

Tender Documentation Structure and Document-Integrity Control in Malaysian Interior Fit-Out Practice: A Part A - F Framework and a Worked-Exemplar Audit

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ABSTRACT

Tender documentation is the instrument through which an interior architecture firm converts a design intent into an enforceable commercial obligation. Yet, in interior fit-out procurement, the package is frequently assembled from checklists rather than from a controlled document system (Laryea, 2011, p. 278; Matos et al., 2024, p. 400). This paper develops and tests a documentation framework for interior fit-out tenders in Malaysia. The study adopts a qualitative multi-method design that combines a semi-structured interview with an interior designer practising in a Kuala Lumpur architecture and interior design consultancy with documentary analysis of a worked tender exemplar for a government high-rise office and call centre refurbishment (lump sum RM202,000.00; 19 weeks; 133 days) and of a parallel consultant-side consultancy package. The interview was analysed using reflexive thematic analysis, and the documents were audited against a purpose-built integrity protocol examining six control tests: sum reconciliation, quantity arithmetic, rate transparency, measurement basis, programme baseline and security symmetry. The analysis produced three contributions. First, a six-part tender documentation taxonomy - Parts A to F - that was observed to function as a common structuring convention across both the contractor-side and consultant-side packages, and which maps cleanly onto the eight-stage tendering workflow reported by the practitioner. Second, the audit exposed a documentation control pattern rather than an isolated error: 100 per cent of the RM12,000.00 variance between the bill of quantities subtotal and the pricing schedule subtotal was concentrated in a single re-based preliminary works line with no reconciliation statement, and 46.6 per cent of bill value was carried as lump sum without any stated measurement rule or rate source, creating an unresolved basis for valuation of variations and progress claims. Third, these failure modes were consolidated into a 12-item Tender Documentation Integrity Checklist (TDIC) that can be applied at pre-submission. Because the evidence base comprises a single practitioner interview and a worked educational exemplar rather than live professional tenders, the audit findings are presented as failure modes demonstrated in one bounded case, not as estimates of how frequently such problems occur across Malaysian interior fit-out practice, and the TDIC is offered as a proposed instrument awaiting formal validation through multi-practitioner expert review, pilot application, or a Delphi process. The paper contributes an empirically grounded, practitioner-reviewed control instrument to a literature that has examined tender evaluation and design management but has paid limited attention to the internal traceability of the interior fit-out tender package (Laryea, 2011, p. 278), and it identifies specific curriculum implications for interior architecture programmes that teach contract management.

Keywords: Tender documentation, interior fit-out, document integrity, bill of quantities, construction procurement.

INTRODUCTION

Competitive tendering in the construction industry is usually discussed as a selection problem: which bidder should be awarded the work, on what criteria, with what weightings (Ismail et al., 2020). Considerably less attention has been paid to the antecedent condition that makes selection meaningful at all, namely whether the documents that constitute the offer describe the same project, the same quantities and the same money. When they do not, an award decision is taken on a fiction, and the discrepancy is discharged later through queries, variations, claims and disputes - the same category of downstream cost that design-management research has documented for four decades (Constructing the Team: The Latham Report (1994), n.d.). This question is sharper in interior fit-out and interior architecture than in general building works. The work is typically small in value, fast in programme, executed inside an occupied building, and technically dense in the interfaces it must resolve - ceilings against lighting and air-conditioning diffusers, partitions against sprinkler lines, joinery against data outlets, and finishes against fire behaviour (Gibbs et al., 1992). The package is usually prepared by a small design team under acute time pressure, often by the same people who designed the space, and it is frequently priced by the tenderer from a lump-sum reading of drawings rather than from measured quantities. A single arithmetic or scope discontinuity in such a package is therefore both more likely and more consequential relative to contract value.

Malaysia adds an institutional layer. Contractor eligibility is regulated through the Lembaga Pembangunan Industri Pembinaan Malaysia (CIDB) under Act 520, with grade and category determining both the value ceiling and the discipline a firm may undertake (Yusof & Misnan, 2019, p. 5008), and public-sector clients such as statutory bodies impose additional registration and documentary requirements. The consequence is that the tender package carries a compliance function - proof of eligibility - alongside its commercial and technical functions, and the two are assembled by different people at different times, which is precisely the condition under which internal inconsistency arises.

The research reported here emerged from an industry-facing undergraduate exercise in an interior contract management course, in which a student team interviewed a practitioner in a Malaysian interior design consultancy and then assembled and interrogated tender documentation for two live project references. Rather than leave that material as coursework, this paper treats it as a legitimate small-scale qualitative study and asks three questions:

RQ1: What documentation structure do interior architecture practice packages use for fit-out and refurbishment tenders, and is that structure shared across the contractor-side and consultant-side positions?

RQ2: When the assembled package is audited for internal integrity - sums, quantities, rate transparency, measurement basis, programme, and securities - what recurring failure modes appear, and what do they imply for risk allocation?

RQ3: Can those failure modes be consolidated into a pre-submission control instrument that practice could adopt without additional software or cost?

The paper makes three contributions corresponding to those questions. It documents a six-part (Part A to Part F) tender documentation taxonomy that functioned as a structuring convention in both analysed packages and aligns it with an eight-stage practitioner workflow. It reports a worked-exemplar audit that converts anecdotal concern about "documentation mistakes" into specific, arithmetic, inspectable findings, including the concentration of an entire value variance in one undocumented re-based line and the absence of a measurement rule over nearly half the bill value. And it operationalises those findings into a 12-item Tender Documentation Integrity Checklist (TDIC), derived through a design-science logic (Peppers et al., 2007) and evaluated against the case material. The evaluation is formative in design-science terms: consistent with the deliberately bounded evidence base - one practitioner interview and one worked educational exemplar, neither of them a live professional tender - the paper distinguishes throughout between what the case demonstrates and what is offered as a testable implication for Malaysian interior fit-out practice, and the TDIC is advanced as a proposed instrument for subsequent expert validation rather than as a validated tool.

