



Colombia Compra Eficiente



Guide for public works' Procurement Processes

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Introduction

Colombia Compra Eficiente, as the governing body, develops support mechanisms for the participants of the Public Procurement System. Its purpose is also to disseminate provisions, rules, procedures, technological means and better practices for the system. Pursuant to such functions, it issues this public works' contracts' guide.

The expressions' used in this document with capital at the beginning must be construed according to the definition contained in Decree 1082 of 2015 and are used in the singular or in the plural as the context requires. The terms not defined must be construed according to their natural and obvious meaning.

General Aspects

A. What are public works?

Article 32 of Law 80 of 1993 defines the public works' contract as the contract entered into by the State Entities for the construction, maintenance, installation and in general to carry out any other material works on real property.

B. Regulatory framework of the public works' contracts

The public works' Procurement Processes are governed by Law 80 of 1993, 1150 of 2007, 1474 of 2011 and 1682 of 2013 regarding transport infrastructure and in all other aspects, by the private law.

Besides, the participants of the Public Procurement System must know and apply the provisions of the national and territorial level in the execution of public works, regarding the following aspects:

- Environmental licenses and obligations.
- Urban licenses' and compliance with the territorial planning plans.
- Provisions for the protection of the historic and cultural heritage.
- Issues related to territorial development, expropriation and handling of property issues.
- Tax issues.
- Mobility.

- Utilities.
- Community management.

C. Selection modalities

The choice of the public works' contractor can be made through the following selection modalities:

- **Public tender:** it is the general rule applicable.
- **Abbreviated Selection:** applies when the value of the work is in the range of the Lower Amount of the State Entity and regarding Services for the National Defense and Security.
- **Direct Contracting:** this modality is of a restrictive nature, and therefore it only applies in the cases of manifest urgency or of the contracting of the National Defense and Security sector that requires reserve.
- **Minimum amount:** applies when the amount of the work is in the range of the minimum amount of the Contracting Entity.



Planning phase in public works' Procurement Processes

A. Planning

The State Entities must identify the need and include it in the Annual Acquisitions Plan. Likewise, they must make the technical studies that are the analyses necessary to establish the viability of the project as it corresponds to (i) engineering studies, (ii) budget – related issues, (iii) establish the social, economic and environmental impact, (iv) identify the permits, authorizations and licenses required for the execution of the project and (v) project the land property management.

The State Entity must only start the Public work Procurement Process when the technical studies allow to conclude that the work is viable¹. In transport infrastructure, public works, the Procurement Process may start earlier when the Procurement Process includes the making of studies and designs². The technical studies involve the following analyses, whenever applicable:

1. Article 87 of Law 1474 of 2011.

2. Literal a) of the paragraph of article 16 of Law 1682 of 2013.

- General description of the project.
- Technical Annex.
- Beneficiary Population.
- Geologic and geotechnical studies, whenever applicable
- Hydrological, hydraulic and drainage studies, whenever applicable.
- Study of the current situation and projection of future use of the works to plan the maintenance thereof.
- Design.
- Structuring of the property distribution based on cadaster information.
- Environmental Analysis.
- Identification of social, environmental, property or ecologic factors that affect the normal performance of the project and proposal of mitigation of such impact.
- Estimated cost and economic and financial management plan, taking into consideration the origin of the resources.

In the public works' contracts, the shortest term offered cannot be the subject of evaluation.

B. Sector analysis for public works

In the public works' Procurement Processes, the State Entities must make a study of the sector to have elements that allow defining the enabling requirements in an adequate and proportional manner. This analysis is made with the methodology contained in the Guide to make Sector Studies issued by Colombia Compra Eficiente, which can be consulted in the following link: https://www.colombiacompra.gov.co/sites/cce_public/files/cce_documents/cce_guia_estudio_sector_web-engl.pdf

The State Entities can verify the information of the RUP, request information from the potential bidders and consult the sector studies from the following sources, although the State Entity's may consider that it is important to consult additional sources of information:

- From an institutional perspective, the sector studies of the Superintendence of Companies can be consulted. This information can be obtained in the following link: <http://www.supersociedades.gov.co/asuntos-economicos-y-contables/estudios-y-supervision-por-riesgos/SIREM/Paginas/default.aspx>.
- Regarding business associations, information can be obtained from the Colombian Infrastructure

Chamber (<http://www.infraestructura.org.co/>) or from the Colombian Engineering Society (<http://www.sci.org.co/>).

