The Process of the Tender Evaluation in Public Procurement for Implementation of Design Documentation

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Abstract. The implementation of the project at the highest level influences the process of implementation and cooperation of participants in the construction process. The article describes the proceedings for the preparation of design documentation. Particular attention was paid to tender evaluation criteria in public procurement. The article also presents the results of research conducted on 100 procedures for the implementation of design documentation initiated in 2018 for three types of construction objects: buildings, sewage treatment plants and road. The aim of this research was to check what kind of criteria were used when selecting the most advantageous tender for the execution of design documentation. Contracting authorities are mostly using more than one criterion to evaluate tenders. The most frequent non-price criterion used is the experience of designers.

1. Introduction

The basic legal act that regulates the process of awarding public contracts is the Public Procurement Law of 29 January 2004 (Journal of Laws 2004 No. 19 item 177, as amended) [1]. Subsequent changes to the Public Procurement Law introduced changes in the contractor selection process, especially regarding the possibility of applying non-price criteria [2–3]. The 2014 amendment of the Public Procurement Law includes a new article, Art. 91 paragraph 2a, whereby in proceedings instituted after 18 October 2014, contracting authorities are obliged to also use non-price tender evaluation criteria. This does not apply to contracts whose subject is widely available and has established quality standards. Works are widely available with fixed standards if include simple construction works and do not require specific professional qualifications. A completely new solution was introduced in in Art. 91 (2) of the PPL, according to which some contracting entities “may apply price criterion as the only contract award criterion or a criterion with a weight exceeding 60% if quality standards pertaining to all important features of the subject-matter of the contract are specified in the description of the subject-matter of the contract, and if the contracting authorities indicate in an annex to the procedure how the costs incurred throughout the life cycle of the subject-matter of the contract are included in its description…” [4]. On the basis of these provisions, the dominance of the price criterion was abolished [4].
Until the 2014 amendment, the selection of contractors, including designers, took place mainly on the basis of the lowest price criterion.

The designers’ activity is also regulated by the Construction Law [5], which includes the scope and content of the design documentation, as well as the rights and duties of the designer.

To illustrate the situation regarding the tender evaluation procedure, the proceedings concerning the execution of the design documentation were analyzed.

At the design preparation stage, the contracting authority may stipulate the requirement to use environmentally-friendly solutions. The author also decided to check whether these “green criteria” were used during the tender procedure. The design documentation creation stage has a significant impact on the appearance, design and functionality of the future structure. According to the current legal regulation, the use of “green” public procurement in the construction industry is not required as a rule. The positive environmental aspects including reducing CO₂ emissions by increasing the energy efficiency of buildings, cost reduction by offering energy-saving solutions related e.g. to thermal insulation of buildings and water management in buildings, are an important reason for their use. Another important aspect is the implementation of innovative solutions and advantages in the image.

2. Literature review

The goal of each procedure is to select the best offer. In order to achieve this goal, it is important to select the right contractor, choose the right criteria for the assessment of offers, as well as a reliably-made description of the subject of the contract. These topics are also most often discussed in the scientific literature. The subject of awarding contracts at the documentation preparation stage for construction projects is not often discussed in literature. The authors more often focus on the procedures for awarding construction contracts. Particular interest is paid to the contractor selection [6] supported by mathematical models and methods [7–12]. The evaluation of tender process for different types of works and analysis of criteria used to evaluate the tender is often explored by scholars [13–14]. Increasingly studied is the application of environmental requirements in works contracts [15].

The construction work according to PPL also includes the Design and Build (D & B) procedure, in which one of the stages consists in the execution of the construction design. Contractor selection process and tender evaluation in the D& B procurement is quite often described in literature [12, 16–19]. The analysis of the types of criteria and requirements used to assess offers allows to state that if price were equal to all other factors combined, then the selection of the team would be based on price, i.e. the lowest bid. The authorities view qualifications and past performance as important criteria as long as the proposal is technically acceptable and is competitively priced. If the project is more technically challenging and requires innovation, then technical criteria should be weighted higher [14]. Contractor and tender evaluation may be supported by various types of mathematical models. Using mathematical methods and models can help increase the probability of choosing the most advantageous offer. Such solutions were proposed by many authors [15–16].

