deep foundation pit support and curtain wall installation, deducting points for technical rationality from 2 proposals that failed to specify inspection frequency. Day 23 completed performance verification and service response efficiency scoring, verifying performance authenticity through the construction platform, and reducing the service response score for 1 unit that did not specify emergency response time limits. Days 24-25: The bid evaluation committee used the "dual independent scoring + collective deliberation" model to aggregate scores, discussing and confirming 3 items with significant scoring differences, finally determining the successful candidate. From Day 26, the winning result was publicity on the platform. After a 7-day publicity period without objections, the Letter of Acceptance was issued on Day 33. The entire process demonstrated the rigor of the evaluation methods and aligned with the dual requirements for efficiency and standardization in a highly open market.

5. Conclusion

The analysis leads to the following conclusions: Engineering supervision bidding and

evaluation in a highly open market requires constructing a "four-dimensional synergistic" framework, where comprehensive strength assessment is the foundation, proposal feasibility evaluation is the core, performance quality verification is the support, and service response efficiency scoring is the supplement. The interconnection of these four aspects can effectively avoid deviations caused by single-dimensional evaluation. The evaluation process must emphasize "balancing standardization and efficiency." From full-process publicity of bidding information and traceability of Q&A records, to the phased division of preliminary and detailed review, and further to the setting of the winning result publicity period, each stage must balance market transparency requirements with project advancement efficiency. Evaluation standards need to strengthen "technical detail orientation," as attention to these details is key to ensuring evaluation results meet the project's actual needs. Adopting the "dual independent scoring + collective deliberation" model can effectively reduce the subjective bias of individual rater and enhance the fairness of evaluation results, serving as a reference for similar projects.

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