- From the perspective of State Entities, the different Procurement Processes carried out by the State Entities can be consulted in the SECOP (<https://www.contratos.gov.co/consultas/inicioConsulta.do>).
- It is also possible to consult the information of private parties who contract the construction of civil works.

The analysis of the sector allows the contracting State Entity to know:

- The indicators of financial capacity and organizational capacity of the different suppliers of services or goods related to public works. With this information, the State Entities must determine the enabling requirements in a proportional and adequate manner considering the complexity, value and characteristics of the works.
- To obtain information for the analysis and management of the Risks.
- It also allows to forecast the number of bidders that will take part in each selection process, and so this tool can be used as a mechanism to expand the participation of bidders in these processes.

Colombia Compra Eficiente makes available to the participants of the Public Procurement System Annex No. 1 in which it presents a general analysis of the financial information of the sector of the public works.

C. Aspects to be considered in the estimation of Risks

In public works' Procurement Processes, the State Entities must carry out the analysis with the methodology contained in the Manual for the Identification and Coverage of Risks in the Procurement Processes, enacted by Colombia Compra Eficiente. This Manual can be accessed at the following link: https://www.colombiacompra.gov.co/manuales-guias-y-pliegos-tipo/manuales-y-guias?field_documents_topic_tid=All&combine=riesgos&items_per_page=5

The State Entities must use the Risks' matrix, available at the following link: https://www.colombiacompra.gov.co/manuales-guias-y-pliegos-tipo/manuales-y-guias?field_documents_topic_tid=All&combine=riesgos&items_per_page=5

The State Entities must take into account the following aspects that allow identifying and manage, in a better way the Risks in public works' Procurement Processes³:

3. Colombian Infrastructure Chamber. "One Public Policy". Third Version, November of 2012.

- Amount and opportunity of the works and the eventual variations due to quantities of work, term and prices.
- Geologic Aspects.
- Interference and presence of utilities' networks.
- Operation and maintenance costs higher than those projected, or lack of availability of the works for maintenance purposes.
- Events that are beyond the control of the parties and the occurrence of which leads to the suspension of the obligations of the contract.
- Contractor's financing and variation of the financial conditions throughout the term of execution of the works.
- Regulatory or tax changes that may affect the works.
- Real property management. Definition, cost and timely availability of the lands.
- Conflicts with the communities.
- Environmental, licenses, planning permits, prior consultations and other permits necessary for the project.

D. Bidding terms and contract model the of the public works' contract

Colombia Compra Eficiente establishes standard bidding terms and a standard contract model regarding public works' contract, available at the following links:

- https://www.colombiacompra.gov.co/sites/default/files/manuales/20140220_pliegodecondicionesversionpublicacion.pdf
- <https://www.colombiacompra.gov.co/sites/default/files/manuales/20140117contratotipoobrapublicacion.pdf>

The State Entities can add clauses and conditions to these forms, as well as to adapt these documents to the specific purpose of the contract to be developed.

E. Amount and terms of payment of public works' contracts

The State Entities can establish the value and the manner of payment of the public works' contracts through the following methods which, although are not expressly contemplated in Law 80 of 1993, may be agreed by the parties.

- **Lump sum:** the contractor's remuneration is a fixed amount and it is the only one responsible for the compliance with the purpose, the hiring of personnel, the drafting of subcontracts or the procurement of materials. The lump sum contract includes all the direct and indirect costs incurred by the contractor for the execution of the works and the State Entity must not recognize greater amounts of work or necessary, not – planned, additional works within the contract's purpose.
- **Turnkey:** in this modality, the contractor agrees to carry out all the work related to the works including the designs, feasibility studies, the construction, the hiring of the personnel, facilities and the procurement, and the remuneration on the charge of the contractor is the finished project, duly commissioned and in operation. The price corresponds to an amount previously established which operates as the remuneration of all the activities carried out by the contractor.
- **Unit prices:** the parties establish the cost per unit of each one of the items that make up the works to be done or work items. Based on this amount, the parties define the initial estimate of the works, but the actual amount is the one that corresponds to the multiplication of the work quantities' actually done, times the price of each works' unit.
- **Delegated management:** The State Entity delegates the execution of the works to the contractor in its role of technical director, who performs it on the cost and at the risk of the same State Entity's. The contractor receives as remuneration the fees agreed for its performance. The delegated manager is in charge of executing the works and is answerable for the good results, but the State Entity is the one that assumes the Risks derived from the contract as well as the financing of the works. The contractor's fees can be agreed as a percentage of the amount of the works or as a fixed price.

