



FROM REGULATORY CATEGORY TO CAPABILITY SIGNAL

CONTRACTOR QUALIFICATION AND SCREENING FOR ORDINARY OLD-BUILDING REHABILITATION IN ALGERIA

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KEYWORDS	ABSTRACT
<p>Contractor prequalification Professional qualification Public procurement Signaling theory Building rehabilitation Old urban fabric Algeria</p>	<p>Contracting authorities must judge contractor capability before the quality of works can be observed. This theory-building case study examines how capability for rehabilitating ordinary old buildings is encoded across Algeria's registration, qualification and procurement frameworks (1983–2026). An exhaustive audit of the professional nomenclature found no matching category, and no official correspondence between trade-register activities and qualification codes was identified. Of five operations in Skikda's Didouche Mourad city-center rehabilitation program, three were classifiable: all required only a general building qualification, while two added multidimensional, verifiable screening. Contractual screening can offset categorical under-specification, but it does not predict execution quality.</p>
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1. Introduction

1.1. Context and problem

Contractors are selected before the quality of their work can be observed. Qualification and prequalification systems reduce this uncertainty by converting registered activities, resources, references and credentials into verifiable evidence of capability (Hatush & Skitmore, 1997a; Holt et al., 1994; Russell & Skibniewski, 1988). Research on contractor selection has accordingly produced extensive sets of criteria and decision models. A related problem has received less direct attention: how specifically a project-relevant capability remains observable as it passes from one administrative framework to another. This article calls that property the resolution of the capability signal.

The problem is not specific to one jurisdiction. The same firm may be described successively by an economic activity code, a sector qualification, a capacity class and project-specific procurement criteria. Each device can be legally valid while differing in purpose, granularity and evidentiary effect. In Algeria, a firm is registered with the National Trade Register Centre (Centre national du registre du commerce, CNRC) under economic activity codes and described statistically by the Algerian Nomenclature of Activities and Products (NAA/NAAP). It is qualified under the professional nomenclature for building, public works and hydraulics (bâtiment, travaux publics et hydraulique, BTPH), classified in a category reflecting its size, and finally screened by the criteria of each contract.

The rehabilitation of ordinary old buildings, that is, existing buildings in old urban fabric that are not protected as historical monuments, is a revealing object. The intervention is specialized, whereas the categories used to represent contractor capability may remain broad. Algerian regulation on interventions in old urban fabric distinguishes heavy, medium and light rehabilitation, ranging from structural strengthening and foundations to common parts, networks, façades and waterproofing (Algeria, 2016a). The civil-engineering question is therefore how such an intervention is translated into evidence of capability that can be assessed before award.

1.2. Research gap

The literature on contractor selection is extensive. Early studies identified decision criteria for prequalification (Russell & Skibniewski, 1988) and the information clients actually use (Hatush & Skitmore, 1997a, 1997b; Holt et al., 1994), and later work traced the development of prequalification methodologies (Palaneeswaran & Kumaraswamy, 2001). Recent reviews by Khoso et al. (2022), Zhao et al. (2022) and Acheamfour et al. (2023) show a field still centered on criteria, weighting and decision techniques. Applied studies continue this orientation: Olanrewaju et al. (2022) develop subcontractor prequalification criteria; Alshamrani et al. (2023) structure a national framework around financial, technical, organizational, performance and safety criteria; and Shume and Mitikie (2024) combine Delphi and the fuzzy Analytic Hierarchy Process (AHP) to rank selection subcriteria.

A second stream adapts selection to complex existing buildings. Morkūnaitė et al. (2017, 2019) develop multicriteria approaches for cultural-heritage contractors, Mohamed and Hathout (2025) address adaptive-reuse projects, and Long (2025) proposes a fuzzy multicriteria model for heritage-building renovation. These studies establish that project specificity should modify contractor assessment, but their unit of analysis remains the candidate and the comparative evaluation of its attributes.

A third stream clarifies the informational mechanism. Signaling theory explains how observable attributes reduce information asymmetry (Connelly et al., 2011; Spence, 1973), and recent reviews refine its constructs and distinguish the signaling process from its informational outcome (Bafera & Kleinert, 2023; Vinayavekhin et al., 2026). In public procurement, a field criticized for its limited use of explicit theory (Flynn & Davis, 2014), Bangert et al. (2026) frame

buyers as active screeners of supplier capability, and Holma et al. (2022) show that buyer-supplier interfaces perform translation functions.

What remains under-examined is the institutional infrastructure through which capability is encoded differently by economic registration, sector qualification, classification and project-level screening before candidates are compared. A structured, non-systematic literature search closed on 1 September 2026 identified no study taking this sequence as its central object. The search combined terms on contractor selection, prequalification and qualification with terms on rehabilitation, heritage and adaptive reuse, and with terms on signaling and screening in procurement. It favored 2021–2026 publications and foundational texts and does not claim the exhaustiveness of a review following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).

1.3. Objectives, research questions and propositions

The objective is to develop and probe an analytical framework for the institutional resolution of contractor capability signals. Two research questions follow. RQ1: How do categorical coverage and alignment among registration, qualification and classification frameworks shape the resolution of the capability signal available before award? RQ2: Under what conditions can contractual screening compensate for the under-specification of that signal? The questions complement multicriteria selection models rather than replace them: they examine the continuity of information across the documents that make capability observable before candidates are compared.

Table 1 sets out the framework as four propositions and one decision rule. The design does not test P1 and P2 by variation, because coverage and alignment are national properties that are constant across the operations studied; within this case they are documented as context conditions. P3 is probed through within-case comparison of the three classifiable operations. P4 was formulated after the coding, from the comparison of the two SR3 operations, and is reported as exploratory. Section 4.7 reports the evidence status reached for each proposition.

Table 1. Analytical framework, propositions and observable indicators

Mechanism	Proposition	Observable indicator	Role in this design
M1. Categorical coverage	P1. Where the professional nomenclature lacks a category whose granularity matches the engineering object, the certificate conveys only a general sector signal.	Presence or absence of a matching category in the closed 1983 nomenclature; general or specialized qualification required in notices.	Context condition, constant within the case; documented, not tested by variation
M2. Inter-framework alignment	P2. Lexical proximity does not create correspondence: without a documented semantic, normative or operational rule, a specialized registered activity does not raise the resolution of the qualification signal.	Documented relationships among the BTPH nomenclature, CNRC activities, NAA/NAAP, forms, certificates and notices (Table 6).	Context condition, constant within the case; documented, not tested by variation
M3. Contractual screening	P3. When the direct signal is general, object-linked, multidimensional and verifiable selection criteria can raise ex ante resolution.	Comparable references, key personnel, equipment, financial and organizational requirements in notices; resolution level (Tables 7–8).	Within-case comparison of three classifiable operations
M3. Profile of screening	P4. Equal resolution levels can conceal profiles that differ in composition and severity.	Dimension profile and severity of the operations sharing the same level (Table 7).	Exploratory: formulated after the coding; illustrated by one pair of operations
Causal boundary	Decision rule: a more resolved ex ante signal is not evidence of future performance or ex post compliance.	Not an indicator: selection evidence and execution evidence are kept separate in coding.	Rule applied throughout

Source(s): Own elaboration.

The contribution is threefold. First, categorical coverage is defined as the availability, in the framework that produces the professional qualification, of a category whose granularity is compatible with the engineering object. Second, inter-framework alignment is defined as a demonstrable semantic, normative or operational translation between categories produced by different institutions. Third, contractual screening is conceptualized as the buyer-designed elicitation of project-specific evidence when the certificate remains general. Signal resolution is the informational outcome of this chain; it is neither a performance score nor a predictor of execution quality.

