

GLOBAL

PERSONNEL CERTIFICATION SCHEME

QUALIFICATION PROGRAM – PC06

CALIBRATION METROLOGIST

REVISION 00



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1. OBJECTIVE AND REFERENCES

1.1 OBJECTIVE

This Certification Program establishes how the qualification of people in the area of Calibration Metrology is carried out within the scope of the "GLOBAL Personnel Certification Scheme" (GLOBAL), following the ISO / IEC 17024 requirements.

The specific rules that establish what is required for the Qualifications of people in the various activities of the Concrete Productive Chain are the references for the scope of this Program. These Qualifications are assessed to verify compliance with applicable standards, as set out in this Qualification Program.

1.2. REFERENCES

ISO/IEC 17024
NBR 16781:2019

2. DEFINITIONS AND RESPONSIBILITIES

2.1. DEFINITIONS

Calibration Procedure: Written description of all essential parameters and precautions to be observed when applying a calibration technique, according to an established standard, code or specification.

Certification Program: Set of requirements and conditions applicable for the Qualification of a person in a specific Competency in a Competence Area

Competence: Demonstrated ability to apply knowledge, skills and previous professional experience, including those of a legal nature, required to perform safely and with quality a certain professional activity relevant to an occupation. It involves the set of rights, obligations and attributions of a person in a specific professional activity, comprising the legal requirements relevant to that

professional occupation and the training, skills, training and professional experience required.

Competence Area: Groups the competencies required for similar occupations. It can also be called the Occupation Area.

Competence Center: Public or private entity, recognized by GLOBAL to promote Exams marketing and infrastructure, providing the infrastructure for the Lead Examiner to assess the skills and knowledge of people, in order to meet the specific requirements that allow registration and registration. qualification of the professional in a given Qualification of a Competency. Competence Centers use registered and independent Examiners to provide Exams. Competence centers can also provide training and professional experience, depending on the nature of the activities they perform, and the accreditation done by GLOBAL.

Employer: A government, private or any other organization that requires one or more of its employees to have the specific Qualification certified within the Scope of a Qualification Program.

Evaluation: Verification carried out after interpretation, to determine whether the indications meet the specified acceptance criteria or to determine their significance.

Qualification: Specific competence that qualifies a person for a certain professional activity, considering the specific Scope where he obtained the Qualification.

Scope: Indicates the scope of the certified Qualification, applicable when this additional level of detail of the Qualification is required for the registration of the professional. The Scope indicates the specific Qualification obtained by the certified professional.

Significant interruption: Removal of the certified professional from the activities specific to the scope of his qualification for a period that, as defined in this Qualification Program, determines the suspension or cancellation of the qualification.

2.2. RESPONSIBILITIES

Certification Candidate: Person who applied for certification in a Qualification and that the process had not yet completed lacking the final decision on certification but complies with the Code of Conduct.

Certified Person: Person who meets all the requirements of the Certification Program in which is certified and maintains compliance with these requirements throughout the period of validity, even during checks for the maintenance of certificate. The Certified Person complies with the Code of Ethics and has permanent professional performance consistent with the certification obtained.

Examiner (or Instructor or Tutor): Person accredited by GLOBAL that meets all the requirements of GLOBAL, responsible for executing the Exams relevant to the assessment of Candidates seeking certification in a Qualification. Examiners are regularly assessed to prove competence in the Qualification in which they operate, with annual reassessment. Examiners are classified as Lead Examiner or Examiner and only the Lead Examiner can provide the final evaluation of Participants of Exams.

President of GLOBAL: Establish the structure, indicating people and provide consistent resources for proper operation of GLOBAL. The President of GLOBAL is responsible for controlling and deciding, ultimately, the Appeals and for leading the management reviews.

Registration Technician: Person belonging to GLOBAL with responsibility for controlling and executing the activities of the certification processes of persons, critically analyzing requests for registration, evaluating the Qualification of persons in accordance with the requirements of the Certification Program and preparing certification processes to allow the decision by the Technical Manager.

Technical Manager: Manages the Certification Programs established by the Competence Committee, supporting the Committees and responsibility for issuing and controlling certificates

Watcher/Observer: Person appointed by the Competence Center to witness the examination steps in support of the Examiner, aiming to avoid the occurrence of fraud. The Watchers are assessed annually as to maintain its condition.

3. CERTIFICATION PROGRAM

The Certification Program for Calibration Metrologist is part of the Competence Area of Aeronautics and Mechanics.