When this type of payment is used, the entity must open a selection process to choose the contractor through Public tender in order to guarantee the principles of objective selection, transparency and economy that must be observed in the State's contractual activity.

- **Reimbursement of expenses:** in this modality the contractor assumes the expenses of the performance of the contract and the State Entity reimburses, in a periodic manner, those expenses, and it also recognizes to the contractor the fees agreed for its work.



When the terms of payment or remuneration of the state contract is agreed under the unit prices system, delegated management or reimbursement of expenses, the initial value of the contract is a mere estimate or indication of the probable cost, namely, an estimate necessary to make the budget; therefore, the actual value of the contract is established once the contract is ended, taking into account the application of the procedure chosen by the State Entity.

The State Entities may include in the amount of the contract an estimated percentage for administration, unforeseen expenditures and profit (AIU, for its Spanish initials), which can be a residual proportion of the aforementioned contract value.

The percentage of unforeseen expenditures included in the AIU is a manner to assign and handle a foreseeable risk in a Procurement Process, in which the State Entity transfers the Risk to the contractor because of the unforeseen issues that may occur, and the amount thereof corresponds to the cost of the contingency that the State Entity pays to the contractor for it to assume the risk in the occurrence of unforeseen situations. Hence, the Entity must pay the amount that corresponds to the unforeseen situations even when the same do not exist but in case that the same do exist, it should not pay an amount higher than the one determined by the contractor in its financial offer for that item.

F. Experience in public works' contracts

The experience required in a public works' Procurement Process must be adequate and proportional to the nature of the contract and to the amount thereof. The experience is adequate when it relates to the type of activities established in the purpose of the contract to be entered into. For example, if the Procurement Process is for the construction of a road, the bidder must have experience in construction of roads of similar technical conditions, but the place in which the service was provided or the contracting party or the specific work volumes, which do not make a contribution to the Procurement Process as objective selection criterion, are not relevant.

The experience is proportional when it has relation to the scope, the amount and complexity of the contract to be entered into. For example, in a public works' Procurement Process with an official budget of 100 SMMLV, the experience required is proportional if the State Entity demands that the bidders should have taken part in Procurement Processes of 50 SMMLV of the same type of works.

On the other hand, the experience is not exhausted with the passage of time and, on the contrary, the bidders acquire a greater experience as time passes, if they continue with their activities. The State Entities can only demand that the experience refers to a certain range of years when it is justified by changes or technical innovations that have occurred in the same term and that are justified according to the Risks, the complexity and the nature of the Procurement Process.



A. Performance requirements in public works' contracts

Taking into account the rules established in article 41 of Law 80 of 1993 and the characteristics of the public works' contract, to start the performance the State Entity must:

- Make the budget registration.
- Approve the contract's guarantees.
- Verify the payment of the contractor's obligations regarding integral social security and para – fiscal contributions.
- Verify that the inspector or supervisor is able to discharge its duties.

Throughout the execution of the work contracts any instruction given to the contractor must be in writing and must be issued by the State Entity through the expenditure authority or the delegated person for those purposes. When the instruction comes from the inspection or supervision, it must be informed to the State Entity.

B. Inspection and supervision in public works' contracts

The State Entities have the obligation to oversee, in a permanent manner, the correct performance of the public works' contracts and must do so through a supervisor or inspector, as corresponds.

The supervision is the technical, administrative, financial, accounting and legal follow - up and the State Entity exercises it in a direct manner. The inspection is the specialized technical follow up made by an individual or legal entity other than the State Entity. The inspection can also include the obligation to make the supervision of the financial, accounting, administrative and legal issues.

The supervisor and inspector must demand the compliance with the mandatory technical standards of the works and to certify the receipt to satisfaction only when the works have been completed in full.