The sections that follow are organised as follows: a review that positions the tender package within design-management and tender-evaluation literatures and locates the gap; the research design, including an explicit statement of data provenance; findings, first structural then audit; discussion, including the TDIC and its limits; and conclusions with curriculum implications.

LITERATURE REVIEW

The tender package as a coordination object

Construction design management research has long argued that design output is a coordination achievement rather than a drawing output, and that the cost of coordination failure is displaced onto the construction phase (Dainty et al., 2004; Winch, 2002). Latham's (1994) reform agenda treated clear contractual documentation, standard forms and unambiguous responsibility for design information as preconditions for performance, and Egan's (1998) efficiency argument reinforced the same point through the requirement for certainty before work begins (Koskela, 2000, p. 130). (Ivarsson & Tidhar, 2009) made the object explicit in a renovation context, showing that a controlled document process - version status, distribution, and revision discipline - rather than the drawings themselves is what prevents obsolete information from being executed on site. Subsequent work on information management generalised this into the common data environment logic later standardised in (DIN EN ISO 19650-1:2019-08, Organisation und Digitalisierung von Informationen zu Bauwerken und Ingenieurleistungen, einschließlich Bauwerksinformationsmodellierung (BIM) -Informationsmanagement mit BIM_ - Teil_1: Begriffe und Grundsätze (ISO_19650-1:2018); Deutsche Fassung EN_ISO_19650-1:2018, 2019), whose core proposition is that a single validated source of information, with stated status codes and an audit trail, is what makes downstream decisions defensible.

Two implications follow for tender documentation. First, the package should be assessed on traceability between its parts, not on the presence of each part; a complete table of contents is not the same as a coherent information set. Second, integrity failures are systemic properties of assembly practice - who produced which part, when, against which baseline - and are therefore observable in the document itself. Neither implication has been developed for interior fit-out (Evaluating the Effectiveness of Design-Build Project Delivery Method in Commercial Interior Design and Fit-out Projects. A Qualitative Study of New Zealand's AEC Industry, n.d.).

Tender evaluation, eligibility and the Malaysian interior context

Research on tendering in construction has concentrated on evaluation. (Ismail et al., 2020), working with Malaysian private clients, demonstrated that although clients maintain lists of technical and financial criteria, those lists are inconsistently applied and are weakly linked to the project risks they are supposed to price; their remedy was a risk-oriented evaluation system built through analytic hierarchy process group decision-making. This finding matters here because it establishes that the Malaysian tender field is characterised by criteria that are documented but under-linked - a documentation problem expressed as an evaluation problem. The same authors' earlier qualitative work on public tender evaluation reported document falsification detected at the submission stage (Adnan et al., 2012), with lower-graded contractors more exposed to the practice, which underlines that eligibility evidence within the package is an auditable object in its own right and not merely an administrative attachment. The interior fit-out sub-sector has specific features that the general literature does not absorb (Jiang et al., 2024, p. 2458). Its contracts are small relative to the grade of contractor a client's eligibility rules demand; its scope is described through finishes, assemblies and interfaces rather than through structural systems, so quantity rules are borrowed from building works and fit awkwardly; its programmes are compressed into a narrow possession window granted by building management; and its design authority usually sits with an interior practice rather than with the architect of record, which places documentation responsibility with teams that may not hold contract administration training. Interior architecture programmes therefore sit astride a gap: they teach space, materials and detailing, and must also deliver competence in the commercial instruments that make those intentions enforceable.

Cost uncertainty, measurement and the lump-sum problem

The engineering and cost-modelling literature establishes that estimate quality degrades sharply where scope is expressed in lump-sum terms. (Love et al., 2008) documented "incredible budgets" - cost models whose optimism is sustained by the absence of explicit build-up and exclusion statements - and the same mechanism operates at the bill level: a lump-sum line whose definition, inclusions and exclusions are unstated cannot be tested for adequacy, only accepted or rejected. In a measured item, by contrast, an error can be located in a quantity, a rate or an extension, and the correction can be priced. The proportion of a bill carried as lump sum is therefore a direct indicator of how much of the package is insulated from scrutiny - an indicator that, to the authors' knowledge, has not been used in interior fit-out studies. Related work on defects and rework confirms that ambiguity in pre-contract documents reappears as site cost, and that the party best placed to absorb the cost - the party that wrote the document - is rarely the party that ultimately bears it once award and variation mechanics are in motion (Pesek et al., 2019). This gives the integrity audit reported below a normative edge: control at the point of document assembly is cheaper than resolution at the point of claim.

Practice-based pedagogy as a source of evidence

Because this study draws on industry-interview coursework, its evidence is of the type work-based learning scholarship describes: situated engagement with practice that produces tacit, contextual insight, whose academic value depends on being made explicit, structured and checkable (Brennan & Teichler, 2008). The methodological risk is unmanaged: reflection that is descriptive rather than analytical, and artefacts that are presented as observed data when they are student reconstructions. This study addresses the risk by declaring provenance of every artefact, by auditing only what can be arithmetically checked, and by stating clearly where an element is a worked exemplar rather than a live submission.

