

GS1 Australia

Draft Survey Response

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National Voluntary Certification Scheme for Manufacturers of Prefabricated Construction?

A contribution to the Australian Building Codes Board consultation on the National Voluntary Certification Scheme for Manufacturers of Prefabricated Construction

Prepared by Peter Carter

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About this survey response.

This submission is offered to inform the ABCB's consultation on the National Voluntary Certification Scheme for Manufacturers of Prefabricated Construction.

GS1 Australia is a neutral, not-for-profit supply chain standards organisation; we do not seek to redesign building regulation, certification or inspection practice, nor to advance a single-vendor or single-standard agenda.

Our contribution is confined to areas where global supply chain standards expertise can add value: data quality; identification of products, parties and locations; source-generated commercial data; interoperability; verifiable evidence and credentials; trusted, discoverable data reuse; supply chain visibility; and international standards alignment.

Where questions are operational, prefabricated construction manufacturers, building surveyors and certifiers, certification bodies, builders, developers and the industry associations are better placed to answer, and we say so - those questions are left unanswered, and the reason is recorded.

Questions are reproduced verbatim from the ABCB consultation survey. A companion GS1 Member and industry partner discussion paper, *What Does Assurance Look Like When the Building Is Made in a Factory?*, is published alongside this response at <https://www.gs1au.org/government-and-public-policy>

For further information, please contact

Peter Carter GS1 Australian General Manager Public Policy and Government Engagement	Bonnie Ryan GS1 Australia General Manager - Industry Engagement	Tony Repaci GS1 Australia Director - Freight, Rail & Construction
Peter.carter@gs1au.org	Bonnie.Ryan@gs1au.org	Tony.Repaci@gs1au.org

Summary of position

- GS1 Australia supports the Scheme and the shift from point-in-time site inspection to systems-based assurance for factory-completed work.
- The draft Economic Analysis already identifies alignment with GS1 standards as the “**preferred interoperable pathway**” for traceability (§4.4.3). The draft Scheme Rules do not reflect that finding, and we recommend they be amended to do so.
- Our substantive recommendations are confined to four provisions: **Rule 2.5.11** (traceability), **Rule 2.5.15** (Manufacturer Declaration of Conformity), **Rule 2.5.5(a)(4)** (recall) and **Table 10** of the draft Economic Analysis (traceability costs).
- We identify one inconsistency between the consultation documents and one classification issue in the cost analysis, both set out with citations at Questions 29 and 31.
- We express no view on whether the Scheme should be voluntary or mandatory, on practitioner licensing, insurability, fee levels or surveillance frequency.

General information

Name	Peter Carter
Email address	[to be completed]
Which state or territory are you from?	[to be completed]
Are you completing this submission on behalf of an organisation or as an individual?	Organisation
Organisation name	GS1 Australia
Publication preference	Not confidential - my submission and name can be published on the ABCB website
Would you like to receive email updates about this project?	Yes

Consultation survey questions

Where questions are not relevant to GS1 Australia we leave the question blank.

About you

1. Which of the following best describes who you represent:

Prefabricated Construction manufacturer / Prefabricated Construction supplier (does not own or operate a manufacturing facility) / Building product manufacturer and/or supplier / Peak body - industry association / Research organisation - academia / Building Surveyor or Certifier / Certification Body / Government agency / Architectural practice / Individual / Other (please specify)

Response: Other (please specify) - *Global not-for-profit supply chain standards organisation.*

GS1 Australia is the local member organisation of GS1, a neutral, not-for-profit, user-governed standards body operating in more than 100 countries. We develop and maintain standards for the identification of products, parties and locations and for the exchange of supply chain data. We do not sell traceability systems, software or certification services, and we hold no commercial position in the outcome of this Scheme.

Definition of Prefabricated Construction

2. The following definition has been developed for inclusion in a future revision of the National Construction Code (NCC). “A method of construction in which a building, in whole or in part, is made in a location separate from the site of installation”. Does the proposed definition of Prefabricated Construction appropriately reflect current industry practice? Yes / No

Response: Yes

Feedback on its clarity, scope and applicability.