The public works contracts whose selection modality is the public tender must have an inspector. On the other hand, in the prior studies for public works' Procurement Processes the amount of which exceeds the Lower Amount, the State Entity must make an express pronouncement about the need of having an inspector.



No order of a public works inspector can be given in an oral manner. The inspector must deliver its instructions or suggestions in writing, and the same must be in agreement with the terms of the contract.

The contract for the inspection of the works must be directly supervised by the State Entity.

C. Exceptional clauses

The State Entities must include in all the public works' contracts the exceptional clauses established in Law 80 of 1993, namely, unilateral interpretation, unilateral modification, unilateral termination and forfeiture. The clauses must be utilized to prevent affecting, in a total or partial manner, the works, or a serious impact on the public service that the State Entity intends to satisfy.

The State Entities can only exercise the powers derived from these clauses within the term of execution of the contract.

D. Changes in public works' contracts

When it is necessary to amend aspects of the contract, such as the execution of additional or supplementary works, to suspend or resume the contractual performance, to amend unit prices, among other situations, it is necessary to justify and document the respective modification, under the responsibility of the expenditure authority. This decision cannot be adopted by the inspector or supervisor of the public works' contract.

When the budget is affected, the amendment must be preceded by the compliance with the budget requirements and the contract's guarantee must be extended according to the new amount added.

When the term of the contract is amended, the guarantee must extend its term, expanding the validity thereof.

In the public works' contracts agreed in unit prices, when what varies is not the purpose of the contract but the initial estimation of the work quantities, it is not necessary to amend the contract, because the higher amount of works does not mean a change in the purpose or in the value of the contract. Hence, what is appropriate is to make the budget movements that may be necessary to cover the higher cost of execution of the contract.

E. Subsequent obligations to the liquidation of the public works' contract

Based on article 2.2.1.1.2.4.3 of Decree 1082 of 2015, the State Entities must carry out the following activities subsequent to the liquidation of the public works' contract:

- To make the follow up of the quality and stability of the works and to enforce the guarantees whenever there is a loss.
- To comply with the obligations derived from the regulation of the final disposal or environmental recovery of the works.
- To close the dossier once the term of the guarantees has expired as well as the obligations derived from the final disposal.

IV Quality in public works' contracts or in those that require civil works

The State Entities must bear in mind the following aspects to establish the quality in public works or state contracts that contain of civil works components:

- **Definition of quality:** according to its natural and obvious meaning, quality is “the property or set of properties inherent to a thing that allow to appreciate it as equal, better or worse than the remaining of its species”⁴.

Regarding the execution of civil works, the quality must be construed in its definitions of the engineering field as: “1) the grade of excellence of a product or service. 2) The grade in which a product or service satisfies the needs of a specific client. 3) The degree of conformity of a product or service with a given requirement”⁵.

According to these definitions, the quality is related to: (i) the conformity of the product with its specifications or requirements and (ii) the satisfaction of the need, so it is, important that the State Entities define, in an adequate manner, the properties that the final product must have and the manner in which the same must be measured or proven.

- **Characteristics or quality indicators**⁶: are the characteristics of a product that can be the subject of measurement and that define the conformity of the good with a prior requirement. The characteristics must be measurable by a quality control procedure.

For example, if in the process of construction of a road the State Entity requires the asphalt to be durable, it must establish as a quality characteristic the properties of the asphalt that guarantee the durability.

4. Dictionary of the Royal Academy of the Spanish Language.

5. Transportation research board, (2002), Glossary of Highway Quality Assurance Terms.

6. Idem, p. 3.

- **Quality Measurement⁷:** it is the manner to quantify the quality. For example, the standard of deviation or percentages of components referred to materials.
- **Measure Method⁸:** It is the procedure whereby the State Entity or the supervisors or inspectors verify the measure of quality and of the characteristics or quality indicators.
- **Specifications that assure the quality⁹:** are the specifications required in relation to a quality characteristic, as well as to the methods that allow to verify it. The responsibility of providing goods or services with those characteristics lies with the contractor and the responsibility to verify and accept them lies with the State Entity, which can carry out that task through the inspector or supervisor of the works, supported on the contractor's quality control system.