Gap statement

Three literatures converge but do not intersect. Design-management research explains why document control matters but studies renovation and infrastructure packages, not interior fit-out. Tender-evaluation research in Malaysia explains how bids are judged but treats the package as an input rather than as an object of inspection. Cost-uncertainty research explains why lump-sum scope is fragile but does not connect that fragility to tender-stage documentation control or to the interior sub-sector's grade-eligibility structure. The absence of a validated, low-cost integrity instrument for interior fit-out tender packages is the gap this paper addresses, using practice accounts and a documented exemplar. The instrument proposed here is a first step toward closing that gap; it is derived from those accounts and that exemplar, and it is itself offered for formal validation rather than presented as validated.

RESEARCH METHODOLOGY

Design

A qualitative multi-method case study was adopted, combining (i) a single semi-structured expert interview, (ii) documentary analysis of two project tender packages, and (iii) a purpose-built arithmetic audit protocol. The design follows a design-science logic: a problem is explicated from practitioner accounts, an artefact (taxonomy plus checklist) is built, and the artefact is evaluated by applying it to the case material and testing it against the practitioner's account of what goes wrong in practice (Peppers et al., 2007). This constitutes a formative evaluation of the artefact; definitive validation by multiple practitioners or an independent expert panel lies outside the present study and is specified as future work in Section 5.4.

The choice of a deliberately small design is honest rather than apologetic. The purpose was depth of inspection of a bounded document set, not statistical generalisation; the unit of analysis is the document and the practice account, not the project portfolio. Inferential claims are consequently framed as patterns and failure modes, and generalisability is treated as analytical rather than statistical.

Data sources, provenance and integrity of artefacts

Three sources were used, and their epistemic status is declared in Table 1 because this determines what can and cannot be claimed.

Table 1. Data provenance and the evidentiary status assigned to each source

SOURCE	NATURE	STATUS IN ANALYSIS
Semi-structured interview with an interior designer at a Kuala Lumpur architecture and interior design consultancy (firm established 1996; approximately 40 staff, recorded 18 April 2026	Primary empirical account of tendering as practised: stages, document types, cost estimation, tools, challenges, success factors	Treated as evidence of practice at that firm; single-informant limitation declared
Tender advertisement, Form of Tender and package contents for a real public refurbishment tender, Tender No. SSM 15/2022, Level 18, 22 and 23, Menara SSM@Sentral, Companies Commission of Malaysia	Public invitation, eligibility requirements and package instructions	Treated as evidence of client-side documentation requirements
Assembled Part A–F package for the same project, including bill of quantities (9 lines, subtotal RM190,000.00) and pricing schedule (9 lines, contract sum RM202,000.00), payment terms, validity, bond, insurance and consultant-side submission; and consultant-side structure for a second project reference, EP16 Interior Design Consultancy Services, Office 3 Building and Manufacturing Support Building, Kulim (IFX KLM 3)	Structured educational reconstruction built on the real advertisement and on firm templates, prepared for an interior contract management exercise.	Treated as a worked exemplar: audited for internal consistency; not represented as a live submitted tender

This distinction is central to the paper's integrity. The audit in Section 4.3 is therefore not a claim that a professional practice produced an erroneous tender; it is a test of what happens when a competent, template-driven assembly of a realistic package is subjected to integrity control. That is-on the practitioner's account and the surrounding literature the condition under which many small interior firms operate; the pattern the audit exposes is therefore informative as a testable proposition about the sub-sector, although its frequency across Malaysian practice cannot be established from this single exemplar. Where the exemplar reproduces requirements that are verifiable from the public advertisement - grade, category, specialisation, closing rules, briefing mode - those statements are treated as observed client requirements.

The provenance declaration also requires explicit treatment of a temporal displacement. The client-side tender documents date from the 2022 advertisement, whereas the practice account was recorded on 18 April 2026, and the educational reconstruction was assembled in 2026 on that 2022 advertisement. The four-year interval is handled analytically in three ways. First, time-stable elements - the statutory eligibility regime under Act 520, the part-based assembly convention and the completeness logic of submission - are treated as comparable across the interval, because nothing in the practitioner's 2026 account suggests institutional change in these respects; the 2026 account is used to interpret the 2022 requirements only for such elements. Second, time-varying elements - rates, market prices, supplier quotations, and software versions - are not compared across the interval: no claim is made that the audited figures represent 2026 pricing conditions, and the audit tests internal consistency within the document set rather than currency against any market. Third, the reconstruction is itself dated evidence: it shows how a 2026 team, informed by a 2026 practice account, assembles a package against 2022 client requirements, which is precisely the assembly condition the audit is designed to examine. Accordingly, where the discussion refers to current practice it relies on the 2026 interview, and where it refers to the audited documents it is explicitly dated to the 2022 tender cycle. No longitudinal comparison of documentation practice across the four years was possible within this design; the displacement is registered as a limitation in Section 5.4.

Interview instrument and analysis

The interview protocol was organised around eight domains consistent with the course brief: experience of the tender process; main stages; document types prepared; technical proposal preparation; cost estimation method; software and tools; challenges; and factors of success. Interviews were conducted in a single session of approximately one hour. The recording was transcribed and analysed using reflexive thematic analysis (Braun & Clarke, 2006). Codes were not pre-assigned beyond the domain list, and no code was retained unless it was supported by more than one extract. Coding proceeded through the six phases of reflexive thematic analysis: familiarisation with the data through repeated listening and verbatim transcription; systematic initial coding of the full transcript, using the eight interview domains as an organising frame while allowing codes to emerge outside them; iterative consolidation of codes into candidate themes, with a codebook recording each code's definition, inclusion criteria and supporting extracts; review of the candidate themes against the coded extracts and the entire data set, with themes merged or discarded where no coherent pattern was sustained; definition and naming of the eight themes reported in Table 2; and production of the analysis. The initial coding was performed by the first author and independently reviewed by two co-authors who had not conducted the interview; divergent readings were resolved through discussion until consensus was reached, and each resolution was recorded in the audit trail. Consistent with the reflexive orientation of the method (Braun & Clarke, 2021), coder agreement is reported as documented interpretive consensus, supported by the member check described in Section 3.5, rather than as a quantitative inter-rater reliability statistic; the coded extract set underpinning each theme is retained and available from the authors on request.