The definition is clear, broad and technology-neutral, and we support it. It should accommodate current and emerging methods without privileging particular approaches, which is the right outcome.

We offer one observation relevant to our area of expertise. The phrase “in whole or in part” spans a very wide range of physical objects, and the Scheme’s five categories reflect that: Categories 1 and 2 describe buildings or major building elements, while Category 5 describes engineered products such as cross-laminated timber, laminated veneer lumber and insulated concrete formwork, which are supplied into buildings and which in many cases already carry established product identification.

These are different things for the purposes of identification, declaration and traceability. A whole volumetric module, a wall panel within it and an engineered product within that panel sit in a parent-child relationship, and that relationship is what allows an affected component to be located inside a completed building.

The definition itself does not need to resolve this. But the Scheme Rules should be explicit about the level at which identification applies and at which a Manufacturer Declaration of Conformity is issued. Rule 2.5.15(a) currently requires “a single Manufacturer Declaration of Conformity for each Prefabricated Building or Components manufactured”, which reads ambiguously as between the building and its components.

Participation in the Scheme

4. If you are a manufacturer or a Certification Body, would you consider participating in the Scheme under the proposed rules? Yes / No / Unsure

No response. GS1 Australia is neither a prefabricated construction manufacturer nor a Certification Body.

5. To what extent do you consider the proposed requirements to Certified Manufacturers and Certification Bodies to be proportionate to the objectives of the Scheme and practical to comply with?

We comment only on the traceability requirements at Rule 2.5.11 and the Manufacturer Declaration of Conformity requirements at Rule 2.5.15. Manufacturers and certification bodies are better placed to assess the balance of the requirements.

In intent, these provisions are proportionate. Rule 2.5.11 asks for outcomes rather than prescribing systems, which respects the diversity of the sector.

In practice, we think there is a difficulty. The outcome required by Rule 2.5.11(a)(1) is explicitly *external* traceability - records accessible and verifiable “along the length of the supply chain, including at the point of installation and handover”. That is an outcome a manufacturer cannot verify alone, because whether it is achieved depends on whether other organisations can interpret the manufacturer’s data.

A manufacturer acting in good faith can therefore implement a traceability solution that satisfies their certification body, records everything the Rule lists, and still fails the stated outcome at handover, because a building surveyor holding the declaration cannot resolve the identifier to anything. The

requirement is proportionate; the means of demonstrating compliance with it is not currently determinate.

The draft Economic Analysis reaches the same conclusion from the other direction, listing as a dependency that “*interoperability depends on alignment with recognised standards. Inconsistent standards adoption could lead to fragmented or siloed data systems*” (§4.4.4.3).

6. Are the roles and responsibilities of Scheme participants clearly defined and appropriately allocated? Yes / No / Unsure

Response: Unsure

If not, please identify any areas of ambiguity and suggest how they could be clarified.

The allocation of roles between the Scheme Owner, Scheme Administrator, Accreditation Body, Certification Bodies, Design Assessment Bodies and Certified Manufacturers is clearly drawn, and we do not comment on it.

One area appears to us to be under-specified. Rule 2.2.5 requires the Scheme Administrator to establish and maintain public registers of certified manufacturers and factory locations, certification status, scope, conditions and limitations, and a register of Design Approval Certificates that is accurate, current and regularly updated. These are substantial data governance functions - register integrity, identifier allocation, currency, and the ability of third parties to resolve a certificate or declaration to an authoritative record.

The Rules describe these as administrative tasks rather than as a data governance responsibility, and do not allocate responsibility for the interoperability of Scheme information across participants. We suggest this be made explicit, so that it is clear who is accountable for a building surveyor being able to verify what they are being asked to rely on.

7. Are there any aspects of the Scheme that may create challenges for regulatory acceptance, implementation or oversight within your jurisdiction? Yes / No / Unsure

Response: Yes

Please explain your response.

We identify one, within our area of expertise.

Appendix B of the Discussion paper sets out the process from building permit to occupancy permit. At step 9, the Appropriate Authority undertakes on-site inspections, and prefabricated components accompanied by a Manufacturer Declaration of Conformity are excluded from inspection for work completed in the factory.