3. Scope of the design documentation

The scope of the design documentation depends on whether a building permit as opposed to a mere notification of construction works is required. This is specified in the Regulation of the Minister of Infrastructure of 2 September 2004, on the detailed scope and form of design documentation, technical specifications for the performance and acceptance of construction works and the functional and utility program (Journal of Laws No. 202, item 2072).

If a construction permit is required, the design documentation used to describe the subject of the contract for the execution of construction works consists in particular of: a construction design including the specific details of construction works, detailed designs, bill of quantities, and information on safety and health protection in cases where it is required on the basis of other regulations.

In cases where a building permit is not required, the design documentation is used to describe the subject of the contract for execution of works and consist of: plans, drawings or other documents
allowing clear identification of the type and scope of basic works and conditions and the exact location of their performance, bill of quantities, designs, permits, agreements and opinions required by other regulations.

In proceedings for the preparation of design documentation, the scope of the contract includes the complete design documentation required for obtaining a building permit, in particular the following: construction design, detailed design, obtaining technical conditions, arrangements, opinions and decisions necessary to obtain a building permit. Depending on the type of investment, the contracting authority can request different documents and decisions, e.g. decisions on environmental conditions, water permits and other approvals, e.g. approvals from property owners for the construction of wastewater infrastructure in the form of a civil law contract, obtaining decisions from individual public road operators for placing a facility related to the road, a list of works, an investor’s cost estimate, technical specification of performance and acceptance of works, information on safety and health protection, and feasibility study in the road lane.

4. Author’s supervision
The Building Law (Article 20 (1) point 4) [5] imposes on the author of the design the obligation to perform author’s supervision. It should be stated that the author’s supervision by the designer falls within the scope of the order for design work itself as it is inseparably connected with the design reparation implementation, and consequently with the designer’s person. However, the establishment of author’s supervision depends on the decision of the contracting authority itself or the architectural and construction administration body presented in the decision containing the building permit.

The designer accepting the order for the preparation of an architectural and construction design (procurement for design work) also accepts the obligation to perform author’s supervision. The above is a significant circumstance that has an impact on the preparation of the tender, and especially on the calculation of the designer’s remuneration. For these reasons, the contracting authority is obliged pursuant to the provisions of Art. 7 (1) and Art. 29 (1) of the PPL Act [3] to define the rules and conditions for the author’s supervision.

This means that the performance of author’s supervision forms an integral part of the tender for design work and cannot constitute a separate and independent subject of contract, especially in public procurement.

The value of services related to the performance of author’s supervision should be included in the estimated value of the contract for design works. They are, in addition to the costs of design work, a part of this remuneration.

In the description of the subject of the contract, the contracting authority should specify the rules and conditions for performing activities related to the performance of author’s supervision in a manner allowing contractors to properly calculate the price of the tender. The description should take into account the conditions under which the author’s supervision is executed [3].

5. Criteria for tender evaluation in contracts for the implementation of design documentation – own research
The purpose of the study was to recognize the bid evaluation process, especially the tender evaluation criteria used by contracting entities, in procurement procedures for the preparation of design documentation.

5.1. Methodology
The study involved the analysis of 100 contract award notices published in the Public Procurement Bulletin [20] for the implementation of design documentation. All the analyzed procedures were announced in 2018. Out of 100 proceedings, 52 were road works, 36 were related to the implementation of design documentation for buildings and 12 for the construction or extension of sewage treatment plants and infrastructure. All proceedings were initiated in 2018. The designer is
selected through open and competitive proceedings (open tendering or restricted tendering) under which design works are procured. The structure of the sample is shown in Figure 1.