2. Theoretical framework

2.1. Contractor selection and technical capability

Foundational studies show that contractor selection is multidimensional: experience, technical and managerial capability, financial resources, equipment, health and safety, and past performance interact in prequalification and award decisions (Hatush & Skitmore, 1997a; Holt et al., 1994; Russell & Skibniewski, 1988). Reviews of prequalification practice distinguish standing registration or classification systems from project-specific prequalification (Palaneeswaran & Kumaraswamy, 2001), and recent reviews confirm the persistence of this two-tier architecture (Acheamfour et al., 2023; Khoso et al., 2022). A professional qualification certificate is therefore one institutional piece of evidence within a wider information architecture. Its usefulness depends on how closely its categories correspond to the nature and complexity of the project.

The distinction matters most for work on existing buildings. A sector category may establish a broad domain of activity, whereas a comparable reference provides situated evidence about a type of intervention. Adaptive-reuse and heritage-renovation studies show how project specificity generates dedicated criteria (Long, 2025; Mohamed & Hathout, 2025). The present study asks an upstream question: at which institutional level is that specificity visible, where can it be lost, and how can procurement reconstruct it?

2.2. Signaling, certification and screening

When quality cannot be observed before execution, information asymmetry can distort selection (Akerlof, 1970). Three mechanisms address this asymmetry and should not be conflated. In signaling, the informed party acts: it acquires or displays costly, observable attributes that correlate with unobservable quality (Spence, 1973). In third-party certification, an intermediary verifies attributes and discloses them in a format of its choosing. Certifiers may therefore disclose coarse information, such as a pass mark or a broad grade, rather than full detail (Dranove & Jin, 2010; Lizzeri, 1999). In screening, the uninformed party acts: it designs requirements that induce candidates to reveal or document the attributes it needs (Stiglitz, 1975). Public procurement combines the three mechanisms, and Bangert et al. (2026) show how buyers can be modeled as active screeners.

In the Algerian setting, the certificate of professional qualification and classification is a state-issued certification. It is delivered by the administration on the basis of a file documenting the firm's resources, and it records qualification codes and a category (Algeria, 2014, 2017b). Procurement notices then add screening requirements. The concept of signal resolution sits between these mechanisms. Connelly et al. (2011) identify signal observability, fit with the unobservable quality, consistency across signals and distortion in the signaling environment as key attributes. A certificate can be fully observable, consistent with other documents and undistorted, yet coarse relative to a specific engineering object. Resolution is therefore best understood as object-relative fit, determined by the granularity of certification categories and by the evidence that screening adds (Bafera & Kleinert, 2023; Vinayavekhin et al., 2026).

2.3. Classifications, coverage and institutional translation

Classifications do more than describe activities; they organize visibility, comparison and administrative treatment (Bowker & Star, 1999). Commensuration, the comparison of different entities according to a common metric, makes heterogeneous firms comparable at the cost of discarding information that does not fit the categories (Espeland & Stevens, 1998, 2008). Standards remain situated and partial (Timmermans & Epstein, 2010), and quantification constructs the objects it renders commensurable (Mennicken & Espeland, 2019). Bowker and Star (1999) call for an infrastructural inversion that brings such classificatory work into view; this study applies that move to the documentary infrastructure of contractor selection.

A qualification certificate can also be read as a boundary object. It circulates among registration offices, qualification commissions and contracting authorities, and it is robust enough to be recognized by all of them while remaining too general to carry the same meaning in each (Star & Griesemer, 1989). When several institutions classify the same firm, the issue is therefore not only whether a category exists, but whether its meaning and administrative effect can be translated across systems.

Inter-framework alignment is defined operationally as the demonstrable ability to connect a category describing the engineering object, an economic activity registered for the firm, a certified professional qualification and contractual selection criteria. Alignment can be semantic, when the covered objects are comparable; normative, when a legal act or official table authorizes correspondence; or operational, when explicit administrative practice connects the documents. These three dimensions are assessed separately.

2.4. Operationalizing signal resolution

Signal resolution is defined as the documentary specificity with which the available documents allow a project-relevant capability to be inferred before award. It differs from legal validity, because two certificates can be equally valid while conveying different levels of project-specific information. It differs from the volume of documentation, because the ordinal level is derived from explicit combination rules rather than from a raw count. It differs from severity, because a demanding threshold can restrict competition without adding information about the object. Finally, it differs from performance: high resolution does not establish future quality or ex post compliance. Table 2 summarizes the terminology used throughout.

Table 2. Terminology used in this article

Term	Meaning in this article	Basis
Capability	The ability of a firm to perform a given type of work, as inferred from documents before award.	Analytical construct
Capacity	The resources and volume of work that a firm can mobilize; in Algerian law, the object of classification.	Algeria (2014, Art. 2)
Qualification	The ability to perform works of a given nature and complexity with appropriate human, material and technical resources, recorded on the certificate by codes of a sector nomenclature.	Algeria (2014, Arts. 2, 6)
Classification	The category expressing a firm's size and its capacity to perform a given volume of works.	Algeria (2014, Art. 2)
Signal resolution	The object-relative specificity of the ex ante evidence, coded SR0–SR3.	This study (Table 3)
Screening	Requirements designed by the buyer that make candidates document capability dimensions.	Stiglitz (1975); Bangert et al. (2026)

Source(s): Own elaboration from Algeria (2014) and the cited literature.

Six dimensions are coded for each procurement operation. Q denotes an explicit sector qualification or classification requirement; R, a comparable past reference; K, explicitly qualified key personnel; M, an explicitly required material or equipment capability; F, a financial

threshold or documentary proof; and O, an explicit organizational requirement. Each dimension is coded Present (P), Absent (A) or Not verifiable (NV). Coding follows a frozen coding manual for signal resolution (MC-SR, from the French *manuel de codage de la résolution du signal*). In MC-SR and in the archived matrices, the personnel dimension is labeled P and the code Not verifiable is labeled NC; they appear here as K, to avoid confusion with the code Present, and NV.

The ordinal levels in Table 3 are typed counts rather than weights. R, K and M are treated as technical dimensions because they correspond to the elements through which Algerian law defines qualification: works of a given nature and complexity, performed with appropriate human, material and technical resources (Algeria, 2014, Art. 2). They link evidence to the technical content of the object. F and O are treated as complementary dimensions, since financial standing and organizational arrangements support an object-linked capability but cannot specify it. SR2 therefore requires at least one technical dimension in addition to Q, and SR3 requires two technical dimensions and one complementary dimension. These conventions are tested by sensitivity analysis in Section 4.5.