For that exclusion to be applied safely, the Appropriate Authority must be able to establish that the component in front of them is covered by a valid declaration, from a manufacturer whose certification is current, and within the scope of that certification. Rule 2.5.15(c) requires the declaration to carry “unique product identification” but does not require that identification to be unambiguous outside the issuing manufacturer, and does not provide any means of resolving it to the Scheme register.

The practical consequence is that each jurisdiction, and each Appropriate Authority within it, will develop its own means of performing that check. Where jurisdictional building approval and e-planning systems are involved, each will require its own integration approach. A common basis for identifying components, manufacturers, factory locations and certificates would reduce that duplication substantially.

8. Do the proposed Scheme Rules provide sufficient assurance for insurers to assess and insure Scheme participants? Yes / No / Unsure

No response. Insurers and insurance brokers are better placed to answer.

9. Would certification under the Scheme increase your confidence in procuring or specifying prefabricated buildings or building components? Yes / No / Unsure

Response: Unsure

Please provide further information.

GS1 Australia does not procure or specify prefabricated buildings, and this question is better answered by builders, developers, procurers and financiers.

We make one observation. The draft Economic Analysis reasons that confidence benefits will follow from a recognised quality mark becoming visible across the industry, and lists as a dependency that “*consumer confidence benefits depend on the quality mark becoming sufficiently visible and widely recognised*” (§4.3.3.3). In our experience across other sectors, a mark generates confidence in proportion to how easily it can be checked. A mark that can be verified in seconds at the point it matters carries more weight than one that must be taken on trust or confirmed through correspondence.

Section in Scheme Rules: Objective and scope

11. Do the 5 prefabrication categories as defined in the Scheme Rules adequately capture the range of prefabrication construction typologies currently used in industry? Yes / No

No response to the Yes/No. Whether the five categories capture the full range of typologies in use is a question for manufacturers, designers and the industry associations, and we defer to them.

If not, what changes would you recommend? Please identify any additional categories that should be considered.

We offer one comment on a related point rather than on the categories themselves.

Categories 1 to 4 describe buildings and building elements. Category 5 describes structural and non-structural components and engineered products - CLT, LVL, ICF and similar sub-systems - “intended for incorporation into larger prefabricated or traditional construction systems”. Many products in this category are already identified and traded as building products, with existing identification and data practices, and may be supplied into projects that are otherwise conventionally constructed.

We suggest the Scheme make explicit how identification and declaration operate where a Category 5 product is incorporated into a Category 1 to 4 output produced by a different certified manufacturer. Specifically: whether a declaration is issued at both levels, and whether the relationship between them is recorded such that an affected engineered product can later be located within a completed building. Rule 2.5.11(a)(2) requires the ability to identify affected components in the event of defects, failures or non-compliances, and that ability depends on this relationship being captured.

Section in Scheme Rules: Personnel Competence

12. Prefabrication construction can involve varying levels of automation. Do you consider the practitioner licensing and registration requirements in the Scheme Rules to be appropriate and achievable across these manufacturing environments? Yes / No / Unsure

No response. Practitioner licensing and registration is a matter for manufacturers, regulators, unions and the industry associations.

Section in Scheme Rules: Traceability

13. If you are a Prefabricated Construction manufacturer, what traceability solution would you realistically implement? Do you already have traceability solutions in place? Please provide details.

GS1 Australia is not a manufacturer. We answer this question as a standards organisation, describing what we observe in practice, and readers should weigh it accordingly. Manufacturers' own answers should carry more weight than ours.

Most manufacturers already have traceability; the question is which kind. Across manufacturing sectors generally, businesses of any scale already operate internal traceability - production records, batch or job numbers, inspection and test records, and labelling - usually held in an ERP or MES system. The draft Economic Analysis describes this distinction well, separating internal traceability, which is record-keeping within one organisation or plant, from external traceability, which follows products through the wider supply chain (§4.4.1).

What manufacturers realistically implement is usually incremental. In our experience the common path is not the purchase of a new traceability system. It is: retain the existing production system; change what the identifier on the label represents so it is unambiguous outside the business; and apply a carrier appropriate to the product and environment. The draft Economic Analysis makes the same point when it observes that these standards do not require a specific technology, and that adoption costs "generally relate to process changes, governance and system alignment activities" (§4.4.2.3).