![Figure 1](image1.png)

**Figure 1.** Number of tenders related to different types of works. *Source: own research based on [20]*

5.2. **Tender evaluation criteria and their weight**

The contracting authorities have used the price as the sole criterion in 10 tenders (10%), in most proceedings a weight of 60% for the price was used (89%); the price was awarded 75% (for buildings) in just one procedure, as shown in Figure 2.

![Figure 2](image2.png)

**Figure 2.** The price weight in tenders for design documentation. *Source: own research based on [20]*

In Figure 3 the number of proceedings and the weight of price for different types of work is presented. Contracting authorities in the majority of tender procedures have used the weight 60%, which is the maximum for price under legal regulations, regardless of the type of works.

The list of non-price criteria is presented in Table 1.
Figure 3. The price weight in tenders for design documentation for different types of works. *Source: own research based on [20]*

| Criteria                                                                 | Weight 60% | Weight 75% | Weight 100% |
|-------------------------------------------------------------------------|------------|------------|--------------|
| Experience of the staff working on the contract                         |            |            |              |
| Guarantee and/or warranty                                               |            |            |              |
| Extension of the scope of the warranty                                   |            |            |              |
| Project execution time                                                  |            |            |              |
| Experience of the design team or designer in the design of protected landscape areas |            |            |              |
| Date of payment                                                         |            |            |              |
| The amount of contractual penalty                                        |            |            |              |
| Response time in case defects are found, time required for removal of defect |            |            |              |
| Social aspects                                                          |            |            |              |
| Implementation schedule and risk assessment                              |            |            |              |
| Frequency of visits to the construction site                            |            |            |              |
| BIM documentation                                                       |            |            |              |
| Cost estimates and bill of quantities updates                           |            |            |              |
| Computer simulation of traffic                                          |            |            |              |
| Weekly reports on the progress of design work                            |            |            |              |
| Ensuring constant access to the electronic version of the design documentation using a remote access server (so-called "cloud") |            |            |              |

*Source: own research on the basis of [20]*
The most often used non-price criteria included the experience of personnel participating in the contract (37 procedures), project execution time (23), and warranty conditions (17). The environmental aspect was considered only in single proceedings, where the contracting authority assessed the designer’s experience in the areas of parks and protected areas. In three cases, the criterion was the social aspect, including the participation of people with disabilities. Figure 4 presents the percentage of tenders in which price and non-price criteria were used according to notices in 2018.

Figure 4. Percentage of tenders in which price and non-price criteria were used according to notices in 2018. Source: own research based on [20]

As Figure 4 shows, the most frequent non-price criterion was the experience of the design team or designer (37%). The next most common criteria included the guarantee and/or warranty (23%) and the execution time (17%). Other criteria were used rather rarely. The contracting authorities have also applied social criteria.

In 7 procedures, the designer’s experience in the field of two specializations was assessed. In the other procedures, the contracting authority did not distinguish the designer’s specializations, often indicating that this is to be the team’s experience.

In the majority of tender procedures two criteria were used (54%). Three criteria were used in 29% and four criteria were used in 7%. The Figure 5 shows the number of tenders and number of criteria including price.

Figure 5. Number of criteria used in tenders according to notices in 2018. Source: own research on the basis of [20]
6. Conclusions
Recent changes in the Polish public procurement systems entirely changed the tender evaluation process. In the majority of procedures, the price is now not the only criterion. Most often (54%), one additional criterion beyond price is used. The non-price criterion that was most often used was the designer’s experience. The experience of personnel performing design services can improve the likelihood of achieving higher quality as well as more effective solutions. Amendments to the Act abolishing the priority of the price should positively influence the process of selecting the most advantageous offer. On the part of the client, it may be difficult to estimate the required experience.
Public contracting authorities still rarely use the environmental criteria. There is also a lack of promotion of greener solutions. Contracting authorities promoted more effective solutions through additional points in none of the tenders examined.
There is also a demand for modern solutions such as the use of BIM technology which is still rather new and rare in public procurement.
Contracting authorities still use the maximum price weight allowed by legal regulations (60%). The price remains as the main criterion. An alternative approach for contracting authorities who wish to bid on the price consists in the use of the “request-for-quotations” or “electronic bidding” procedure. In these procedures is that the price is included as the only criterion for the evaluation of offers.
It appears that the changes in the law will lead to an improvement of the public procurement market in terms of the quality of the subject of the contract.