Table 3. Ordinal grid for capability-signal resolution

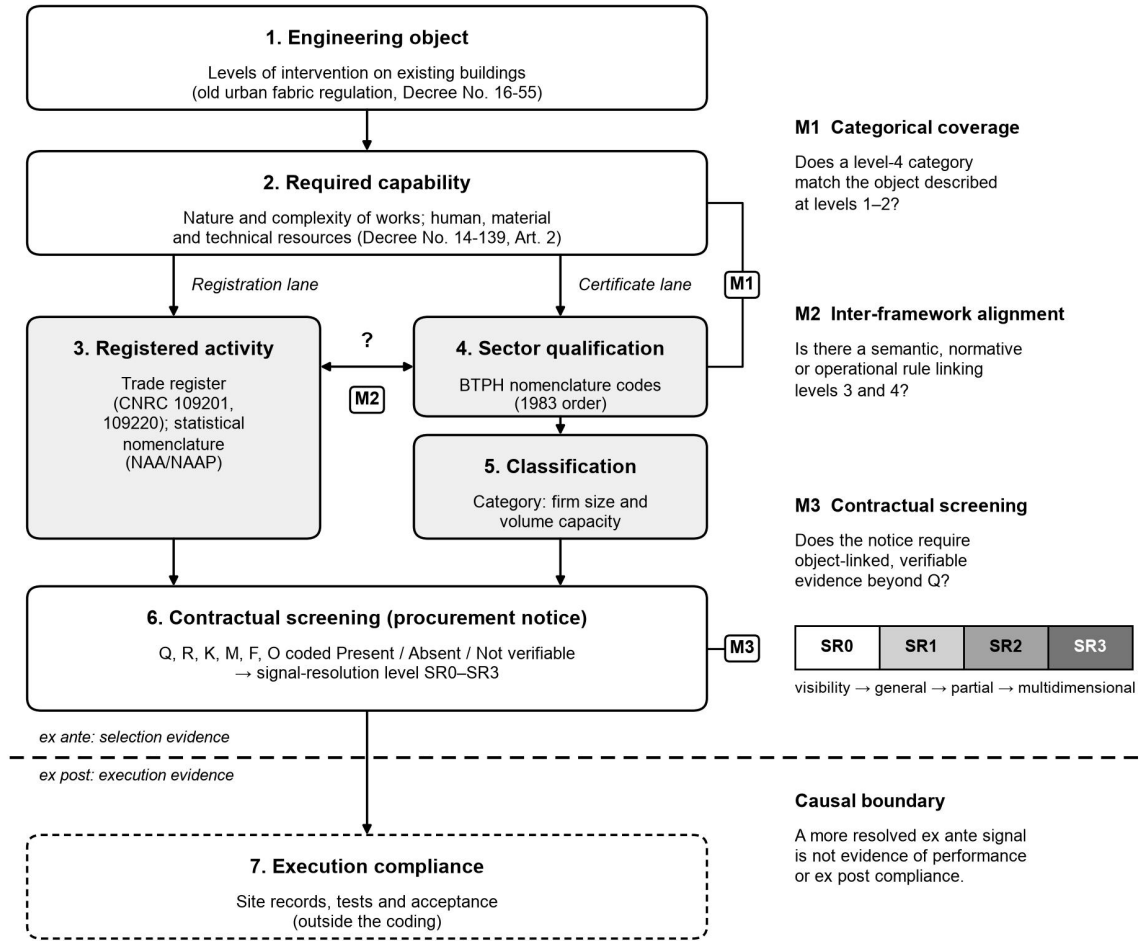
Level	Decision rule	Minimum observable evidence	Interpretation
SR0	Administrative visibility without a sector signal.	Registered activity or general eligibility; Q explicitly absent in a sufficiently complete support (Q = A, not NV).	The firm is visible or eligible, but no sector qualification is required. If Q = NV, no level is assigned (unclassifiable).
SR1	General sector signal.	Q = P; no positive R, K or M is required.	General sector signal only; NV dimensions are never imputed as absent.
SR2	Partial object-linked screening.	Q = P and at least one of R, K or M = P.	Partial reconstruction, directly demonstrated.
SR3	Multidimensional object-linked screening.	Q = P, at least two of R, K or M = P, and at least one of F or O = P.	Highest directly documented resolution in the grid.

Source(s): Own elaboration (MC-SR v1.0). Levels are analytical conventions, not legal classes or contractor ratings.

2.5. Conceptual model

Figure 1 represents the framework as a seven-level translation chain. The engineering object (level 1) is translated into a required capability (level 2), which is represented in two parallel institutional lanes: economic registration (level 3) and sector qualification (level 4), with classification (level 5) expressing capacity on the same certificate. Contractual screening (level 6) adds project-specific evidence, coded with the SR grid, and execution compliance (level 7) lies beyond the causal boundary. Categorical coverage (M1) concerns the fit between levels 1–2 and the categories of level 4; inter-framework alignment (M2) concerns the translation between levels 3 and 4; and contractual screening (M3) operates at level 6.

Figure 1. Capability-signal translation chain, mechanisms and causal boundary



Source(s): Own elaboration based on Algeria (2014, 2016a, 2023a).

3. Materials and methods

3.1. Research design

The study is a single-case, theory-building documentary case study in construction management (Eisenhardt, 1989; Yin, 2018). Following George and Bennett (2005), it is designed as a plausibility probe: it develops a framework and examines whether its mechanisms can be observed and coded reliably, rather than testing them against cases that vary on every explanatory condition. The unit of analysis is the translation of technical capability across successive institutional levels. Legal texts, administrative forms, certificates, interfaces and procurement records are treated as its observable supports, following established principles of document analysis (Bowen, 2009).

This design has a precise consequence. Categorical coverage and inter-framework alignment are properties of national frameworks and are constant across the operations studied. They are documented as context conditions through legal and administrative analysis, not tested by variation. Contractual screening varies across operations and is observed through within-case comparison. External validity is analytical, and replication in other licensing, qualification and procurement systems is required to test P1 and P2 comparatively (Gibbert et al., 2008).

3.2. Documentary corpus, search and selection of operations

Each legal instrument was checked against the complete issue of the Official Journal of the Algerian Republic (JORADP) in which it was published. The legal corpus covers the 1983–1984 qualification framework, the 1993 certificate regime and the 2002 nomenclature of activities. It also covers Decree No. 14-139 of 2014, the 2016 instruments on certificate delivery and on old urban fabric, the 2017 classification and nomenclature instruments, the 2023 procurement law and certificate reform, and the 2024 implementing orders. Table 4 groups these documents by evidentiary function.

The administrative corpus includes the certificate page of the Ministry of Housing, Urban Planning and the City (MHUV), a contemporary application and renewal form and specimen certificates. It also includes two CNRC activity records and the official classification simulator of the Ministry of Public Works. The procurement corpus comprises five operations of the public housing office of Skikda (Office de promotion et de gestion immobilière, OPGI): Contracts No. 22/2016 and No. 28/2017 and calls for tenders No. 37/2023, No. 30/2024 and No. 33/2026. It combines publicly disseminated notices—national daily newspapers through the national publishing and advertising agency (ANEP), a commercial tender-aggregation portal and announcements of the contracting authority—with administrative records held in C0 for the 2016–2017 contracts. Public notices support claims about published selection requirements; administrative and execution records support traceability and the selection–execution boundary and are not used to reconstruct missing *ex ante* criteria. Documents published in Arabic were translated by the first coder; the translations were checked by the second coder, a native Arabic speaker.

The corpus was closed on 7 September 2026 and is designated C0. It contains 16 Algerian legal instruments, the administrative documents listed above and the five operations. Specimen certificates are not a statistical sample of contractors; they serve only to establish the actual administrative use of qualification codes. Two further legal texts are cited for context but were not coded: the 2015 procurement decree to which the 2023 and 2024 notices refer (Algeria, 2015) and Directive 2014/24/EU, used for comparison in Section 5.4. Documents incorporated into the research corpus after 7 September 2026 were excluded from C0 and can enter only a later version explicitly distinguished from C0.