The State Entity can use these specifications not only to determine the minimum technical conditions required, but also for the allocation of points in quality issues when the same are aimed to seek an added value in a certain item, or element, to be used in the works.

- **Quality control System:** it is an organizational structure, process, procedures and resources used by a contractor to control the quality of the goods or services that it produces and to ensure that the same are produced according to quality standards that correspond to the technical specifications requested by the State Entity. It can incorporate test activities, inspections or audits¹⁰.
- **Minimum Technical Characteristics:** All the characteristics that a good or product must necessarily have to agree with the requirements of the State Entity and that allow satisfying, in a correct and appropriate manner, the needs that it seeks to satisfy with the procurement.

A. Quality factor in the planning stage of the Procurement Process

As from the moment in which the State Entity makes the planning of the Procurement Process it must start the study of the criteria to be included in the bidding terms to grant points for the quality factor.

Before defining the criteria to be evaluated, the State Entity must ask the following questions¹¹. These are general questions to establish the context of the quality demanded not only in the technical and enabling requirements but also in the definition of evaluation or score factors:

7. Idem, p. 3.

8. Idem, p. 3.

9. Idem, p. 3.

10. Ashfort J.L., 2013, "The Management of Quality in construction", E & FN Spon, London.

11. Lou & Lof, 2010, "Evaluation of tenders for public procurement of public works contracts".

- Are the criteria related to the purpose of the procurement? is it specifically related to the works that the contractor must carry out?
- Are the criteria chosen necessary? If so, the State Entity must include it in the Minimum Technical Characteristics, in the enabling requirements or as factor in the evaluation formula.
- Without this criterion is there a risk of not obtaining the result that the State Entity seeks?
- Do all the bidders meet this requirement, or only a few?
- Does only a small group of bidders meet the criterion?
- Is the criterion measurable?
- How do the bidders show that they meet the criterion?
- Does the criterion gives added value to the purpose of the contract?

Once the State Entity has answered the preceding questions, it must take the following recommendations into account to establish criteria for the of evaluation of the quality:

- The quality criteria may correspond to something that is desirable but not necessary and, preferably, to a desirable deepening or improvement of something that was asked as mandatory in the contract's purpose.
- Before including a quality criterion, the State Entity must make a study that allows it: i) to determine the convenience of using it according to the type of works to be done and, ii) if it can be expected that the criterion makes the difference between the score of one and the other bidder.
- In case that the criterion corresponds to characteristics more stringent than those demanded as minimum, the evaluation of the quality must bear in mind the better - quality condition that it is possible to obtain with the higher specification.
- The weighing of the quality criterion in relation to the economic offer must be enough to create an incentive in the bidders to offer better conditions, independent of price of their offer.
- The criterion and the manner of assigning the score must be clear in the bidding terms, so the bidders can easily know which score can be obtained.
- All the criteria used by the State Entity must be objective, measurable and according to the Law.
- It is important that the State Entity studies the sector, the Risks of the Procurement Process and the conditions of the bidders so the quality criteria do not reduce in an unnecessary manner, the number of potential bidders.
- If the criterion requires measurement, the State Entity must state the frequency with which they will be made as well as the method that must be used to evidence the bidder's offer.

B. Quality factor in the Procurement Process' selection stage

For the determination of the most favorable offer, the State Entity might take into account:

- (a) the weighing of the quality and price elements that represent the best cost – benefit ratio or
- (b) the weighing of the quality and price elements supported on scores or formulas.

Below, we show some of the criteria internationally used and with academic recognition that will be useful to structure the weighing of the quality elements in the selection process and that allow obtaining a reasonable certainty in this regard in the works contracted.

It is not necessary that the State Entity makes use of all the criteria mentioned below in a Procurement Process, it can use all of them or only a few of them, depending of the works to be contracted and of the availability of resources that it has to instrument them in a specific case.

1. Quality control System: it is a criterion that allows knowing the contractor's capacity to produce goods or services of a given quality¹².

By using this criterion, the State Entity must bear in mind that the following documents are the ones that make a quality system up:

(a) The documents that establish, in a general manner, the quality policy related to the bidder's production and are merely descriptive. In general, this purpose is met through the Quality Manuals.

A quality policy must contain, as a minimum: (i) objective of the policy, (ii) description of the quality system of the works, (iii) persons responsible for the management and, (iv) quality control of the works and the general manner in which it is implemented.