This Certification Program establishes the scope of the qualification, the description of the professional activities, the applicable regulatory and statutory requirements and the general requirements for the certified professionals in accordance with the Calibration Metrologist Qualification standard. The requirements for training, education, professional experience, and skills are indicated.

The following methods and Qualifications are covered:

- **PC06Q01** – Calibration Metrlogist

The Program indicates the costs of the certification and the steps that a candidate for registration in one of the Qualifications must take, making it clear how the entire qualification process is carried out. Form that must be used to request registration and fees to be paid are available on the GLOBAL website (www.globalpersoncert.com).

Issues related to Confidentiality, Impartiality, Information to the Public, Use of the Certificate and Complaints concerning this Program are dealt with explicitly and are available at www.globalpersoncert.com. The Code of Conduct, also published on the website, is mandatorily signed by the candidate at the time of registration and applicable throughout the period in which the person is certified by GLOBAL.

The Certification Program is structured in such a way as to fully meet, at each Qualification level, the requirements of standard NBR 16781:2019.

Whenever changes to the Program occur that require additional assessment of certified persons, including those of a regulatory and statutory nature, these changes are documented and widely disseminated to interested parties, without the need for requests from them, making clear the new requirements and the form how GLOBAL will handle the transition phase between the previous rules and the new requirements.

The person's Qualification assessments are planned and structured to ensure that all Program requirements are verified in a systematic and objective manner, with retention of records that confirm the candidate's specific Competency for the intended Qualification. The applicable regulatory and statutory compliance is verified, and certificates are not issued when non-compliance is evidenced.

3.1. COMPETENCE CENTERS

The Competence Center that participates in this Qualification Program is qualified to promote Exams for the Qualifications that are part of this Program, according to specific accreditation by GLOBAL. The Competence Center is responsible for providing the Exam infrastructure. The Competence Center uses registered independent Examiners to provide the Exam. GLOBAL lists the specific accreditations of each Competence Center and the accredited Examiners. In the Exams of this Qualification Program, the use of Watchers/Observers may be necessary, requiring the permanent presence of Examiners or Watchers/Observers specifically designated during the entire duration of the Exam.

The Competence Center must have a management tool that guarantees the quality of the Exams, covering the control of documents and records, non-conformities and complaints and corrective actions. The management tool must ensure that materials and equipment are controlled and must maintain sufficient evidence for GLOBAL to be able to evaluate all processes.

The Competence Center is responsible for adequately informing candidates about Exams, indicating that additional information can be obtained directly from GLOBAL.

The Competence Center accredited by GLOBAL is responsible for fully complying with the requirements established for Examiners and Exams, including facilities and equipment, and must meet all the criteria that ensure that the Qualification Program meets its objectives. The Competence Center must use only Examiners approved by GLOBAL.

The obligations of GLOBAL and the Competence Center are established in the Agreement signed by the parties, indicating the rights and duties of each party and including a provision guaranteeing that the accreditation by GLOBAL does not generate rights regarding the certificates issued, and the Agreement may be canceled by unilateral decision by GLOBAL, considering compliance with the obligations as defined in the Agreement, regardless of what happens with the

certificates issued to people who used the Competence Center during the period in which it was accredited by GLOBAL.

The Competence Center must keep GLOBAL permanently informed about the use of the accredited Examiners, the accredited Exams and the evaluated professionals, including information that allows for continuous improvement of the Exams and must include complaints and suggestions from the evaluated professionals and other interested parties.

The Competence Center formally accepts, in the signed Agreement, all GLOBAL requirements regarding the maintenance of this accreditation, including those relating to impartiality, confidentiality and information security. It accepts not only to continuously inform, but to receive periodic or extraordinary evaluations from GLOBAL to verify the processes and records that relate to the accreditations and people examined within the scope of that accreditation.

It is encouraged that the Competence Center is able to provide Exams for people with special needs, unless the disability that the person has forbids him to be certified in the specific Qualification. Examination policies and procedures that determine reasonable accommodations for people with special conditions, such as reading aids, extended time, long and printed Exam questions, must be documented and available to all interested parties and must meet any and all requirements governmental.

Successful completion of an Exam means that the Examiner and the Competence Center ensure that the Qualification Program requirements are in accordance with the required learning goals and with the skills and other requirements being assessed by the Exam.

The Competence Center is responsible for supporting Examiners to fully comply with established requirements, maintaining records and objective evidence of such compliance. Detected deviations must be reported immediately to GLOBAL.

3.2. EMPLOYER

The Employer can be responsible for sending the Candidate of Certification to GLOBAL, validating the personal information provided by the Candidate, including statements on education, training and professional experience.