Table 2. Themes derived from the practitioner account, with the documentation control each theme implies

Theme		Content reported	Implied control object
T1	Gatekeeping before commitment	Bid participation decided only after review of requirements, specifications, and deadline.	Bid/no-bid record with reason and deadline feasibility
T2	Sequential assembly	Invitation → review → document preparation → submission → evaluation → award → pre-execution	Stage-gate sign-off, dated
T3	Document completeness as evaluative currency	Drawings, specifications, BOQ, schedule, profile, plus client-specific extras; incompleteness reduces chance of selection	Contents index cross-checked line by line against instructions.
T4	Technical proposal as comprehension evidence	Proposal must show method, materials, sequence and capability	Narrative-to-BOQ and narrative-to-programme cross-reference
T5	Cost estimation from externalised sources	Supplier and subcontractor quotations, historic project records, market prices, contingency	Dated rate sources and contingency basis
T6	Digital toolchain	AutoCAD for drawings, Excel for costing and quantities, e-mail and cloud storage for distribution	Version and issue control across disconnected tools
T7	Time and volatility pressure	Short preparation windows, price and supplier movement, requirement changes	Validity-period and price-basis treatment
T8	Success attributed to accuracy and coordination	Understanding of client requirements, compliance, attention to detail, communication	Traceability and query/clarification log

Audit protocol

Six integrity tests were defined a priori and applied to the exemplar package. Only arithmetic, presence/absence, and cross-reference checks were performed, so the audit is reproducible by a third party from the same file set.

Table 3. Integrity tests, operational definitions and evidential rule

Test	Definition	Rule applied
A. Sum reconciliation	Every subtotal appearing in one financial schedule must be reconcilable to the corresponding subtotal in every other	Compare line-by-line; attribute 100% of variance to named lines
B. Quantity arithmetic	Quantity $\times$ rate must equal the stated extension, and extensions must sum to the stated subtotal	Recompute all lines
C. Rate transparency	Each rate must declare its basis (source, date, build-up)	Present/absent
D. Measurement basis	Each bill line must be either measured with a rule or declared lump sum with inclusions and exclusions	Classify each line, then value-weight
E. Programme baseline	One clock must govern: pre-contract and contract stages must be distinguished and totalled	Recompute stage durations against Time for Completion
F. Security symmetry	Securities and retentions imposed on the contractor must be matched by equivalent protection and stated terms	Compare bond, retention, validity, LAD, insurance

Trustworthiness and ethics

Credibility was pursued through triangulation of three independent evidence types (account, public requirement, document set), through a member check in which the thematic summary was returned for confirmation, and through a maintainable audit trail in which every audit finding cites the file element tested. Dependability was supported by the a priori protocol in Table 3 and by the documented coder-consensus procedure described in Section 3.3, and confirmability by the restriction to arithmetic and presence/absence tests. Transferability is limited by design and is bounded to public-sector-invited interior refurbishment packages in Malaysia prepared by small design-led firms. Ethical approval was sought from the institution's research ethics process; as the data are coursework-derived, they are covered by course-level data collection permission. The named practitioner consented to being identified in the original coursework; for journal publication, the authors recommend, and this manuscript applies, anonymisation of the individual and of the client-side internal materials, on the ground that tender information about an identifiable statutory body could carry confidentiality obligations. Firm-level information is retained only where it is publicly registered and non-sensitive. No client-confidential annexes, pricing of real competitors, or unpublished drawings are reproduced.

Table 4. Trustworthiness strategy

CRITERION	STRATEGY	EVIDENCE IN THIS PAPER
Credibility	Triangulation; member check	Three evidence types; Table 2 themes
Dependability	A priori audit protocol	Table 3
Confirmability	Arithmetic-only tests; reproducible recomputation	Tables 5 and 6

Transferability	Bounded context declaration	Section 3.5; limitations Section 5.4
Coder consensus	Independent review of the coding by two co-authors; divergences resolved through discussion to consensus; audit trail of codes, themes and resolutions	Section 3.3; audit trail

FINDINGS

The eight-stage workflow and its documentation load

The practitioner account describes a linear sequence with two gates: the decision to bid and the completeness check before submission. Rendering the account together with the client-side requirements from the public advertisement gives an eight-stage model, each stage carrying a specific documentary obligation.

STAGE 1, invitation and eligibility screening, requires the tender number, closing date, briefing arrangements, and the CIDB and company registration status. The analysed advertisement specified registration with CIDB at Grade G6 under Category B (Building), with a specialisation in B04 Building Construction Works, B07 Interior Decoration Works or B28 Renovation Works, and registration with the Companies Commission of Malaysia; the briefing was conducted virtually through Microsoft Teams, and attendance was stated as optional. **STAGE 2**, internal bid/no-bid review (T1), is where requirements, specifications, and deadline are read against capacity, and it is documented in practice by nothing at all - no artefact was present in the package. **STAGE 3**, scope and site familiarisation, is discharged through the site inspection expectation placed on the contractor and, in the consultant-side package, through a named first stage. **STAGE 4**, technical documentation, produces drawings, specification sections and the scope-of-work description. **STAGE 5**, commercial assembly, produces the bill of quantities, the pricing schedule, the rate build-up and the quotations. **STAGE 6**, submission and completeness verification, produces the Form of Tender and its annexures. **STAGE 7**, evaluation and clarification, is where addenda and query responses attach to the contract documents. **STAGE 8**, award and pre-execution mobilisation, converts the accepted package into the contract baseline. The structural observation, within the two packages analysed, is that documentation obligations accumulate monotonically across stages, whereas verification obligations do not: only stages 6 and 7 showed any evidence of a controlled check, and the check at stage 6 was a contents list, not an integrity test.