(b) The documents that give instructions or establish procedures to ensure the quality of the products. Generally, this is achieved through the establishment of operational procedures.

This document must contain, as a minimum, the description of the activities that the bidder carries out to guarantee the quality in the works with the same characteristics of those that it intends to contract.

(c) The documents that describe how is the quality control system applied, namely, how to apply the provisions of items a) and b) to a certain project or process, specification of the concrete procedures, resources or activities to be carried out in order to ensure the quality. These conditions can normally be found in the quality plans or quality programs.

12. Dwarika Puri , 2, S. Tiwari, 2014, Evaluating The Criteria for Contractors' Selection and Bid Evaluation, International Journal of Engineering Science Invention.

This type of document must have, at least, the description of the resources, activities and procedures that will assure the quality of the works to be contracted.

(d) Documents that list the activities to be carried out in respect to a specific product, item or work element in order to assure that it complies with the requirements. These specific work instructions can be contained in different documents, such as, for example: specifications of a contract entered into by the company, construction methods, maintenance manuals, construction schemes or even in verification manuals.

This type of document must incorporate all the specifications requested in the bidding terms and the instructions that are part thereof, are deemed as incorporated into the contract.

In this line of thought, it is possible to allocate points for quality to each one of the aforementioned documents, taking into account that a greater score is assigned to those that allow verifying in a more concrete manner the quality control of the works the subject of the Procurement Process. Hence, the bidder that obtains the entire score is the one who accredits a more effective quality control system.

The State Entity must define the minimum contents of the documents to which it is going to allocate the score, having the type of control over the quality of the works that it wants to assure through them, as well as the objective parameters that will be evaluated in each of the documents and that will determine the allocation of the score.

This criterion does not correspond to a certification of a quality management system but to the availability of a quality control system for the works that the bidder may have and that may be certified for all of the activities carried out by the contractor's enterprise, but that it is desirable to have in relation to the type of works to be carried out. The State Entities must establish in the bidding terms the manner in which the supervision or the State Entity itself verify the implementation of the system in the performance of the contract.

2. Availability of laboratories for the trial of materials duly accredited for the contract to be entered into: through lab tests it is possible to verify the compliance with the characteristics and quality measures required, as well as to assure the quality control by the bidder himself¹³. The labs must be accredited by the National Accreditation Body of Colombia –ONAC- according to the competence assigned by Decree No. 865 of the 29th of April of 2013.

The State Entity may request, at the time of presentation of the offer, a letter of the laboratory retained by the bidder, certifying that it will work with it for the purposes of performing the tests that may be required throughout the performance of the works¹⁴.

13. Federal Highway Administration, Quality Assurance Procedures for Construction, 1995.

14. Herbsman, Z., Ellis, R., 1992, Multiparameter bidding system-innovation in contract administration, J of Const Engrg and Mangt.

For this purpose, the State Entity must determine what type of tests must be carried out for the control of quality of the works or of specific elements or items that have special relevance in it.

The use of this criterion must be preceded by an analysis by the State Entity of the availability of laboratories in the territory in which the works are going to be done so as not to limit the free concurrence of the possible bidders.

Technical specifications higher than those required as a minimum by the State Entity: is a criterion that refers to the quality of the future performance of the works and allows the State Entities to opt for rewarding the bidder that, within the budget allotted, offers elements or items of a better quality than the one requested in the Minimum Technical Characteristics or quality measures higher than those requested that represent an added value to the works .

3. Performance of the contractor in previous contracts: this criterion allows to have certainty based on the quality with which the contractor has completed previous works. There are several options to verify it:

- **Visits to works:** To make a visit to the works that the bidder made in a range of years determined by the State Entity, to verify that the same complied in full not only with the technical specifications required by the contract but also with the regulations in force for the works done¹⁵. In case that this criterion is the one selected by the State Entity to allocate points for quality, the tools used will depend of the complexity of the works to be inspected and of the verifications that have to be done.

It is important to clarify regarding this criterion that in the case that the State Entity wants to use it, it must identify the factors that are not the liability of the contractor and that can affect the state of the works at the time of the visit, including: the works of maintenance and the specifications requested to carry out the works that are determined by the contracting State Entity, when the same do not fulfil the quality standards and also it must have qualified personnel to carry out the activities that imply the verification of the works to be inspected.