GLOBAL can keep an Agreement with the Employer aiming collectively registering employees for whom the employer wishes to register and to certify according to this Certification Program, as long as it can

demonstrate the fulfillment of all applicable requirements required by GLOBAL to do such registration and certification.

In the case of self-employed person, GLOBAL will accept the statements only if attested by third party legally or administratively empowered to attest. GLOBAL will examine each case whether to accept the documentation provided, stating the reasons and advising the Candidate when the documentation is not accepted.

The certification of a person attests the Competence of that person to perform activity related to the certified Qualification, but it is not an authorization for that person to work. The authorization to work is solely the responsibility of the Employer.

The Employer of a Certified Person is responsible for:

- a) To grant permits for operation, including ensuring the specific additional training related to the work to be performed;
- b) Issue all documents concerning work permits;
- c) Ensure the validity of the results of the activities performed by the Certified Persons;
- d) Ensure that annual tests of visual acuity and other requirements for physical fitness are effectively performed as specified;
- e) Ensure that the methods are applied continuously and properly, as required;
- f) Ensure that persons hold valid certificates for the relevant tasks;
- g) Keep appropriate records.

In the case of self-employed person, the certified person assumes by himself all the responsibilities listed above that usually applies to the Employer.

3.3. EXAMINERS

GLOBAL individually registers and controls the Examiners accredited in this Qualification Program, guaranteeing the adequacy, reliability, confidentiality, impartiality and security of information. The accredited Competence Centers are responsible for continually informing GLOBAL about the accredited Examiners used, maintaining records that show the fulfillment of their commitments.

GLOBAL monitors Examiners individually for conduct, suitability and performance, and can perform this assessment and monitoring during an Exam. In the case of this Program, it may be necessary to use

personnel in addition to the Examiner to support the execution or monitoring of the Exams. In cases of groups of candidates with a larger number of participants, it may be necessary to have an Examiner who supports the Lead Examiner. The Examiner designated as the Lead Examiner is solely responsible for the success of the Exam.

GLOBAL shows, keeping records, that Examiners:

- a) Understand the Qualification Program and the Program requirements.
- b) They can comply with all the procedures required by the Program.
- c) They have competence in the field where they work as Examiners and fulfill all the requirements of the Qualification in which they are examining.
- d) They are fluent, both in written and oral communication, in the language of the Exam.
- e) Promptly identify and inform the Competence Center of any conflict of interest in order to guarantee impartiality in the judgment.

Examiners for this Qualification Program must be qualified in the specific Exam and must be professionals with recognized leadership and seniority. Examiners who lead an Exam are called "Lead Examiners". Leading Examiners are approved by the Leading Examiners already appointed, through a peer review process, when the initial nomination is made and to assess the possibility of the Examiner's progression between the Examiner in Training, Examiner and Lead Examiner levels.

For new Qualifications, introduced in addition to those already existing in that Qualification Program, GLOBAL may appoint competent and properly qualified personnel as Examiners, considering the transition phase necessary to achieve the formal Qualification specified for the Examiner function of that specific Qualification. This transition period is a maximum of five years, and GLOBAL must ensure that the nominated person will obtain full Qualification as an Examiner within two years. GLOBAL must keep records and demonstrate that the person provisionally appointed as Examiner meets the following criteria:

- a) Has sufficient knowledge of the principles and concepts involved in Qualification;
- b) Has proven professional experience in Qualification;
- c) Has skills to conduct Exams;
- d) Know and be able to interpret all the processes, materials and documents involved in the Exam.

3.4 EXAMS

GLOBAL individually registers and controls the Exams established in this Qualification Program as necessary for a given Qualification, also guaranteeing the control of adequacy, reliability, confidentiality, impartiality and information security.

Exams are prepared by GLOBAL with the participation of the IBRACON Sectorial Personnel Certification Committee and specialists who prepare the content, composing the question bank controlled by GLOBAL and used to select the questions included in the Exams. Exams assess Competence in a consistent and objective way through written, oral, practical, observational and other reliable and reproducible exams, the Examination methodology and its adequacy to the assessment objectives being clearly identified. The Exams are approved by the Technical Manager and by the Sectorial Committee for Personnel Certification of IBRACON.

Exams are part of the confidential documents controlled by both GLOBAL and the Competence Center. Only Examiners have access to Exams, this access being restricted to specific areas where they are accredited to perform Exams.

Exams are used as an instrument to demonstrate Competence and must be structured in order to ensure that this assessment is: (a) Valid; (b) Sufficient; (c) Updated; (d) Authentic; (e) Trustable; (f) Fair. In addition, the Examination process must allow the same result to be obtained by different Examiners qualified in different places approved for the application of the Examination.