A shared Part A–F taxonomy across two procurement positions

Both analysed packages - a contractor-side submission for the government high-rise refurbishment and a consultant-side interior design consultancy package for an industrial office and support-building project in Kulim - were organised under the same six-part schema.

Table 5. The Part A–F taxonomy as instantiated in the two analysed packages

PART		CONTENTS (CONTRACTOR-SIDE EXEMPLAR)	CONTENTS (CONSULTANT-SIDE EXEMPLAR)	FUNCTION IN AWARD
A	Tender invitation documents	Advertisement, instructions, eligibility conditions, briefing notice, closing rule	Invitation to tender, scope of consultancy, submission instructions	Defines admissibility
B	Project information	Background, client, location, objectives, scope of works, method of implementation	Project brief, existing condition information, operational constraints	Defines scope boundary

C	Technical requirements	General compliance, site management, demolition and hacking, partitions, ceilings, floor and wall finishes, joinery, M&E coordination, lighting, materials, workmanship, testing and commissioning, OSH, handover	Design approach, methodology stages, material and finishes proposals, quality control, safety	Defines performance
D	Commercial documents	Bill of quantities, cost estimation basis, pricing schedule, payment terms, validity 90 days, performance bond 5%, LAD, insurance, contract conditions, DLP, evaluation criteria	Fee basis, staffing schedule, programme of deliverables	Defines money and risk
E	Submission documents	Form of Tender, articles of agreement, conditions of contract, addenda, drawings, specifications, BQ, supporting certificates	Technical proposal, project understanding, methodology, team organisation, work programme, experience	Defines the offer
F	Supporting documents	Registration certificates, company profile, financial statements, project experience, samples, product data, warranty, safety documents, meeting records	Portfolios, references, certifications	Defines capability (Laryea, 2011, p. 279)

Three properties of the taxonomy are worth naming. It is position-independent, appearing in the same order under both a build-only offer and a consultancy offer, which suggests it functions as a received convention rather than as a contractual requirement. It is additive rather than integrative, in that each part is assembled as a discrete deliverable with no cross-part reference keys. And it is completeness-oriented, since its internal logic is "does the required item exist" rather than "does item X in Part C match item X in Part D". The last property is the origin of the failure modes in Section 4.3, and it is consistent with theme T3, in which the practitioner described incompleteness as an evaluative liability: the incentive structure rewards presenting a complete-looking package. These properties are demonstrated in the two analysed packages; whether they generalise across Malaysian interior fit-out practice is a testable proposition that the present single-case design cannot settle.

The integrity audit of the worked exemplar

All six tests were applied. Results are reported without correction to the exemplar, so the arithmetic can be checked.

Table 6. Audit results

Test		Result	Magnitude
A.	Sum reconciliation	Fail	RM12,000.00 variance between bill subtotal RM190,000.00 and pricing schedule total RM202,000.00
B.	Quantity arithmetic	Pass	All four measured extensions correct; subtotal recomputed to RM190,000.00
C.	Rate transparency	Fail	No rate source, date, or build-up declared on any line
D.	Measurement basis	Partial	5 of 9 lines lump sum, representing RM88,500.00 or 46.6% of bill value

E.	Programme baseline	Ambiguous	Pre-contract 7 weeks plus construction 10–12 weeks = 17–19 weeks against Time for Completion of 19 weeks (133 days)
F.	Security symmetry	Partial	Bond 5% (RM10,100.00), validity 90 days, LAD rate unquantified, no retention stated, insurance required

Finding 4.3.1 - the variance is not distributed; it is concentrated.

The bill of quantities and the pricing schedule share eight of nine lines at identical values (RM12,000.00; RM30,000.00; RM28,500.00; RM34,000.00; RM9,000.00; RM45,000.00; RM20,000.00; RM3,500.00). The entire RM12,000.00 difference arises from one line: preliminaries appear at RM8,000.00 in the bill and at RM20,000.00 in the pricing schedule. Thus, 100% of the variance, equal to 6.32% of the bill subtotal and 5.94% of the contract sum, is attributable to a single re-based line. In a package of nine lines, this could be resolved by a single sentence of explanation; the failure is not the existence of the difference but the absence of a reconciliation statement that would allow an evaluator to know which figure is authoritative. This is the audit's central structural insight: integrity control does not require preventing differences between schedules; it requires declaring them.

Finding 4.3.2 - measured lines are arithmetically sound, which isolates the problem.

Every quantity-based line verified correctly ($250 \text{ m}^2 \times \text{RM}120.00 = \text{RM}30,000.00$; $300 \text{ m}^2 \times \text{RM}95.00 = \text{RM}28,500.00$; $400 \text{ m}^2 \times \text{RM}85.00 = \text{RM}34,000.00$; $500 \text{ m}^2 \times \text{RM}18.00 = \text{RM}9,000.00$). The bill is therefore not sloppy; it is precise where it is measured and silent where it is not. The consequence is that error, when it appears, will appear in the lump-sum domain, which is exactly the domain least amenable to correction by measurement.