According to the foregoing, the State Entity in the bidding terms must establish which objective criteria will be considered to evaluate the results of the works' visit.

- **Presentation of results of quality test done in previous works regarding technical requirements accepted by the inspector of the works¹⁶:** through this criterion the State Entity can verify the quality with which the bidder has carried out other works equal or similar to the one the subject of the contract. The number of assays or tests that must be accredited is determined with the State Entity according to the characteristics of the works to be carried out.

If this criterion is to be used, it is important to point out the type of works regarding which the tests

15. Haust Z., Skitmore M., 1997, Criteria for contractor selection, Construction management and economics.

16. Federal Highway Administration. Op. cit., p. 7.

are to be carried out, as well as the items or specific elements to which the tests must be applied, which must be those that have a special importance for the works to be contracted. Likewise, the State Entity must specify whether or not the tests must proceed in accredited or non – accredited laboratories.

The requirement of having the measurement endorsed by the inspector depends of whether or not the contract under which the test was made demanded it or if the tests done corresponded only to the contractor's quality control, in which case the person in charge of validating the information about quality is the one that must sign the certificate.

- **Certifications of the quality obtained in other work projects of similar characteristics¹⁷:** If it is not possible to inspect the quality of prior works of the contractor or if due to the type of works it is necessary to carry out lab tests, and in any case the State Entity can request certifications evidencing that the contractor during the performance of the contract complied with all the technical specifications requested at due time and with all the instructions issued during the execution of the contract.

The State Entity must establish the manner in which it rates the contractor, determine the options for the grading and which score is allocated to each one of them.

If the State Entity establishes this criterion as quality factor, it must bear in mind that these certifications are different from the certifications of both general experience and specific experience, because they are not aimed to be used as evidence of the execution of a contract with a determined purpose and value, but as the conditions in which the contract was performed.

- **Certification of contracts ended in a timely manner¹⁸:** corresponds also to the criteria used to know the Contractor's performance in previous works. The State Entity must determine the convenience of establishing as requirement for the certification to have completed the works before schedule or in the time agreed.

With the allocation of scores in this way, the State Entity evidences that the contractor completed prior works of similar characteristics, in compliance with the provisions of the contract and regulations that it had to obey for the construction.

Lastly, the State Entities must refrain from weighing as quality of the works the following criteria:

- Rating of the work programs.
- Schedule of works.

17. Haust Z., Skitmore M. Op. cit., p. 8.

18. Herbsman, Z., Ellis, R. Op. cit., p 8.

- Investment programs.
- Filling of the forms for the analysis of unit prices - APU -.
- The qualities of the personnel (higher time of experience, greater academic achievements or a greater time availability).
- Sanctions or fines.
- Support to the national industry.
- Compliance with the Minimum Technical Characteristics of the works.
- Environmental management programs that are mandatory because of the contractual purpose.
- Percentage asked as prepayment.
- Works Visit.

C. Quality factor in the contract's execution stage

To achieve the quality objective in the works, it is necessary that the State Entity directly and through the supervision or inspection verifies that the quality offerings made in the selection stage are actually implemented in the performance of the contract.

That is why the quality criteria must be measurable. The State Entity must include as obligations in the contract the criteria defined to establish the quality in the selection stage and impose sanctions or penalties and that in the events that so warrant, to declare the noncompliance due to the omission thereof during the execution of the contract.

Below there are some standard clauses of the contract in which the State Entity may include the quality criteria:

- ***Contractor Obligations' Clause***

This clause must include all the additional offerings made by the contractor regarding quality, preferably translating each one of the criteria for which additional score is given into independent obligations.

Obligations of the contractor regarding the quality of the works: i) to use in the performance of the contract the following equipment: wooden sleepers' sweeper, rails' tensor and manual tamper, according to the offer made by the contractor within the of Public tender process No. 20 of 2010. ii) To make available for the works the laboratory the subject matter of section [insert data] of the bidding terms, located at this address [insert data], in which the relevant tests that allow the

verification of the following measures must be carried out: [insert data]. iii) to maintain and operate a quality control system duly structured in relation to the works to be done, according to the provisions of the offer made by the contractor.