For the Qualification and Requalification of Professionals in the Concrete Productive Chain, the General and Specific Theoretical Examination and the Practical Examination are applied. The Candidate must obtain a minimum score of 70% in the Theoretical Exam and 80% in the Practical Exam.

Exams are applied before Qualification and Requalification.

For this Qualification Program, the following Exams are applicable:

- **PC06E01ET** – Calibration Metrologist – Theoretical Exam
- **PC09E01EP** – Calibration Metrologist – Practical Exam

The Theoretical Exam is without consultation and the Practical Exam will use material approved and controlled by GLOBAL.

For Certification at Levels 1 and 2, the Theoretical and Practical Exams are applied and, for recertification, the monitoring of activities during the validity of the certification is applied, requiring a minimum of 80% of continuous activity during the validity of the certification. The Theoretical Exam consists of 40 multiple-choice questions covering the content described in Table 1, which must be answered in 90 minutes. The Practical Examination comprises the execution of a calibration procedure and activities aimed at confirming the professional's competence regarding the required capacity, as indicated in sections 3.6.1 for Level 1 and 3.6.2 for Level 2.

For Level 3 Certification, the Theoretical and Practical Exams are applied, and, for recertification, the structured credit system is applied. The Theoretical Examination is composed of 30 questions covering topics in Table 1. The Practical Examination aims to prove the professional's competence to perform his duties, being composed of items indicated in section 3.7, and may cover case studies, problem analysis and other practical issues.

Candidates at any qualification level will be approved if they obtain a minimum score of 70% on the Theoretical Exam and 80% on the Practical Exam.

The initial Practical Examination must be carried out within a maximum of one year after passing the Theoretical Examination.

Table 1 - Content of Theoretical and Practical Exams and Training Program for Levels 1, 2 and 3

Subjects of Exams and Trainings	Hours of Instruction					
	Level 1		Level 2		Level 3	
	T	P	T	P	T	P
1 – Introduction to the concepts of metrology, measurement, calibration etc.	X	-	-	-	-	-

2 – International System of Units (SI). Units, conversions, rounding, writing rules, symbology etc.	X	-	-	-	-	-
3 – VIM – International Vocabulary of Metrology.	X	-	-	-	-	-
4 – Presentation and definition of the Fundamental Constants: speed of light in vacuum; gravitational constant; universal gas constant etc.	X	-	-	-	-	-
5 – Description of common measurements: temperature; moisture; pressure; torque; strength; pasta; voltage; chain; resistance; time/frequency; linear displacement	X	-	-	-	-	-
6 – Introduction to the quality management system	X	-	-	-	-	-
7 – Traceability and hierarchy of measures with their relationships to	X	-	-	-	-	-
national laboratories and international metrology organizations	X	-	-	-	-	-
8 – Measurement standards, certified reference materials and reference materials	X	-	-	-	-	-
TOTAL	12	0	0	0	0	0

Subjects of the Exams and Trainings	Hours of instruction					
B – Measurement system	Level 1		Level 2		Level 3	
	T	P	T	P	T	P
1 – Measurement methods: direct; indirect; relational; by transfer; differential; by replacement etc.	X	X	-	-	-	-
2 – Characteristics of measurement data, with identification and analysis of aspects of measurement data such as availability; resolution; suitability for use; transfers; confidentiality, impartiality etc.	-	-	X	-	-	-
3 – Measurement specifications and their characteristics. Description of common specifications; reference to full scale percentage, measurement range percentage; tolerances; baselines etc.	X	X	-	-	-	-

4 – Introduction to measurement errors and their forms. Measurement errors versus measurement uncertainty	X	X	-	-	-	-
5 - Identification and correction of measurement errors and their sources that can affect the results including deviations and oscillations, parallax, operator, environmental, and other applicable errors	-	-	X	X	-	-
6 – Guarantee of the Quality of Results: define the concepts	-	-	X	-	-	-
7 - Mechanisms for measuring quality control, interlaboratory comparisons, test schemes and validation of results, proficiency tests, studies and internal laboratory work to ensure the quality of measurement results	-	-	-	-	X	-
8 – Introduction to the concepts of ABNT NBR ISO/IEC 17025.	X	-	-	-	-	-
9 – Analysis of requirements and content of procedures	-	-	-	-	X	-
10 - The need for validation of measurement and calibration procedures, before use	-	-	X	-	-	-
TOTAL	4	8	8	8	8	0