The driver is often operational rather than regulatory. Two of the case studies in the ABCB's own Appendix F illustrate this. BE Switchcraft, an Australian manufacturer of customised switchboards, previously tracked project status through manual data entry into its ERP with up to two days' delay, and adopted automated identification to obtain real-time visibility of manufacturing and delivery status (Appendix F 7.6.2.2). Legrand UK & Ireland adopted standardised identification and a warehouse management system principally to resolve inventory accuracy and integration difficulties with wholesalers and customers on large infrastructure projects (Appendix F 7.6.3.2).

On the realistic ceiling. We agree with the analysis that RFID is better suited to manufacturers seeking enhanced operational outcomes than as a baseline Scheme requirement (§4.4.2.2), and that Digital Product Passports are "more suitable as a future-state capability rather than a baseline requirement" (§4.4.2.4). We would not expect either to be the realistic starting point for most participants, and we do not suggest the Scheme require them.

14. Do the proposed traceability requirements provide an appropriate level of assurance and flexibility for manufacturers? Yes / No

Response: No

Please explain your response.

They provide appropriate flexibility. We do not think they yet provide appropriate assurance. Our concern is specific and, we believe, straightforward to remedy.

The consultation documents are inconsistent on this point. The draft Economic Analysis assesses traceability options against four principles - accessibility, interoperability, assurance and scalability - and frames three pathways, of which the second is described as the "**preferred interoperable pathway: alignment with GS1 standards to support consistency, interoperability and scalable information exchange**" (§4.4.3). The Discussion paper's scope table, by contrast, states that "the specific technologies and methods used to achieve traceability are at the discretion of the manufacturer", and Rule 2.5.11

specifies outcomes only. The analysis supporting the Scheme identifies a preferred pathway; the Rules do not reflect it.

Technology neutrality and standards neutrality are not the same thing. We support technology neutrality without qualification. Whether a manufacturer uses a printed barcode, a QR code, an RFID tag cast into a panel or a plate fixed to a module frame should depend on their product and environment, and the Scheme should not intervene. That is a decision about the *carrier*.

The separate decision is what the identifier *means*: whether it is unique only within one business or unambiguous worldwide, how it is structured, and whether another organisation can interpret it without a bespoke integration. Interoperability depends on the second decision, not the first. The draft Economic Analysis states this in technical terms when it notes that physical carriers “must encode GS1-compliant identifiers” for interoperable exchange to function (§4.4.4.3).

Discretion over method, combined with cost-minimisation, predicts fragmentation. The analysis assumes that “manufacturers are assumed to adopt the lowest cost solution that satisfies Scheme requirements”, reflecting “cost-minimisation behaviour by industry” (p.82). We think that assumption is realistic. Its consequence is that where both technology and method are discretionary, each manufacturer will rationally select the cheapest self-contained option that satisfies their certification body.

This is not a failure of good faith. It is a coordination problem: no individual manufacturer captures the benefit of making their data readable by another company’s customer, so none has a commercial reason to fund it. Interoperability is a shared good, and shared goods are not reliably produced by individual discretion under cost pressure. This is precisely the kind of coordination failure a national scheme is well placed to resolve.

The relevant standards are already Australian Standards. Standards Australia has identically adopted the underlying international standards, including the AS ISO/IEC 15459 series for unique identification (Parts 1 to 6), AS ISO/IEC 15418 for structuring data alongside an identifier, and AS ISO/IEC 18975 for encoding and resolving identifiers over HTTP. Construction was among the sectors consulted in developing these adoptions. A full list is at Annex A.

Two further gaps. First, Rule 2.5.11(b) requires traceability records to be retained for at least ten years, but nothing requires the identifiers within those records to remain resolvable across a change of ownership, system or software provider - all of which are ordinary events within a decade in a growing sector. Second, Rule 2.5.11(a)(2) requires the ability to identify affected components but specifies no granularity, which we address at Question 31.