Table 4. Documentary corpus C0 and evidentiary function

Period	Document group	Evidentiary function
1983–1984	Decree No. 83-135 (Algeria, 1983a); Interministerial Order of 1 March 1983 (Algeria, 1983b); amending order of 1 December 1984 (Algeria, 1984)	Closed universe for the categorical-coverage audit (Appendix A).
1993–2002	Decree No. 93-289 (Algeria, 1993); Decree No. 02-282 on the nomenclature of activities and products (Algeria, 2002)	Evolution of the certificate regime; emergence of a general statistical framework.
2014	Decree No. 14-139 (Algeria, 2014)	Separates qualification from classification; requires sector nomenclatures.
2016–2017	Decree No. 16-55 on old urban fabric (Algeria, 2016a); orders on certificate delivery, classification and file content (Algeria, 2016b, 2017a, 2017b); Decree No. 17-278 (Algeria, 2017c)	Defines the engineering object; makes qualification operational; revises the statistical nomenclature.
2023–2024	Law No. 23-12 (Algeria, 2023a); Decree No. 23-358 (Algeria, 2023b); orders of 3 January 2024 (Algeria, 2024a, 2024b, 2024c)	Current rule on capacity verification; updated certificate procedures, criteria and thresholds.
2015–2026	Specimen certificates, application form, MHUV page, classification simulator, CNRC activity records	Contemporary administrative use and separation of frameworks.
2016–2026	OPGI Skikda notices, award notices and execution records (OPGI Skikda, 2016–2025, 2017–2025, 2023a, 2023b, 2024a, 2024b, 2026)	Contractual screening; boundary between selection and execution.

Source(s): Own elaboration from corpus C0.

The five operations were not sampled from an enumerated population. They form a documentary chain: all concern the rehabilitation of old buildings along Didouche Mourad Street in Skikda, all were launched by the same contracting authority, and they are linked through successive blocks of the street. Contracts 22/2016 and 28/2017 concerned blocks 14 and 17, operation 37/2023 blocks 01, 03, 05, 08 and 10, and operation 30/2024 block 12. Operation 33/2026 covers further blocks together with the remaining works of blocks 14 and 17. Holding the buyer, the building stock and the legal frameworks constant isolates variation in contractual screening, which is the condition that this design can probe (Seawright & Gerring, 2008). The selection is purposive, and findings refer to the chain rather than to Algerian procurement as a whole. These five operations exhaust the operations of this program identified in the national public-procurement bulletin (BOMOP) and in ANEP notices for 2016–2026; the search was completed on 7 September 2026.

3.3. Coverage audit and alignment analysis

The historical professional nomenclature, annexed to the Interministerial Order of 1 March 1983 and amended in 1984, is treated as a closed universe and audited exhaustively. A category is treated as corresponding only when its title or definition functionally covers the object under study; general trades and monumental-heritage activities are not extended by analogy to ordinary old buildings. A refutation rule is applied: every potentially relevant entry, including general building, trade, monumental-restoration and contemporary commercial activities, is inspected before a bounded negative result is accepted. Appendix A reports the audit protocol and its decision log.

Continuity is assessed on three planes: legal lineage, administrative use and material mobilization. A document on an institutional website establishes dissemination, whereas an express reference in a contemporary form and the appearance of codes on certificates establish operational use. Such evidence identifies the framework actually in use without being treated as a new legal act reenacting the historical nomenclature. Inter-framework alignment requires an identifiable rule of passage. Each pair of frameworks is therefore assessed on the semantic, normative and operational planes and assigned one of three outputs (Aligned, Not demonstrated or NV), reported in an alignment matrix (Table 6).

3.4. Coding of procurement operations

The unit of coding is the procurement operation. MC-SR was frozen as version 1.0 on 10 September 2026, before any intercoder comparison. Main coding relies only on admissible ex ante selection documents; award and execution documents support traceability but cannot reconstruct a missing ex ante criterion retroactively. Q requires an explicit sector qualification or classification requirement, and R a reference comparable by the nature of the intervention or structure. K requires key personnel defined by diploma or qualification and, where specified, minimum experience. M requires specified equipment, or a justification of material resources that the notice makes a directly assessed capacity criterion. F requires a financial threshold or explicit financial proof.

O requires an explicit organizational condition related to consortium arrangements, joint and several liability of members, site methodology or coordination, or another specific organizational arrangement; a standard work schedule alone is insufficient. A generic reference or a generic human-resources heading remains NV. The SR rule is mechanical. SR0 requires Q = A in a sufficiently complete support, whereas Q = NV makes the operation unclassifiable. The retained level is the highest level directly demonstrated by positive evidence, and an NV dimension that is not required for that level does not cancel it.

3.5. Evidence status, annotations and sensitivity analysis

Four evidence statuses govern inference. *Established* means that a primary document, a directly observable administrative support or the exhaustive audit of a closed universe directly supports

the proposition. *Inferred* means that the proposition follows explicitly from two or more established facts without being stated by a single document. *Open (NV)* means that required evidence is missing or that the accessible universe does not support a verdict. *Not established* means that a stronger conclusion is excluded by the available evidence. A negative finding is coded Absent only in a closed or sufficiently complete universe. A proposition formulated after the coding is labeled exploratory, whatever the status of the facts that illustrate it. These statuses are applied to the results in Section 4 and consolidated in Table 10.

Two annotations were added after the freeze to address construct validity; they modify neither MC-SR v1.0 nor the frozen matrices, and they have not been double-coded. First, Q is annotated for granularity: Qg when the notice requires a general sector qualification, such as Building as principal activity, and Qs when it requires a specialty matching the object. Second, each positive dimension is annotated for depth, that is, the severity of its threshold and the verifiability of its proof. Severity covers turnover amounts, years of experience and equipment quantities; verifiability covers third-party certificates, social-security career records, bailiff's reports and audited accounts. Depth is reported descriptively and does not enter the SR level.

The robustness of the SR derivation was examined under five alternative rules, specified after the freeze; this analysis is therefore exploratory. Under S1, the comparable reference counts only when it is the sole admissible route; under S2, M counts only for specified equipment; under S3, F counts only for a numerical threshold. Under S4—a deliberately permissive stress test rather than an alternative definition of O—O also counts the allotment of a tender into lots; S5 combines S2 and S3. Two forms of robustness are distinguished. An SR level is robust when it is unchanged under every alternative; the ordering is robust when the rank order of the classifiable operations is unchanged. Ordinal robustness is never used to support a claim about a level. Table 5 summarizes the complete chain from document to verdict.

Table 5. Reproducible documentary-processing chain

Step	Input	Decision rule	Output
1. Identification	Legal text, form, certificate, procurement record	Record version, date, issuing institution and dissemination status.	Provenance record
2. Coverage	Closed qualification nomenclature	Retain a category only if its title or definition functionally covers the object; no extension by analogy.	Present / Absent / NV (Appendix A)
3. Alignment	Pair of institutional frameworks	Accept a correspondence only when it is semantically, normatively or operationally documented.	Aligned / Not demonstrated / NV (Table 6)
4. Signal	Ex ante selection documents	Code Q, R, K, M, F and O separately; never infer a dimension from a neighboring label.	Dimension profile (Appendix B)
5. Resolution	Dimension profile	Apply the SR rule mechanically; missing evidence remains NV and is never imputed.	SR level or unclassifiable (Table 7)
6. Verdict	Result and supporting document	Assign Established, Inferred, Open (NV) or Not established.	Bounded conclusion (Table 10)

Source(s): Own elaboration from MC-SR v1.0.