Subjects of the Exam and Trainings	Hours of instruction					
C – Calibration system	Level 1		Level 2		Level 3	
	T	P	T	P	T	P
1 - Presentation of calibration procedures, with identification of common elements to them, equipment requirements, revisions, use of standards, environmental considerations, considerations on the training of performers	X	-	-	-	-	-
2 – Practices and regulations: identify the various calibration situations accepted by metrology regulations and practices, including recommendations from the manufacturers of instruments to be calibrated, national and international reference standards, customer specifications, etc.	-	-	X	-	-	-
3 – Distinction between government traceability regulations and other metrology requirements applicable to each case, precedence analysis	-	-	X	-	-	-

4 - Environmental control: analysis of the various environmental control elements such as humidity, dust level, electrostatic discharges, temperature, vibrations and analysis of the influence of each on the calibration activities	X	-	-	-	-	-
5 - Calibration process flow X -	X	-	-	-	-	-
6 - Logistics information: identify logistics information such as equipment identification, its origin and relevance, its maintenance and repair history	X	-	-	-	-	-
7 - Identification of roles and responsibilities: establishment of the hierarchy of attributions for the execution of services, including managements, executing technicians, quality management, service programmer and the logistics of circulation of the item to be calibrated in the laboratory environment and upon delivery of the item and the calibration certificate	X	-	-	-	-	-
8 - Description of the forms of designation of services, programming, returns and recalls, steps in the identification of the process, from receipt of the item to its return to the customer. Analysis of impacts on organizational changes	X	-	-	-	-	-
9 - Validation processes: identification of items responsible for validating results, use of automated measurement systems, cross-measurements, software analysis, and other mechanisms that can support the validation of measurement methods	-	-	-	-	X	-
10 - Records management: define and describe the control of documents and maintenance of the integrity, confidentiality and impartiality of information and data recorded from the performed calibrations. Include records of training, records of measurement uncertainties and their calculation methods, customer data and specifications, whether by physical or electronic means	-	-	X	-	-	-
TOTAL	8	0	8	0	6	0

Subjects of Exams and Trainings	Hours of instruction					
	Level 1		Level 2		Level 3	
	T	P	T	P	T	P
D - Measurement uncertainty and applicable mathematical functions						
1 - Terminology applicable to measurement uncertainty estimates	X	-	-	-	-	-
2 – Types of uncertainties and their respective components: Type A and Type B uncertainties, including environmental, human, methods, equipment, item under measurement, reference standards, materials uncertainties. Identification of key elements and steps for calculating the uncertainties	-	-	X	-	-	-
3 – Determination of uncertainties and their registration	-	-	-	-	X	-
4 – Identification of uncertainty calculation methods including combined and expanded uncertainties, weights, graphs, coverage factors, confidence levels, degrees of freedom and calculations of uncertainty, variance etc.	-	-	X	-	X	-
5 – Mathematical and statistical tools applicable to metrology	-	-	X	-	-	-
6 – Linear interpolation and extrapolation. Interpreting tables and graphs to determine values	X	-	-	-	-	-
7 – Study of significant figures	X	-	-	-	-	-
TOTAL	4	0	6	0	4	0

Subjects of Exams and Trainings	Hours of instruction					
	Level 1		Level 2		Level 3	
	T	P	T	P	T	P
E - Quality system, good laboratory practices and applicable standards						
1 – System components: distinguishing between the various components of the quality system, including management, the customer, employees and their training and the development of continuous improvement	-	-	X	-	-	-
	-	-	-	-	X	-

2 – Strategic and tactical processes: identify the various methods used to develop, improve and analyze the quality system including mission and goals, planning, work follow-up and risk management	-	-	-	-	X	-
3 – Use of quality tools: present, define the selection and apply quality tools such as flow and control charts, cause/effect diagrams, scatter plots, histograms and others	-	-	X	-	-	-
4 – Quality audits: define and describe the elements, criteria and application of quality audits, whether internal, external, system and process or product	-	-	X	-	-	-
5 – Define the role and responsibilities of the parties involved in the audit: auditor, auditee and client	-	-	X	-	-	-
6 – Present the audit components: audit plan, audit objective and the standard to be used	-	-	X	-	-	-
7 – Recognize the internal audit, evaluation process	X	-	-	-	-	-
of accrediting, supervisory, certifying and	X	-	-	-	-	-
recognition	-	-	-	-	X	-
8 – Discuss nonconformities and corrective action processes	X	-	-	-	-	-
9 – Identification of non-conforming items; present and discuss ways of identifying non-conforming items in the calibration processes	X	-	-	-	-	-
10 – Audit impacts: present the various tools for corrections and improvements in the post-audit calibration processes	X	-	-	-	-	-
11 - Professional and ethical conduct: identify and discuss the appropriate way to conduct the work in line with the code of ethics established for the professional Metrologist in calibration	-	-	X	-	-	-
TOTAL	4	0	6	0	6	0
NOTE Where applicable, address topics from specific areas and/or magnitudes of metrologist training.						