Finding 4.3.3 - nearly half the value is unmeasurable.

Five of nine lines are carried as lump sum - preliminaries, demolition and removal, joinery and built-in furniture, lighting and electrical coordination, cleaning and handover - totalling RM88,500.00, or 46.6% of bill value and 43.8% of the contract sum. No inclusion or exclusion statement accompanies these lines. The practical consequence at contract level is a valuation problem: if a scope addition or omission touches demolition, joinery or M&E coordination, there is no rule by which the value of the change can be derived from the contract, so the change is negotiated rather than measured, and the leverage shifts to whoever holds the programme. Joinery and built-in furniture alone, at RM45,000.00, is 23.7% of the bill subtotal and 22.3% of the contract sum carried as a single undifferentiated lump.

Finding 4.3.4 - rates are asserted without provenance.

No line declares whether the rate came from a dated supplier quotation, a subcontractor offer, historic internal records, or a published schedule. This is a governance gap rather than a costing error, and it interacts directly with the practitioner's account of how estimates are built (theme T5): quotations from suppliers and subcontractors, previous project records, and current market prices. The method described in the interview is legitimate and normal; what the package omits is any record of it, so a reviewer cannot distinguish a fresh quotation from a three-year-old internal rate. In a small package that ambiguity is affordable; in an inflationary material market it is the mechanism by which an underbid is created.

Finding 4.3.5 - the programme contains two clocks and says so nowhere.

The consultant-side programme allocates 1 week to site inspection and briefing, 2 weeks to design development, 2 weeks to tender documentation, 1 week to tender evaluation and 1 week to final inspection and handover, with construction of 10 to 12 weeks, totalling 17 to 19 weeks. The contractor-side Form of Tender states a Time for Completion of 19 weeks (133 days), which on its face is a construction period. Read together, the documents do not state whether pre-contract activity sits inside or outside the contractual clock; at the upper bound of the programme, the two readings are mutually incompatible and leave no float. Because liquidated and ascertained

damages are asserted without a rate, the exposure created by that ambiguity cannot be quantified from the package.

Finding 4.3.6 - securities run one way.

The successful contractor is required to provide a performance bond at approximately 5% of the contract sum - RM10,100.00 on RM202,000.00 - to hold the tender open for 90 days without adjustment, and to carry three insurance covers, while the client's obligations are expressed as payment stages of 10%, 25%, 25%, 25% and 15% against certified progress, with 85% of the contract sum released before completion of final account. No retention is specified anywhere in the package, notwithstanding a defect liability obligation on the contractor. The 90-day validity requirement is a further asymmetry: it transfers the risk of material price movement during the evaluation period to the bidder, while no price adjustment provision appears. Theme T7 - price and supplier volatility during preparation - is therefore not merely an inconvenience reported by the practitioner; it is a contractual exposure created by the interaction of validity length, unquoted rate bases and absent adjustment mechanisms.

Finding 4.3.7 - supervision intent is not reconciled with the preliminary's envelope.

The consultant-side package proposes a six-role team (project director, interior designer, project architect, site supervisor, quantity surveyor, M&E coordinator) for a 19-week construction period. The bill allows RM8,000.00 for preliminaries, or RM421.05 per week for the entire site operation, and the pricing schedule allows RM20,000.00, or RM1,052.63 per week. Whatever the true number, the two schedules disagree about it, and neither states what the preliminaries include. A capacity–cost coherence check of this kind is absent from standard tender-stage review and is exactly the type of check that a pre-submission checklist could enforce.

Finding 4.3.8 - the eligibility gate admits non-interior competence.

The advertisement accepts B04 Building Construction Works, B07 Interior Decoration Works or B28 Renovation Works. A tenderer may therefore satisfy the specialisation condition holding no interior-specific registration at all, while the grade requirement (G6) is calibrated to substantial building capacity. For a RM202,000.00 fit-out at high level in an occupied tower, the gate is simultaneously too permissive on discipline and potentially exclusionary of smaller specialist fit-out contractors. This is a client-side documentation finding rather than a contractor error, and it is the one finding the students could not have produced from an internal review - which is why external audit of public packages is a useful pedagogical and research device.

Consolidated failure modes

Reducing the eight findings to their mechanism yields five failure modes, each of which is, in principle, independently observable in any package. The present study demonstrates all five within one worked exemplar, and their recurrence across projects and organisations is a proposition for multi-case testing rather than an established frequency. F1, unreconciled parallel schedules: two documents that express the same money and are never cross-footed. F2, unbounded lump-sum scope: value without measurement rules. F3, undeclared rate basis: cost without provenance. F4, plural baselines: programme and preliminaries that assume different clocks and different contents. F5, asymmetric security: obligations on the bidder without matching stated protection. Notably, all five are properties of assembly practice in the exemplar audited, not of competence - none required ignorance of construction to occur; all were permitted by the absence of a cross-document control step.

DISCUSSION

What the findings mean for the tender package literature

The audit reframes a familiar complaint - "documentation mistakes" - as a governance property. A Part A–F taxonomy answers "is everything here"; it does not answer, "do the parts agree". This is why the literature on design management, which emphasises information status and revision control (Integrating Document Control in Design Drawings, n.d.; Islam et al., 2025), and the logic of the common data environment (Godager et al.,

2022, p. 1079; Jaskula et al., 2023, p. 1) are necessary correctives to a completeness model: both treat validity and traceability as attributes of information, not as attributes of filing. The interior fit-out context sharpens the point because of the toolchain described in the interview (theme T6): drawings in AutoCAD, costs in Excel, distribution through e-mail and cloud folders. That toolchain is entirely ordinary in the sub-sector (Alreshidi et al., 2016, p. 18), and it has no mechanism for propagating a change in one file into another (Ren et al., 2012, p. 644). The variance in Finding 4.3.1 is precisely the artefact of two spreadsheets, one of which was edited and the other not.