3.6. Intercoder reliability test

A second coder independently recoded the five operations using MC-SR v1.0 and the primary documents of C0, without access to the first coder's matrix or decisions. The second coder is an associate professor in civil engineering, has prior coding experience, took no part in designing the manual and works in the same academic department as the first coder. No calibration session on documents outside C0 was held. The second matrix (matrix B) was locked on 11 September 2026, before comparison, and no rule was changed after the lock. The chronology

was therefore corpus closure on 7 September, manual freeze on 10 September and lock of matrix B on 11 September 2026.

Agreement is reported primarily as raw agreement, for three sets of decisions. The first comprises the 30 dimension decisions (five operations by six dimensions). The second comprises the 12 decisions concerning the two operations without ex ante documents, which are NV by construction; the third comprises the 18 decisions concerning the three operations with ex ante documents. The classification outcome (classifiable or unclassifiable) and the SR levels are compared separately. Cohen's κ and Krippendorff's α were prespecified (Krippendorff, 2018; Lombard et al., 2002; O'Connor & Joffe, 2020). With five operations and no Absent code, however, they add little information to raw agreement and are reported only for completeness.

The test concerns operation-level coding, that is, the third mechanism. The coverage audit and the alignment verdicts were produced by the first coder and are made auditable through Appendix A and Table 6 rather than through double coding. A comparison between a pre-freeze draft coding matrix preserved in an earlier manuscript version and the frozen reference matrix A showed agreement on 26 of 30 dimension-level decisions (86.7%) and identical SR outcomes for all five operations. The four differences concerned 37/2023-R, 37/2023-K, 37/2023-O and 30/2024-O. In each case, the frozen MC-SR v1.0 rules required the more conservative NV code rather than the earlier Present or Absent interpretation. No operation-level SR outcome changed.

3.7. Methodological safeguards

Non-mention is treated as a negative result only in a closed and exhaustively audited support. Contemporary ministry pages, forms and specimen certificates establish the dissemination and use of the historical framework; they are not treated as proof of a post-2014 reenactment. Likewise, failure to identify an official correspondence table does not prove that none exists outside C0; it only prevents the study from asserting equivalence. Table A2 states the universe searched and the stopping rule for each bounded negative statement. Operations are coded separately so that criteria documented in later operations are not projected back onto earlier ones.

4. Results

4.1. *Historical categorical coverage*

The exhaustive audit of the 1983 professional nomenclature identifies no category whose title or definition covers the rehabilitation of ordinary old buildings (Appendix A). The only explicit heritage-related entry, code 3150, is limited to cutting and laying stone for historical monuments and maintaining their façades (Algeria, 1983b). The 1984 amendment does not redesign this architecture. Its substantive change deletes paragraph 31, Electrical networks and power plants, from Title II, Public works, and it introduces no rehabilitation category (Algeria, 1984: 1442). The negative result is bounded: it concerns the resolution of the classification framework, not the material competence of general contractors. Evidence status: Established (closed universe).

4.2. *The regulated engineering object is more granular*

Decree No. 16-55 distinguishes levels of intervention and organizes rehabilitation through diagnosis, preliminary study, intervention planning and specifications. Heavy rehabilitation can include structural strengthening and foundations; medium rehabilitation can include common parts, networks and technical equipment; and light rehabilitation can concern façades and waterproofing (Algeria, 2016a, Arts. 10, 20, 32). The regulated engineering object is therefore described at a finer technical granularity than the general building categories of the professional nomenclature. Evidence status: Established.

4.3. Qualification regime, administrative continuity and alignment

Decree No. 14-139 distinguishes qualification from classification (Algeria, 2014, Art. 2). Qualification is the ability to perform works of a given nature and complexity with appropriate human, material and technical resources; classification expresses the size of the firm and its capacity to perform a given volume of works. Article 6 records recognized qualifications on the certificate as numbers belonging to sector nomenclatures. The 2016 order requires the principal activity requested to be supported by appropriate human and material resources consistent with the relevant nomenclature (Algeria, 2016b, Art. 4).

The orders of 17 April 2016, published in 2017, document classification criteria and file contents, and the 2023–2024 reforms update procedures, file requirements and thresholds (Algeria, 2017a, 2017b, 2023b, 2024a, 2024b, 2024c). The official simulator makes this architecture observable through capital, turnover, workforce, management staff, equipment, client attestations, apprenticeship and training (Ministry of Public Works and Basic Infrastructure, n.d.). It cites Decree No. 14-139 and the 2016 and 2024 orders but not the 1983 order, so it evidences the operation of classification rather than the lineage of the nomenclature. A high classification category thus signals broad capacity; it does not create a missing specialty.

Contemporary administrative evidence settles the operational identification of the BTPH nomenclature within C0. The MHUV certificate page disseminates the 1983 volume (Ministry of Housing, Urban Planning and the City [MHUV], n.d.). The current application and renewal form requests qualification codes by activity and expressly refers to the Interministerial Order of 1 March 1983 (MHUV, 2022), and specimen certificates display those codes (MHUV, 2015–2020). Evidence status: Established. A narrower legal caveat remains, because no post-2014 act formally reenacting the full nomenclature under Article 6 of Decree No. 14-139 was identified. Evidence status: Open (NV).

The statistical and professional nomenclatures are not interchangeable by default. Decree No. 17-278 expressly repealed the 2002 nomenclature of activities and products (Algeria, 2002; Algeria, 2017c, Art. 8). It also allowed specific nomenclatures and correspondence tables to be adopted after consultation with the national statistics office (Algeria, 2017c, Art. 5). The repeal concerns the general 2002 framework, and C0 contains neither a provision extending it to the BTPH nomenclature nor a correspondence table adopted under Article 5. Likewise, CNRC activities 109201 (all-trades building contractor) and 109220 (building restoration contractor) are trade-register activities (National Trade Register Centre, 2026a, 2026b).

Activity 109220 covers the restoration of historical structures, consolidation, underpinning and traditional techniques. It shows that a specialized economic vocabulary exists, but it does not establish a corresponding professional qualification or a category covering ordinary old buildings. Lexical proximity is therefore insufficient to establish legal or functional equivalence. Table 6 summarizes the alignment verdicts: the BTPH nomenclature is operationally aligned with the current qualification procedure and, at a general level only, with procurement criteria, whereas no correspondence is demonstrated with the registration and statistical frameworks.

Table 6. Inter-framework alignment matrix

Framework pair	Semantic	Normative	Operational	Output and status
1983 BTPH nomenclature ↔ current qualification procedure	Same framework	No post-2014 act reenacting the nomenclature identified	Form refers to the 1983 order; certificates display its codes	Aligned (operational): Established. Formal lineage: Open (NV)
CNRC activities 109201/109220 ↔ BTPH qualification codes	Lexical proximity only; 109220 limited to restoration techniques	No correspondence table identified	No administrative link observed	Not demonstrated: Established within C0
NAA/NAAP Rev.1 ↔ BTPH nomenclature	NV (different purposes)	Art. 5 allows tables, none identified; Art. 8 repeal limited to the 2002 decree	No link observed	Not demonstrated: Established within C0
Classification category ↔ qualification specialty	Distinct objects: volume versus nature and complexity	Distinguished by Decree No. 14-139, Art. 2	Simulator derives the category from resources	Not substitutable by rule: Established
BTPH qualification ↔ procurement criteria (2023–2026)	General domain only (Building)	Criteria must be linked and proportionate to the object (Law No. 23-12, Art. 43)	Notices require Building as principal activity, category IV or higher	Aligned at the general level only: Established

Source(s): Own elaboration from corpus C0. NV = not verifiable.