3.5. REEXAM AND EXEMPTION OF EXAM

The Candidate may take the Theoretical Examination as often as necessary.

Candidates who fail any part of the Exam must wait 30 days to take another Exam.

3.6. CALIBRATION METROLOGIS LEVEL 1 AND LEVEL 2

For the Qualification of Calibration Metrologist Level 1 and Level 2 the following characteristics are considered:

3.6.1 CALIBRATION METROLOGIST LEVEL 1

It is a professional who demonstrates competence to perform calibration of measuring instruments in accordance with a calibration procedure and under supervision defined by the employer.

Within the scope of competences defined in the certificate, the Level 1 professional must be capable and may be authorized by the Employer to perform the following activities:

- a) Install and prepare the measuring instruments involved in the calibration according to the calibration procedure;
- b) Use standards defined by the calibration procedure;
- c) Carry out the calibration of the measuring instrument in accordance with the calibration procedure and under supervision defined by the employer;
- d) Report the data obtained during the execution of the calibration procedure.

3.6.2 CALIBRATION METROLOGIST LEVEL 2

It is a professional who demonstrates competence to perform all activities of a Level 1 professional and who is capable and may be authorized by the Employer to perform the following activities:

- a) Elaborate calibration procedure;
- b) Identify the sources of uncertainty involved in the calibration process;
- c) Perform calculations, including uncertainty, involved in the calibration process;
- d) Select the calibration procedure for the measuring instrument to be calibrated;
- e) Define the limitations of calibration based on critical analysis of the calibration process;
- f) Interpret the calibration procedures and suggest adjustments;
- g) Adjust the measuring instrument;

- h) Evaluate results according to applicable norms, specifications, procedures, or standards;
- i) Perform and supervise all tasks of professionals levels 1 and 2;
- j) Provide guidance for professional level 1 or 2
- k) Organize and report the results of a calibration.

3.7 CALIBRATION METROLOGIST LEVEL 3

A certified professional at Level 3 must be able to perform the activities performed by Level 2 and must be able and may be authorized by the Employer to:

- a) Approve calibration procedures and work instructions;
- b) Validate calibration methods;
- c) Interpret standards, specifications and procedures;
- d) Supervise the technical activities within its scope of certification;
- e) Guide professionals of all levels
- f) Evaluate and interpret the results in accordance with applicable norms, specifications, procedures or standards
- g) Demonstrate knowledge of quality management standards applicable to metrology laboratories

Within the scope of competences defined in the certificate, a Level 3 certified professional may be authorized by the Employer to assume full responsibility for a laboratory facility or for a Competence Center and its personnel involved in the calibrations.

4. CERTIFICATION OF CALIBRATION METROLOGIST

The certification of Calibration Metrologist is carried out in stages that cover the request, the execution of the initial qualification and requalification, the monitoring of the maintenance of the qualification, the suspension and withdrawal of the certificate, the extension or reduction of the scope of the Qualification certified.

The certification request is made by filling in the appropriate Form, contained on the GLOBAL website (www.globalpersoncert.com), which is processed as soon as the payment of the fee related to the Theoretical Exam is evidenced, the first step to obtain the registration. The fee is indicated on the GLOBAL website (www.globalpersoncert.com). Fees cover the stages of the assessment activities and are not refundable under any circumstances, including

when the candidate gives up on the stage or fails to meet the qualification requirements.

The certification request can also be made by the Employer of the person seeking Qualification, in which case an Agreement is signed between GLOBAL and the Employer, in order to ensure that all requirements are adequately met. The Employer will inform the data of the employees for whom it seeks Qualification and is responsible to GLOBAL regarding the fulfillment of all applicable requirements of this Qualification Program in relation to the reported data.

The prerequisites for qualification and how to meet them for each Qualification are clearly indicated below, in the items that address each specific Qualification. The candidate requesting the qualification declares that he / she fully understands these prerequisites, being aware that it is his / her sole obligation to assess whether he / she is meeting the requirements. The applicant should only apply after making sure that he has understood all the requirements and that he understands that he fully complies with them. GLOBAL informs and supports the candidate who needs clarification regarding the Program and the prerequisites for the desired Qualification.