The failure modes were operationalized into a twelve-item pre-submission control list. Each item is testable by one person in under a minute, requires no software, and is written so that a non-completion is visible to a reviewer as a blank field rather than as a silent pass.

Table 7. Tender Documentation Integrity Checklist, with origin and test

N O	CONTROL ITEM	FAILURE MODE ADDRESSED	TEST APPLIED BEFORE SUBMISSION
1	Cross-schedule reconciliation statement: one page listing every subtotal in every schedule with the reason for any difference	F1	Recompute; each difference has a stated reason
2	Single authoritative sum, named, quoted identically in Form of Tender, pricing schedule, and bill cover	F1	Text match across three locations
3	Extension and subtotal re-verified by a second person, initially and dated.	F1	Witness signature on bill
4	Measurement basis declared per line: method of measurement, or lump sum with inclusions and exclusions.	F2	Every line carries one of the two
5	Lump-sum value share computed and reported; if above 30% of bill, an item-by-item narrative is required.	F2	Percentage stated on bill cover
6	Rate source register: for each rate, source, provider, document reference and date	F3	Register covers 100% of lines
7	Price basis and validity interlock: validity length, price date, and escalation or re-confirmation trigger stated together	F3, F5	One paragraph, no blanks
8	Single programme baseline: pre-contract and contract stages separated; float declared; commencement trigger defined	F4	One Gantt; totals reconcile to Time for Completion
9	Preliminaries build-up reconciled to the proposed team, attendance and duration	F4	Cost per week versus role list
10	Security symmetry sheet: bond, retention, liquidated damages rate, insurance, defect liability with values, not cross-references	F5	Each field numeric or explicitly "not applicable"
11	Addenda and query register, listing every clarification issued and where it was absorbed in the documents	F1, F4	Register closed before submission
12	Interface matrix: interior element against service system, with responsible party and drawing reference	F2, F4	Covers ceilings, partitions, joinery, finishes

Items 1–3 address the money, 4–5 the measurement, 6–7 the cost basis, 8–9 the programme and capacity, 10 the risk allocation, and 11–12 the coordination record. Two design decisions are worth stating. First, the checklist is deliberately indifferent to whether the documents agree in a favourable direction; it only requires that differences be explained, because a justified difference is a control matter while an unexplained one is a dispute. Second, item 5 converts an observed quantity - the 46.6% lump-sum share found here - into a trigger rather than a verdict, so that a firm with a legitimate lump-sum strategy is not penalised but is required to narrate it. The TDIC is presented at its formative evaluation stage in the design-science sense: its content derives from failure modes demonstrated in one worked exemplar and one practice account, and the thematic inputs were member-checked by the practitioner informant, but the instrument has not yet been subjected to multi-practitioner review, independent expert assessment, pilot application or a Delphi process. It is therefore offered as a proposed instrument, and it should not be described as validated until the pathway specified in Section 5.4 - two rounds of expert review or a Delphi panel with content validity indices, followed by pilot application in live pre-submission use - has been completed.

Contribution to knowledge, stated without inflation

Three claims are supported by this study and should be made plainly. (i) The Part A–F structure is a cross-position convention in the analysed interior practice packages, and it is completeness-logic rather than agreement-logic. (ii) When a realistic interior fit-out package is audited with six simple tests, defects concentrate predictably - entirely in one line for value reconciliation, entirely in the unmeasured half for scope basis - and one test (lump-sum value share) quantifies exposure in a way that the sub-sector has not conventionally reported. (iii) Those concentrations are addressable by a twelve-item instrument that fits inside existing workflow, which is what makes the finding actionable for firms without contract administration departments. No claim is made here about frequency across the industry, about win rates, or about financial outcomes. The failure modes are demonstrated in one worked exemplar and one practice account; their status for the wider Malaysian sub-sector is that of testable propositions, and the TDIC is a proposed instrument pending the validation pathway set out in Section 5.4.

Limitations, and the specific work needed to reach a Q1 general-standard submission

This study carries limitations that follow directly from its design rather than from its writing, and they must be read as instructions for extension. First, a single informant establishes plausibility but not variation; the theme set in Table 2 cannot be distinguished from one firm's habits. Second, the audited package is a worked exemplar, so the audit demonstrates what an uncontrolled assembly permits, not the error rate of professional practice; establishing that rate requires a study of real packages held with permission. Third, the project documents date from a 2022 tender while the practice account dates from 2026; Section 3.2 sets out how the displacement is handled analytically, but no longitudinal comparison of documentation practice across the interval was possible within this design. Fourth, no client-side evaluator was interviewed, so the finding that incompleteness and inconsistency affect scoring rests on the practitioner's account and on the advertisement's wording, not on observed scoring.

To extend the study to a generalisable, multi-case evidence base, four additions are necessary: (a) 8 to 12 interior and fit-out firms with at least two informants each - a design or commercial lead plus a quantity surveying or contracts lead - so that themes can be compared rather than reported; (b) 15 to 20 real tender packages with owner consent, scored against the six integrity tests, producing failure-mode frequencies that can be compared across projects and organisations and, if possible, correlation with post-award query and variation counts; (c) formal validation of the TDIC by two rounds of expert review or a Delphi panel, with content validity indices, followed by pilot application in live pre-submission use across the participating firms, before the instrument is offered as validated; and (d) methodological instrumentation - inter-coder agreement statistics, a documented protocol, and institutional ethics approval with signed consent and data-management statements. Absent (a) to (d), the honest designation of this study is an exploratory, practice-informed case study with an instrument proposal, which is what this paper claims.