4.4. Contractual screening in the procurement operations

Article 43 of Law No. 23-12 requires the contracting authority to verify technical, professional and financial capacities before evaluating technical offers, using non-discriminatory criteria linked and proportionate to the subject matter of the contract (Algeria, 2023a). The notices of 2023 and 2024 refer instead to the 2015 procurement decree (Algeria, 2015), and the coding concerns the criteria as published, whatever their legal basis. All three notices in C0 are open national calls for tenders with minimum-capacity requirements. Table 7 reports their published requirements, codes and annotations.

Table 7. Published selection requirements, MC-SR v1.0 codes and annotations

Dimension	37/2023 (blocks 01, 03, 05, 08 and 10; five lots)	30/2024 (block 12)	33/2026 (second phase; six lots)
Q	P [Qg]: Building as principal activity, category IV or higher; valid certificate	P [Qg]: Building as principal activity, category IV or higher	P [Qg]: Building as principal activity, category IV or higher; certificate for each consortium member
R	NV: generic “professional references”; comparability not stated	P: at least one residential-building rehabilitation in the last 10 years, certified by a public client	P ^a : rehabilitation of old buildings with shoring works, or all-trades works of at least 100 dwellings, or a facility classified “C”
K	NV: no key profile defined	P: project manager (civil engineer or architect), at least 5 years’ experience	P: project manager (civil engineer or architect), at least 3 years’ experience, social-security career record
M	P: technical statement on human and material resources and work schedule, assessed as a capacity criterion	P: truck of at least 5 t; 500 m ² of modular façade scaffolding (tubular scaffolding not counted)	P: truck of at least 5 t; at least 1,000 m ² of modular façade scaffolding, proven by lease or bailiff’s report

Dimension	37/2023 (blocks 01, 03, 05, 08 and 10; five lots)	30/2024 (block 12)	33/2026 (second phase; six lots)
F	P: balance sheets for the last three years (proof without threshold)	P: average turnover of at least DZD 18 million (2021–2023)	P: average turnover of at least DZD 100 million (2023–2025); audited statements or tax certificate
O	NV: allotment only, no requirement on candidates	NV: standard work schedule only	P: joint and several liability of consortium members; dedicated resources per lot
SR level	SR2	SR3	SR3

Source(s): Own elaboration from OPGI Skikda (2023a, 2024a, 2026).

Note. P = Present; NV = Not verifiable; DZD = Algerian dinar. Qg = general sector qualification; Qs = specialty matching the object (not observed). Bracketed annotations and threshold details are descriptive and not part of MC-SR v1.0. ^a One of three admissible, non-exclusive routes; the SR3 level is unchanged if this cell is recoded NV (Table 8). Operations 22/2016 and 28/2017 are coded NV on all six dimensions (Appendix B).

All three notices require the same general sector qualification: Building as principal activity, category IV or higher. No notice requires a specialty matching the object (Qs), which is consistent with the coverage result of Section 4.1. Whether buyers would require such a specialty if it existed cannot be determined from C0 (Open). Project specificity is therefore added entirely through the other dimensions. Operation 30/2024 reaches SR3 through a residential-rehabilitation reference certified by a public client, a qualified project manager, specified equipment and a turnover threshold. O remains NV because a standard work schedule does not establish a project-specific organizational requirement.

Operation 33/2026 also reaches SR3, with all six dimensions positive. Its organizational requirements include joint and several liability for consortium members and dedicated resources per lot, and its technical capacities operate as eliminatory, unscored conditions. Operation 37/2023 reaches SR2: Q and M are positive and F is documented, while R and K remain NV and O is not demonstrated. Evidence status: Established for the three profiles.

Contracts 22/2016 and 28/2017 remain unclassifiable. For these contracts, C0 contains only execution-stage documents, namely service orders and formal notices published in 2024 and 2025, and no ex ante notice, tender regulations or special specifications. All six dimensions are therefore NV. These records document stoppages, unsuccessful attempts at resumption and the reprogramming of the remaining works in operation 33/2026, whose notice expressly describes two lots as the remainder of the works on blocks 14 and 17 (OPGI Skikda, 2016–2025, 2017–2025, 2026). They are used only to trace the selection–execution boundary; they can neither reconstruct the original selection criteria nor attribute the stoppages to the firms' qualification.

The sequence SR2 in 2023 and SR3 in 2024 and 2026 must not be read as a causal improvement over time. The three notices were issued under different procedural texts, and the unclassifiable profiles of 2016–2017 describe the documentary state of C0 rather than an absence of criteria. Evidence status of a temporal trend: Not established.

4.5. Sensitivity and depth of the published requirements

Table 8 reports the SR levels under the alternative rules. The SR3 levels of 30/2024 and 33/2026 are robust as levels: they are unchanged under all five alternatives. In 33/2026 the comparable reference is one of three admissible routes; if it is disregarded (S1), K and M still provide two technical dimensions and F and O remain positive. The SR2 level of 37/2023 is not robust as a level, because it rests on a justification of material resources without specified equipment: under a strict reading of M (S2 and S5), the operation falls to SR1. The ordering of the three operations is preserved under every alternative, but this ordinal robustness does not extend to the level of 37/2023. Evidence status, within this exploratory analysis: Established for the levels of 30/2024 and 33/2026 and for the ordering; the level of 37/2023 is rule-dependent and is reported as SR2 under MC-SR v1.0 only.

Table 8. Sensitivity of SR levels to alternative coding rules

Rule	Change to MC-SR v1.0	37/2023	30/2024	33/2026	Ordering preserved
S0	Baseline (frozen manual)	SR2	SR3	SR3	—
S1	R counts only when it is the sole admissible route	SR2	SR3	SR3 (R → NV)	Yes
S2	M counts only for specified equipment	SR1 (M → NV)	SR3	SR3	Yes
S3	F counts only for a numerical threshold	SR2 (F → NV)	SR3	SR3	Yes
S4	Deliberately permissive stress test: O also counts the allotment of a tender into lots	SR2 (O → P)	SR3	SR3	Yes
S5	S2 and S3 combined	SR1	SR3	SR3	Yes

Source(s): Own elaboration from matrix A (Appendix B).

Note. Rules S1–S5 were specified after the freeze of MC-SR v1.0 (exploratory analysis). Level robustness: SR3 unchanged for 30/2024 and 33/2026; SR2 of 37/2023 rule-dependent. Ordinal robustness: 37/2023 < 30/2024 ≤ 33/2026 under every rule.

Depth varies independently of resolution. Between 30/2024 and 33/2026, both at SR3, the turnover threshold rises from DZD 18 million to DZD 100 million and the scaffolding requirement from 500 m² to 1,000 m². Conversely, the project manager's minimum experience falls from five to three years. Verifiability, by contrast, increases: 33/2026 requires a social-security career record for the project manager, a lease or bailiff's report for scaffolding, and audited financial statements. A proportionality judgment would require relating thresholds to estimated contract values, which the coding did not record. A more severe threshold may narrow competition without adding object-specific information, and the question is therefore left open. Evidence status: Established for the difference between the two profiles; P4, formulated after the coding from this single pair, remains exploratory; Open (NV) for proportionality.