The documentation gathered during the qualification process, from the request to the decision, is kept as a record. This documentation is sufficient for GLOBAL to make the decision on the qualification and to allow traceability of the qualification steps, in order to identify each step, what was decided and who decided.

All stages of the qualification process are controlled by GLOBAL. Steps taken by Competence Centers, Examiners and Observers are carried out by delegation and control of GLOBAL. The appointment of Competence Centers, Examiners and Observers is controlled by GLOBAL. The selection of questions from the General and Specific Theoretical Exams as well as what is required in the Practical Exams are also controlled by GLOBAL.

The steps follow clearly established procedures from the evaluation of the request received, the analysis and collection of information and the recommendation of the qualification, based on the evidence collected by the Registry Technician, in accordance with the requirements of the Qualification and the recommendations of the Sectorial Committee of IBRACON certification. The Technical Manager takes the decision on the certification. The criteria used by the Technical Manager are set out in this Certification Program for the required Qualification, as indicated in the following items.

The decision to qualify is made by a person who is not involved in the Exam and did not provide the training required by the qualification process, and records are maintained that demonstrate this independence.

Decisions regarding qualifications are communicated to the evaluated professional, maintaining confidentiality about the data of the evaluated professionals.

All relevant information that justified the decision is informed to the evaluated professional, allowing the candidate to comment on it, including on points that have not been sufficiently clarified in the evaluated documentation and that may have been relevant to the decision made. If applicable, considering the explanations and new information provided by the Candidate, the Technical Manager can forward the process to the Registry Technician, requesting that the new information and documents be included, and a new evaluation be carried out.

The certificate is designed to reduce the risk of forgery. A certificate is issued to each person who meets all the requirements for a Program Qualification. The certificates indicate: (1) the name of the certified person; (2) the identification of the Program, indicating the Area of Competence, the Competence and the Qualification obtained, which may indicate the Scope of Qualification, when applicable or appropriate; (3) the conditions of validity and limitations applicable to Qualification; (4) the date of qualification and the validity of the certificate; (5) the unique identification of the certificate, with the identification of the applicable accreditations.

Certificates are provided in digital or printed format.

4.1. ELEGIBILITY FOR THE QUALIFICATION

To obtain the Certification, the Candidate must meet minimum requirements of:

- education,
- training,
- professional experience

In addition, the Candidate must pass the Theoretical Exam and the Practical Exam as required for the Certification in Levels 1, 2 or 3.

The Candidate or his Employer must provide documented evidence that he has successfully completed the Exams in the methods and levels for which the Qualification is being sought.

The Candidate or his Employer must provide documented evidence that he meets the requirements for education, training and professional experience.

The minimum training hours are established in Table 2

Table 2 – Minimum training hours

Level	Theoretical	Practical	Total
1	32	8	40
2	28	8	36
3	24	0	24

For direct access to certification as Level 2, the Applicant must demonstrate training for both Levels 1 and 2;

For direct access to certification at Level 3, the candidate must demonstrate training for Levels 1, 2 and 3.

The education and professional experience to be obtained prior to certification must meet what is indicated in Table 3.

Table 3 - Minimum education and professional experience requirements

Level	Education	Professional experience
N1	Elementary School	Three months
N2	High school	Six months as N1
N2 direct	High school	Two years
N3	High school	Five years as N2
N3	High school in metrology related areas *	Three years as N2
N3 direct	Technical education in areas related to metrology *	Five years
N3 direct	Higher education in metrology related areas *	Two years
<ul style="list-style-type: none"> Analysis will be carried out on a case-by-case basis by GLOBAL, based on a request substantiated by the Candidate. 		

4.2. MANTENANCE OF QUALIFICATION

The certificate is valid for five years, with recertification being able to be requested for the same period of 5 years, provided that all specified requirements are met.

In the annual assessment, it is verified whether there is information and complaints from interested parties. It is verified whether legal actions have been taken in relation to the certified person, seeking to confirm that the work is being carried out satisfactorily and continuously. The maintenance of skills and physical capacity required for the good performance of the profession is verified.

For certification revalidation after a significant interruption, the professional must pass a Recertification Exam, and the recertification is valid for a new period of five years.

4.3. REQUALIFICATION

The criteria used by GLOBAL for Requalification, as indicated below, are applicable to all Professionals in the Concrete Production Chain included in this Program.

The qualified professional can apply to GLOBAL in a timely manner for requalification for a new period of five years.