CONCLUSION

Interior fit-out tender documentation is assembled well and checked poorly (Laryea, 2011, p. 277). The evidence assembled here shows a mature, position-independent six-part structure (Parts A to F) that the two packages analysed produces a complete-looking package, and simultaneously shows that completeness is not integrity: a RM12,000.00 difference between two schedules was concentrated in a single re-based preliminaries line with no explanation, 46.6% of bill value was carried as unbounded lump sum, rate provenance was undeclared, two programme clocks were left unreconciled against a 19-week completion obligation, and contractor-side securities were imposed without matching retention or liquidated-damages terms. None of this required incompetence; all were permitted in the audited exemplar by the absence of a cross-document control step. The paper converts that diagnosis into a twelve-item pre-submission checklist whose only requirement is that every difference be declared, and whose items are testable by one person with a calculator inside existing workflow.

For the sub-sector, the implication is that the cheapest available protection in interior contract management is not a new form of contract but a reconciliation discipline attached to the forms already in use, and that this discipline should be owned by a named second checker rather than by the author of the schedules. For interior architecture education, the implication is sharper still: the exercise that generated this material was not valuable because students learned what a bill of quantities contains - a fact any template supplies - but because the arithmetic exposed disagreements that no template warns about. Teaching document integrity as a testable skill, with failure modes quantified rather than decried, is the curriculum contribution this study recommends.

Two boundaries on these conclusions must be restated. The evidence base is a single practitioner interview and a worked educational exemplar; the paper therefore demonstrates the mechanics of documentation failure in one bounded case and does not establish how frequently such failures occur across Malaysian interior fit-out practice. The TDIC is accordingly a proposed control instrument whose content validity remains to be established through expert review, pilot application, or a Delphi process spanning multiple firms and practitioners. The contribution of this paper is an inspectable diagnosis, a transferable taxonomy, a proposed instrument, and a specified pathway of validation and extension - the last being the necessary next step before any of these findings can be treated as a settled property of the industry.

REFERENCES

1. Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101.
2. Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis. *Qualitative Research in Psychology*, 18(3), 328–352. <https://doi.org/10.1080/14780887.2020.1769238>
3. Companies Commission of Malaysia. (2022). Tender No. SSM 15/2022: Proposed renovation works for the SSM Call Centre and office spaces at Level 18, 22 and 23, Menara SSM@Sentral, Kuala Lumpur Sentral [Tender advertisement and instructions]. SSM Procurement Unit.
4. Dainty, A. R. J., Brady, T., & English, A. (2004). *Route book to best practice: Improving construction design management* (2nd ed.). School of Construction Management and Engineering, University of Reading.
5. Egan, J. (1998). *Rethinking construction: Report of the Construction Task Force*. Department of the Environment, Transport and the Regions, United Kingdom.
6. Gibbs, J. L., Gherardi, A., Linkerman, L., & Love, C. P. (1992). Construction productivity: The overlooked design factor. *Building Research & Information*, 20(3), 175–181.
7. Hevner, A. R., March, S. T., Park, J., & Ram, S. (2004). Design science in information systems research. *MIS Quarterly*, 28(1), 75–105.
8. International Organization for Standardization. (2018). ISO 19650-1:2018 Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) - Information management using building information modelling - Part 1: Concepts and principles.

9. Ismail, M. R., Sun, M., & Bowles, G. (2021). A risk-oriented tender evaluation system for construction projects in Malaysia. *Engineering, Construction and Architectural Management*, 28(7), 1887–1907. <https://doi.org/10.1108/ECAM-06-2018-0225>
10. Ivarsson, J., & Tidhar, O. (2009). Design and document control process for construction renovation. *Automation in Construction*, 18(2), 206–216.
11. Latham, M. (1994). *Constructing the team: Report of the Joint Working Party on the Co-ordination and Facilitation of Project and Business Management in the Construction Industry*. HMSO, United Kingdom.
12. Lembaga Pembangunan Industri Pembinaan Malaysia (CIDB). (1994). Act 520: Lembaga Pembangunan Industri Pembinaan Malaysia Act 1994. Percetakan Nasional Malaysia Berhad.
13. Lembaga Pembangunan Industri Pembinaan Malaysia (CIDB). (2022). CIDB standard form of contract for building works (2022 edition), with standard proforma for contract administration. <https://www.cidb.gov.my/>
14. Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.
15. Loosemore, M., Dainty, A. R. J., & Munton, R. (2006). *Managing performance in construction* (2nd ed.). Spon Press.
16. Love, P. E. D., Li, H., Simpson, I., Irani, Z., & Soar, J. (2008). Incredible budgets: Unreal cost estimating construction practices. *Engineering, Construction and Architectural Management*, 15(3), 229–240.
17. Peffers, K., Tuunanen, T., Rothenberger, M. A., & Chatterjee, S. (2007). A design science research methodology for information systems research. *Journal of Management Information Systems*, 24(3), 45–77.
18. Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach* (7th ed.). Wiley.
19. Tatum, C. B., Williams, C. L., & Van Epps, J. S. (1986). *Working better together in design and construction*. Construction Industry Institute, University of Texas at Austin.
20. Winch, G. M. (2010). *Managing construction projects: An integrated approach* (2nd ed.). Wiley-Blackwell.