4.6. Intercoder reliability

Matrix B reproduces matrix A in all 30 dimension decisions (Appendix B). Twelve of these decisions concern the two operations without ex ante documents, for which NV follows mechanically from the corpus. The informative subset therefore comprises the 18 decisions on the three classifiable operations, 14 coded Present and 4 coded NV, on which the coders also agreed fully. The coders agreed on the classification outcome of all five operations, and the derived SR levels were identical for the three classifiable operations. Table 9 reports these counts.

Table 9. Intercoder agreement by subset of decisions

Subset	Decisions	Agreement	Codes observed
All dimension decisions	30	30/30	P = 14; NV = 16; A = 0
Operations without ex ante documents (22/2016, 28/2017)	12	12/12	NV by construction
Operations with ex ante documents (37/2023, 30/2024, 33/2026)	18	18/18	P = 14; NV = 4
Classification outcome (classifiable or not)	5	5/5	3 classifiable; 2 unclassifiable
SR level of classifiable operations	3	3/3	SR2, SR3, SR3

Source(s): Own elaboration from matrices A and B (Appendix B).

Note. Cohen's κ and Krippendorff's α equal 1.00 for each dimension and for SR levels. With five operations (three for SR levels), no Absent code and no SR0 or SR1 case, they add no information to raw agreement.

The test supports the reproducibility of the P/NV distinctions and of the observed SR derivations within C0. It does not test the A/NV boundary, the SR0 and SR1 levels, or the coverage and alignment verdicts, and it should be read as a methodological check rather than as a substantive finding.

4.7. Status of the propositions

Table 10 consolidates the results by evidence status and returns to the propositions of Table 1. The framework-level findings are established, whereas P1 and P2 are inferred within the case and require comparative testing. P3 is established within C0 as the result of a plausibility probe. P4 remains exploratory, because it was formulated after the coding and rests on a single pair. The claims of temporal improvement and of predictive value for execution are not established.

Table 10. Results and propositions by evidence status

Statement	Evidence	Status
No category of the 1983 nomenclature covers the rehabilitation of ordinary old buildings	Exhaustive audit (Section 4.1; Appendix A)	Established
The 1983 nomenclature is in operational use for qualification	Form, certificates and MHUV page (Section 4.3)	Established
A post-2014 act formally reenacts the 1983 nomenclature	None identified (Section 4.3)	Open (NV)
CNRC or NAA/NAAP categories correspond to BTPH qualification codes	No table or practice identified (Table 6)	Not demonstrated within C0
The three notices require only a general sector qualification	Published notices (Table 7)	Established
P1. Limited coverage confines the certificate to a general signal	Coverage absent; general qualification in all notices	Inferred within the case; comparative claim open
P2. Without documented alignment, specialized registered activities do not raise resolution	Alignment matrix (Table 6)	Inferred within the case; comparative claim open
P3. Object-linked, multidimensional and verifiable screening raises resolution	SR3 in two operations, SR2 in one (Tables 7–8)	Established within C0 (plausibility probe)
P4. Equal SR levels can conceal non-equivalent profiles	One pair: 30/2024 compared with 33/2026 (Section 4.5)	Exploratory (formulated after the coding); profile difference established
SR levels show an improvement over time	Different legal bases; NV profiles for 2016–2017 (Section 4.4)	Not established
Higher resolution predicts execution performance	Outside the design (causal boundary)	Not established

Source(s): Own elaboration.

5. Discussion

5.1. RQ1: coverage and alignment as conditions of the direct signal

Within C0, categorical coverage and inter-framework alignment limit the direct signal. The professional nomenclature does not name the object; the trade register names a related activity without a qualification counterpart; and the notices rely on a general Building qualification. The certificate remains legally valid and operationally current, but informationally coarse. Certification theory describes this as coarse disclosure (Dranove & Jin, 2010; Lizzeri, 1999), while classification studies frame it as commensuration that discards object-specific information (Espeland & Stevens, 1998).

This finding applies rather than extends classification theory. Bowker and Star's (1999) infrastructural inversion is applied to contractor-selection documents and made codable. The qualification certificate also behaves as a boundary object (Star & Griesemer, 1989): recognized across institutions, yet too general to carry object-specific meaning. Similar translation problems occur at buyer-supplier interfaces (Holma et al., 2022). Because coverage and alignment do not vary within the case, these conclusions remain inferential and require comparative testing.

5.2. RQ2: conditions under which screening compensates

The three classifiable operations identify four conditions under which screening can compensate for a coarse direct signal. Criteria must be object-linked; screening must be multidimensional; evidence must be third-party verifiable; and the route must be binding on candidates. Thus, a rehabilitation reference, qualified project manager and façade scaffolding add object-specific information, whereas generic balance sheets or technical statements do not. In 33/2026, a specialized reference is only one admissible route, so specialized evidence is available but not mandatory for every candidate.

Compensation has legal and epistemic limits. Criteria must remain linked and proportionate to the object (Algeria, 2023a, Art. 43), and screening raises the specificity of ex ante evidence rather than the probability of correct execution. The 2016–2017 stoppages and formal notices cannot be attributed to qualification because C0 contains no ex ante criteria for those contracts. Screening therefore improves signal fit relative to the object without closing the gap between selection evidence and performance (Connelly et al., 2011).

5.3. Administrative continuity and the legal caveat

Documented administrative use settles the operational identification of the BTPH nomenclature within C0 without settling its formal legal lineage. The two verdicts should be kept separate: merging them would either understate the material evidence or turn administrative practice into a new norm. For comparative research, the distinction suggests recording both the legal source and the observed administrative use of each qualification category.

5.4. Comparison with the European procurement directive

The European framework provides a useful contrast. Article 58 of Directive 2014/24/EU confines selection criteria to professional suitability, economic and financial standing, and technical and professional ability, requires them to be related and proportionate to the contract, and generally caps minimum yearly turnover at twice the estimated contract value. Article 64 recognizes official lists and certification bodies, while Annex XII identifies evidence of technical ability, including certified works and managerial qualifications (European Union, 2014).

In the present framework, Article 64 corresponds to the certification tier and Article 58 with Annex XII to the screening tier. Algerian notices use comparable screening devices—certified references, managerial qualifications and equipment—while certification remains coarse. The comparison does not presume legal equivalence; it shows that the mechanisms are analytically transferable and offers a benchmark for the proportionality question left open in Section 4.5.

5.5. Implications for selection-system design

Two complementary levers follow. Regulators can improve categorical coverage and adopt official correspondence rules so that the direct signal is clearer before a tender is issued. Contracting authorities can design proportionate, object-linked and verifiable screening when the qualification remains general. The levers are not substitutes: a better nomenclature reduces translation loss, whereas screening documents capability specific to the project.

For contracting authorities, the practical requirement is a traceable chain from engineering object to required capability, relevant category, contractual screening, evidence and execution control. Regulators should document versions, correspondences and legal effects across

frameworks. Comparative research should record this chain rather than merely the existence of a contractor-classification scheme, because it separates the initial signal from buyer supplementation.

5.6. *Limitations and transferability*

Five limitations qualify the findings. The case is single and the procurement chain small: only three operations could be classified, all from one buyer and one street program, so P3 is probed rather than tested. Coverage and alignment do not vary within the case, which leaves P1 and P2 inferred rather than tested. The intercoder test covers operation-level coding only, with no Absent code and no SR0 or SR1 case. The sensitivity rules and the granularity and depth annotations were specified after the freeze and have not been double-coded, and P4 was formulated after the coding; these elements are exploratory. Finally, the legal caveat on post-2014 reenactment and the absence of a correspondence table in C0 are incorporated into the results rather than resolved by presumption.