In requalification the following conditions are considered:

- a) Documentary evidence that the professional has been performing activities related to certified Qualification without significant interruption.
- b) The evidence that the physical capacity required for the good performance of the profession, including with regard to the vision requirement, is maintained.
- c) Specific conditions indicated below for Levels 1, 2 and 3.

For Levels 1 and 2, the professional must have documented evidence of exercising the professional activity within the scope of certification, for at least 80% of the validity period of the certification.

For level 3, the certified person must present evidence of continued qualification, as detailed and punctuated in the Structured Credit System for the Recertification of a Level 3 Professional, indicated in Table 4.

The Candidate must achieve at least 100 points to obtain recertification at Level 3.

**Table 4 - Structured Credit System for Recertification
of Professional Level 3**

Item	Activity	Points according to each item (or function)	Maximum annual points 25 per item	Maximum points per item per 5-year period
a)	Demonstrated complement in training: - technician in related fields - technologist in areas related to metrology - physics, mathematics, chemistry and engineering - latu sensu post-graduation in related fields - doctorate and/or master's degree in related areas	10 points 15 points 20 points 25 points 30 points	10 15 20 25 30	10 15 20 25 30
b)	Teaching activities in metrology / quality in the desired specialty	1 point for each 2 h/class	10	50
c)	Participation, with approval, in training in the intended specialties, given by recognized entities	1 point for each 4 h/class	10	30
d)	Participation in national or international technical committees in metrology in recognized technical-scientific entities	5 points per year of participation	10	25
e)	Coordination of technical committees, working groups or standardization	2 points per comission		
f)	Participation in congresses or seminars	5 points per participation	5	15

g)	Technical works presented or published with effective recognition as to their originality and technological content	10 points per technical work	10	30
h)	Implementation of technical items and quality management systems involving metrology, with recognition / certification, by standard (ISO/IEC 17025; ISO 17034; ISO/IEC 17043)	5 points per scope implemented and recognized	40	80
i)	Implementation of technical items and quality management systems involving metrology, with formal accreditation (International with MLA), as a rule	8 points per accredited		
j)	Maintenance of accredited / recognized scope	10 pontos per maintenance audit	10	30
k)	Acting as a third party assessor/auditor of quality management systems involving metrology	5 points per auditor	10	30
l)	Direct and proven experience as level 3 in the intended certification	12 points per year of experience	12	60
m)	Membership of a metrology society or similar	1	5	5

4.4. EXTENSION, REDUCTION, SUSPENSION AND CANCELLATION OF THE CERTIFICATE

The extension or reduction of the scope of a certificate can be performed only when requested by the certified professional, provided that all the requirements of the Qualification Program related to the requested modification are met. The request is made following the same steps as the initial request, now considering what is the desired extension or reduction.

The requested changes are critically analyzed by the Registration Technician and by the IBRACON Sectorial Personnel Certification Committee and, if approved, by the Technical Manager to decide on the issuance of the modified certificate, all other conditions relating to the validity of the certificate and evaluations being maintained maintenance of the certificate already carried out, as prescribed in the Qualification Program.

In cases where the certified professional fails to comply with one or more requirements of the Qualification Program, including those required for maintaining the certificate, GLOBAL informs the professional immediately, in writing, requesting that immediate and corrective actions be taken to correct the detected deviation. If no corrective action is taken in a manner consistent with what has been agreed with GLOBAL, the IBRACON Sectorial Committee for People Certification is informed that the professional will have his certificate suspended, and from the suspension he cannot declare himself certified, immediately stopping the performance of activities that require the professional to be certified.

The suspension of the certificate is for a determined period decided by the Technical Manager in accordance with what is established in the Qualification Program. The suspension term is clearly stated at the time of suspension.

If there is a failure to close the required corrective action within the stipulated period, GLOBAL requests the IBRACON Sectorial Personnel Certification Committee to respond with a view to canceling the certificate. The canceled certificate is informed in the same place where the certified professionals are listed, with the name of the professional removed from the list of certified professionals. Printed copies of the canceled certificate must be returned to GLOBAL immediately.

The significant interruption for a period exceeding 12 months determines the suspension of the qualification and, when exceeding 24 months, its cancellation.

As far as possible, including regarding the applicable legal, regulatory and statutory requirements, GLOBAL will inform interested parties about the suspension and cancellation of the certificate.

4.5. TRANSFER OF QUALIFICATION

If requested by the certified professional, GLOBAL will provide the necessary information required by another Personnel Certification Board accredited by the same accrediting entity and for the specific Qualification where the professional interested in the transfer is certified, considering that the certificate is still valid.

5. CONTROL OF REVISIONS

Date	Revision	Content of Revision
01/07/2021	00	Initial emission