References
[1] Act of 29 January 2004 – the Public Procurement Law (Journal of Laws 2014, item 177) as amended
[2] Act of 29 January 2004 – Public Procurement Law (Journal of Laws of 2015, item 2164)
[3] Act of 22 June 2016 amending the Public Procurement Law Act and some other laws (Journal of Laws of 2016, item 1020)
[4] Plebankiewicz E and Kozik R 2017 The transformation of the tender evaluation process in public procurement in Poland IOP Conference Series: Mat. Sc. and Eng. 251 012042
[5] Act of 7 July 1994 – the Building Law, consolidated text: Journal of Laws 2010, No. 243, item 1623, as amended
[6] Korytárová J, Hanak T, Kozik R and Radziszewska-Zielina E 2015 Exploring the contractors’ qualification process in public works contracts, Proc. Eng. 123 pp 276–83
[7] Ibadov N 2015 Contractor Selection for Construction Project with the Use of Fuzzy Preference Relation Proc. Eng. 111 pp 317–23
[8] Lam K C, Hu T, NG S T, Skitmore M and Cheung S O 2001 A fuzzy neural network approach for contractor prequalification Constr. Manag. and Econ. 19 pp 175–80
[9] Khosrowshahi F 1999 Neural network model for contractors’ prequalification for local authority projects Eng., Constr. and Arch. Manag. 6(3) pp 315–28
[10] Elazouni A M 2006 Classifying Construction Contractors Using Unsupervised-Learning Neural Networks Journ of Constr. Eng. and Manag. 132(12) pp 1242–53
[11] Lam K C, Hu T S and Ng S T 2005 Using the principal component analysis method as a tool in contractor pre-qualification Constr. Manag. and Econ. 23 pp 673–84
[12] Abudayye O, Zidan S J, Yehia S and Randolph D 2007 Hybrid Prequalification Based, Innovative Contracting Model Using AHP. Journ of Manag. in Eng. 23(2) pp 88–96
[13] Hanak T, Korytárová J, Kozik R and Radziszewska-Zielina E 2015 Exploration of contractor evaluation process in the management of public works contracts Project management as a spectrum of scientific problems in engineering and management, ed. by Dariusz Skorupka, Marcin Flieger. – (Wrocław: General Tadeusz Kościuszko Military Academy of Land Forces in Wroclaw) pp 55–65 ISBN 978-83-63900-63-2
[14] Gransberg D D and Barton R F 2007 Analysis of Federal Design-Build Request for Proposal
Evaluation Criteria Jour. of Manag. in Eng. 23(2) pp 105–11
[15] Kozik R 2014 Green Public Procurement criteria for construction contracts Techn. Trans. Civil Engineering 2(B) pp 73–80
[16] Leśniak A, Plebankiewicz E and Zima K 2012 Design and Build Procurement System – Contractor Selection Arch. of Civ. Eng. 58(4) pp 463–76
[17] Lesniak A and Zima K 2013 Design and build procurements in the Polish public sector Jour. of Publ. Proc. 13 pp 315–36
[18] Potter K J and Sanvido V 1995 Implementing a Design/Build Prequalification System Jour. of Manag. in Eng. pp 30–4
[19] Palaneeswaran E and Kumaraswamy M M 2000 Contractor Selection for Design/Build Projects Jour. of Constr. Eng. and Manag. 126(5) pp 331–39
[20] The Public Procurement Bulletin www.uzp.gov.pl