Transferability requires distinct institutional frameworks, an engineering object whose granularity can be compared with available categories, observable correspondence documents and sufficiently detailed contractual criteria. Comparative settings could include contractor-classification and prequalification systems in the Middle East and North Africa and European procurement systems, ideally with variation in categorical coverage. Such studies should test the mechanisms rather than presume legal equivalence and should include explicit absences and lower SR levels to probe the remaining boundaries of MC-SR.

6. Conclusions

This study shifts contractor-qualification analysis from the presence of selection criteria to the institutional resolution of a capability signal. On RQ1, the professional nomenclature represents ordinary old-building rehabilitation more coarsely than the engineering regulation, and a specialized trade-register activity does not become a recognized qualification without a documented rule of passage. Coverage and alignment therefore cap the direct signal at a general sector qualification, an inference that remains open to comparative testing.

On RQ2, contractual screening compensated when criteria were object-linked, multidimensional, third-party verifiable and binding. Two of the three classifiable operations reached multidimensional resolution; the third remained partial and rule-dependent. In the only comparable pair, equal SR levels concealed different profiles and severities, so P4 remains exploratory and SR should be reported with its profile. Screening increases *ex ante* specificity but does not predict execution quality.

The framework combines three mechanisms with one informational outcome, and MC-SR makes that outcome codable without conflating legal validity, actual competence or *ex post* compliance. Reproducibility was supported within the observed range; comparative replication should now test settings with varying coverage, explicit absences and lower resolution levels.

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Data availability. The legal instruments are available in the cited issues of the JORADP. The coding manual MC-SR v1.0, the pre-freeze draft coding matrix, matrices A and B, the extraction sheets and the audit log are available to reviewers in anonymized form on request and will be deposited in a public repository upon acceptance. Administrative and procurement documents can be shared within the limits of reproduction rights and applicable administrative restrictions.

Access to documents and ethics. Publicly disseminated procurement notices were consulted through the cited channels. Administrative records that were not publicly disseminated were held in

the research corpus for scholarly use and are reported only within applicable reproduction and administrative restrictions. The application form was downloaded from the website of the Ministry of Housing, and the specimen certificates were provided by a professional contact; both are accessible administrative documents. The study uses no personal data from human participants, and firms are not named.

Gender perspective. The study analyzes institutional documents and contains no data on individuals; a sex- or gender-disaggregated analysis is therefore not applicable.

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Appendix A. Categorical-coverage audit and stopping rules

Universe. The annex to the Interministerial Order of 1 March 1983 (Algeria, 1983b), as amended by the Order of 1 December 1984 (Algeria, 1984: 1442). The Order was read in JORADP No. 12 of 22 March 1983 (pp. 556–557); the annex itself, which Article 1 of the Order joins to its original, is not reproduced in the Journal officiel and was read in the official reproduction disseminated by the Ministry of Housing. The annex comprises three titles — I, Bâtiment (Building), 22 entries; II, Travaux publics (Public works), 9 entries; III, Hydraulique (Hydraulic works), 8 entries, errata included — a closed universe of 39 activity entries, each carrying a three-digit economic code and a four-digit qualification code. All 39 entries were inspected.

Rule. An entry corresponds to the object only when its title or definition functionally covers the rehabilitation of ordinary old buildings. General trades and monumental-heritage entries are not extended by analogy. Every entry that could plausibly cover the object is examined before a negative result is accepted (refutation rule).

Result. No corresponding entry; coded Absent in a closed universe. Evidence status: Established. Table A1 lists the decisions on candidate entries.

Table A1. Decision log of the categorical-coverage audit

Entry inspected	Content	Decision	Reason
Code 3150	Cutting and laying of stone for historical monuments; maintenance of their façades	Not corresponding	Restricted to monuments; not extended by analogy to ordinary old buildings
Title II, paragraph 31 (deleted in 1984)	Electrical networks and power plants	Not relevant	Deleted by the 1984 order; outside the object
General building and trade entries (Title I: 3100 general building firm; 3110–3120 masonry; 3130–3135 reinforced and precast concrete; 3141–3143 tiling and coatings; 3160 plastering; 3170 demolition and salvage; 3190–3191 marble work; 3211–3252 wood joinery; 3311–3319 roofing; 3321–3328 plumbing; 3331–3336 waterproofing; 3410–3470 ironwork; 3511–3551 heating and ventilation; 3612–3615 painting; 3621–3630 glazing; 3711–3761 floor and wall coverings, signs and interior fittings; 3821–3825 metal frameworks; 3911–3916 electrical and telephone installations)	General building works or single trades	Not corresponding	No title or definition refers to the rehabilitation of existing buildings
CNRC activity 109220 (contemporary)	Restoration of historical structures, consolidation, underpinning, traditional techniques	Outside the audited universe	Economic nomenclature; examined in the alignment matrix (Table 6)

Source(s): Own elaboration from Algeria (1983b, 1984) and National Trade Register Centre (2026b).

Stopping rules. Table A2 states, for each bounded negative statement, the universe searched, the rule that ended the search and the resulting status. A universe is treated as closed only when its limits are fixed by the instrument itself; elsewhere, an unsuccessful search supports no claim of non-existence.

Table A2. Stopping rules for bounded negative statements

Negative statement	Universe searched	Stopping rule	Status
No category of the 1983 nomenclature covers the rehabilitation of ordinary old buildings	Annex to the 1983 order as amended in 1984 (Order read in JORADP No. 12, pp. 556–557; annex read in the official ministerial reproduction) (closed universe)	Every entry inspected under the refutation rule (Table A1)	Established (Absent)
No official correspondence links CNRC or NAA/NAAP categories to BTPH qualification codes	Legal instruments and official administrative supports searched specifically for CNRC/NAAP-BTPH correspondence up to 27 August 2026 (open universe)	All supports of C0 inspected; no correspondence table or administrative practice located	Not demonstrated within C0; no equivalence asserted
No post-2014 act formally reenacts the 1983 nomenclature	Post-2014 qualification and classification instruments of C0 (Algeria, 2014, 2016b, 2017a, 2017b, 2023b, 2024a, 2024b, 2024c) (open universe)	All instruments inspected; no reenactment located	Open (NV); non-existence not asserted

Source(s): Own elaboration from corpus C0.

Appendix B. Coding matrices

Table B1 reports, for each operation and dimension, the code assigned in the reference matrix A and in the independent matrix B.

Table B1. Reference matrix A and independent matrix B (A / B)

Operation	Q	R	K	M	F	O	SR level
22/2016	NV / NV	NV / NV	NV / NV	NV / NV	NV / NV	NV / NV	Unclassifiable / Unclassifiable
28/2017	NV / NV	NV / NV	NV / NV	NV / NV	NV / NV	NV / NV	Unclassifiable / Unclassifiable
37/2023	P / P	NV / NV	NV / NV	P / P	P / P	NV / NV	SR2 / SR2
30/2024	P / P	P / P	P / P	P / P	P / P	NV / NV	SR3 / SR3
33/2026	P / P	P ^a / P ^a	P / P	P / P	P / P	P / P	SR3 / SR3

Source(s): Own elaboration. Matrix A frozen with MC-SR v1.0 on 10 September 2026; matrix B locked on 11 September 2026.

Note. K = key personnel and NV = not verifiable, labeled P and NC in MC-SR v1.0 and the archived matrices. ^a Admissible but non-exclusive route; the SR3 level is unchanged if recoded NV (Table 8).