Recommendation. We recommend that Rule 2.5.11 be amended to distinguish technology neutrality, which should be expressly preserved, from the identification and data exchange method, which should be required to conform to recognised international standards. This would give effect to the finding already made at §4.4.3 of the analysis supporting the Scheme, without mandating any vendor, platform or carrier.

Section in Scheme Rules: Surveillance requirements

15. Are the proposed audit and inspection requirements for Certified Manufacturers, including their frequency, appropriate and proportionate to the risks being managed under the Scheme? Yes / No

No response. Audit and inspection frequency is a matter for manufacturers, certification bodies and regulators.

Section in Scheme Rules: Types of Surveillance

16. Is the requirement for re-certification of Certified Manufacturers appropriate and proportionate? Yes / No

No response. Better answered by manufacturers and certification bodies.

Section in Scheme Rules: Process for Design Approvals

17. Would the proposed Design Approval Certificate create any implementation challenges or inconsistencies with existing state and territory building approval processes, legislation or regulatory requirements? Yes / No

Response: Unsure

If so, please explain your response.

Whether Design Approval Certificates create legislative or process inconsistencies is primarily a question for jurisdictional regulators, building surveyors and the associations, and we defer to them on the substance.

We note one practical matter. Under Rule 5.4(f), Design Assessment Bodies issue certificates using unique identification numbers allocated in blocks by the Scheme Administrator, and Rule 2.2.5(b) requires a public register of certificates issued. Rule 2.2.5(c) also allows the Administrator to limit published detail where intellectual property or commercial confidentiality applies.

Where published detail is limited, the ability to verify that a certificate is genuine, current and applicable becomes more important rather than less, because a relying party has less independent information to work with. A numbering scheme that exists only within the Scheme will require each jurisdiction to build its own means of checking. We suggest the Scheme consider how a Design Approval Certificate can be verified in a consistent way across jurisdictions and alongside existing ABCB schemes.

Section in Scheme Rules: Approval and Conditions of Use

18. Do you consider that the content of the Design Approval Certificates, as currently proposed, would provide building surveyors with sufficient confidence and assurance to rely on when making approval decisions? Please provide details. Yes / No

Response: Unsure

If not, please explain your answer and identify any additional information, requirements, or controls that should be included.

Building surveyors are best placed to judge whether the *substance* required by Rule 5.4(g) is sufficient, and we express no view on that. The list of required content - identification of the approved design, applicable NCC edition and referenced standards, evidence relied upon, site assumptions, restrictions on use and permissible variations - appears comprehensive.

Our comment concerns *verifiability* rather than content. A surveyor relying on a Design Approval Certificate needs to establish not only what it says, but that it is genuine, current, not suspended or withdrawn, unaltered, and that the project design falls within its scope. Certificates are valid for three years subject to withdrawal or suspension (Rule 5.4(e)(2)), and must be reproduced only in their entirety (Rule 5.4(e)(3)).

At present the Rules provide no means for a surveyor to confirm those things other than by consulting the register manually. We suggest the Scheme provide for certificates to be issued in a form that can be verified directly - so that currency, scope and integrity can be confirmed at the point of reliance rather than assumed.

Section in Scheme Rules: Manufacturer Declaration of Conformity

19. Do you consider that the content of the Manufacturer Declaration of Conformity, as currently proposed, would provide building surveyors or the appropriate authority with sufficient confidence and assurance to rely on when making approval decisions? Yes / No / Unsure

Response: No

If not, please explain your response, and identify any additional information, requirements, or controls that should be included.

The Manufacturer Declaration of Conformity carries the weight of the Scheme. It is a first-party declaration, issued before the component leaves the factory, and under Appendix B it is what excludes factory-completed work from on-site inspection. Our concern is confined to one element of it.

“Unique product identification” is not defined. Rule 2.5.15(c)(1) requires “unique product identification, sufficient to trace the Component to manufacture”. The Rules do not state unique to whom. As drafted, an identifier that is unique within a manufacturer’s own production system appears to satisfy the requirement.

The consequence is that two certified manufacturers could each issue a component bearing the same identifier - both legitimately, both compliant - and an Appropriate Authority holding one declaration would have no means of determining which manufacturer’s component was in front of them without returning to the project documentation. The declaration would then provide less assurance than its form suggests.