The State Entity can also include the quality demands in technical annexes, in which case it must state in the specific obligation the compliance with the information contained in the respective annex. In this case, the annex that lists the quality aspects must contain the characteristic or quality ratio, the measurement unit, the measurement method, the frequency of the measurement and other related conditions.

- ***Clause of Inspection and / or supervision***

By including the additional offerings within the obligations of the contract it is also necessary to specifically determine the obligation of the inspectors and / or supervisors of verifying the compliance with the additional offerings made by the contractor, in the conditions of time, mode and place established in the bidding terms.

This is necessary in those contracts that define the obligations of inspectors and / or supervisors through the reference to manuals or to the Law, because this obligation of verification is not contained in those documents:

On top of the obligations set forth in the inspection and / or supervision manual (as the case may be), the inspector and / or supervisor must comply with the following obligations: i) evidence that during the execution of the contract it performs the additional offerings made by the contractor in its offer. ii) to verify the contractor's laboratory reports [insert data] times per month and validate the results of the tests with what was established in the Technical Annex No. [insert data] of this contract. iii) To make requirements to the contractor regarding the compliance with the additional obligations offered by the contractor and that are evidenced in the Technical Annex No. [insert data] of this contract.

- ***Penalties' Clauses***

Considering that the failure to comply with the obligations offered regarding quality configures a default of the contractor, the State Entity must establish in the contract the manner to sanction the default:

Fines for the noncompliance with the quality – related obligations: Are cause to impose fines for the Contractor's noncompliance regarding quality: i) The failure to deliver to the inspector the information of the measurements done in the laboratory regarding the following materials or works items: [insert data]. ii) when there is evidence that the additional machine offered and described in Technical Annex No. [insert data] of this contract is not in use or available for the performance of the works. iii) Not to make the measurements stated in Technical Annex No. [insert data] to verify the quality of the elements or items therein determined.

Annex1: Information of financial and organizational capacity of the construction sector in Colombia

Colombia Compra Eficiente utilized a sample of 500 companies of the construction sector from information published in the Entrepreneurial Records' Information System of the Superintendence of Companies -SIREM-. This sample contains companies of all sizes and from the entire country. This information was used to make a graphic analysis with histograms to analyze the behavior of the sector in each one of the indicators, the ranges in which the highest concentration of companies is found were defined and the distribution of the data within these ranges was studied to finally establish the lower or upper limits of each indicator of financial and organizational capacity.

Financial capacity

- **Liquidity:** The sample evidences a dispersion of the data, where the most representative range is of liquidity of between 1 and 1,5 with 20% of the companies in it. In addition, in that range there is a uniform distribution of the data. Hence, Colombia Compra Eficiente recommends to demand an indicator equal to or higher than 1. The 90% of the companies in the sample have a liquidity equal to or higher than 1.
- **Indebtedness:** 53% of the sample have indebtedness levels of more than 50%. In addition, 35% of the sample has indebtedness of between 50% and 70% with a uniform distribution within that range. Hence, Colombia Compra Eficiente recommends to demand an indicator equal to or lower than 70%. 82% of the companies of the sample have an indebtedness lower than or equal to 70%.
- **Interest coverage ratio:** This indicator usually shows the extreme data that must be handled as atypical data, because some companies evidence minimum interest expenses when compared with their profits, which generates a high indicator that distorts the sample. 44% of the sample evidences a coverage of between 1 and 5. Within this range, the highest concentration of companies has coverage ratios of between 1 and 2. Hence, Colombia Compra Eficiente recommends to demand an indicator equal to or higher than 1. The bidder that does not have interest expenses is qualified for this indicator because it does not have interests to cover. 85% of the companies in the sample have an interest coverage ratio equal to or higher than 1.

Organizational capacity

- **Return on Assets:** The sample evidences uniformity of the data around the first positive ranges starting at zero. Therefore, Colombia Compra Eficiente recommends to demand an indicator of more than zero (0). 87% of the companies in the sample evidence a return on assets of more than zero.

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- **Return on Equity:** The sample evidences uniformity of the data around the first positive ranges starting at zero. Therefore, Colombia Compra Eficiente recommends to demand an indicator of more than zero (0). 87% of the companies in the sample evidence a return on equity of more than zero.