This is a solved problem, and the solution is already an Australian Standard. The AS ISO/IEC 15459 series specifies how identifiers are constructed so as to be unambiguous worldwide, and how issuing agencies are registered and recognised (Parts 2 and 3). It exists precisely to prevent the collision described above.

Persistence is the second dimension. Traceability records must be retained for at least ten years (Rule 2.5.11(b)). Businesses are acquired, migrate systems and cease trading well within that period. An identifier issued under a registered scheme remains meaningful through those events; an identifier issued only within a company’s own system, or within a software subscription, may not.

Verifiability is the third. Rule 2.5.15(c)(3) requires the declaration to reference the Certificate of Conformity issued by the Certification Body, and Rule 2.5.15(d) requires the declaration to be “accurate, complete, and traceable to supporting compliance records”. A surveyor at handover must be able to act on those references. AS ISO/IEC 18975 specifies how an identifier applied to a physical object resolves to authoritative information about it, which is the mechanism by which a declaration can be checked rather than accepted.

A working Australian precedent is cited in the ABCB’s own analysis: ACRS, a steel certifier accredited by JAS-ANZ, operates a platform linking codes on steel products to digital certificates so that conformance can be verified by industry, which the analysis observes demonstrates how a relatively low-cost approach can link a physical building product to trusted compliance information without complex digital infrastructure (Appendix F 7.6.1.1).

Recommendations.

1. Define “unique product identification” in Rule 2.5.15(c)(1) as globally unique, unambiguous and persistent, and require it to conform to recognised international standards for unique identification.
2. Provide for the Manufacturer Declaration of Conformity to be capable of being issued and verified as structured data, linked to the physical component, so that verification at the point of installation is a check against an authoritative record rather than a review of accompanying paperwork.

3. Require that the reference to the Certificate of Conformity be resolvable against the Scheme register maintained under Rule 2.2.5.

Draft Economic Analysis report questions

Quantitative modelling methodology (see 4.3.4)

20. Are there any additional cost savings (benefits) you anticipate could be quantified? Yes / No

Response: Yes

If yes, please explain your answer, with reference to relevant data or evidence to support a more comprehensive assessment of these impacts.

The analysis itself notes that the quantitative model is confined to inspection-related cost savings, and that “additional cost impacts may arise from the Scheme, including administrative efficiencies, reduced approval timeframes, reduced rework, and broader compliance benefits”, which are not incorporated due to limited data (§4.3.4.3).

Those excluded categories are, in our observation, precisely where traceability delivers measurable value. We suggest four are capable of quantification with industry input.

1. Recall and defect rectification scope. Where identification is at model level, the population potentially affected by a non-conforming input is every unit of that model. Where it is at batch or unit level, the population is bounded. The difference is directly measurable as the number of buildings requiring investigation, notification or rectification. The Levvel project on the Afsluitdijk, cited at Appendix F 7.6.2.1, identified each concrete block individually and enabled “timely intervention where quality or compliance issues were identified with individual block”. Rules 2.5.5(a)(4) and 5.5(e) impose ACCC-compliant recall obligations, so this cost is already latent in the Scheme.

2. Handover and document reconciliation. Under Appendix B, the Appropriate Authority must confirm at step 9 that components are covered by a valid declaration. The time taken to reconcile declarations, certificates and delivery documentation at handover is measurable, is borne by builders and surveyors rather than manufacturers, and is likely to rise where a project draws on several manufacturers using different identification schemes.

3. Integration and duplication cost across customers. The Legrand case study at Appendix F 7.6.3.2 records that data inconsistencies “complicated integration with wholesalers and customers delivering large-scale infrastructure projects”. Manufacturers supplying multiple builders can typically quantify the cost of maintaining customer-specific labelling and data formats.

4. Market access and cross-border cost. The analysis’s own meat industry case study quantifies the cost of absent common identification at the border, where cartons were rejected and destroyed for missing or damaged labels until a common standard was agreed between the Australian and United States governments, with benefits reported at more than \$200 million annually (Appendix F 7.6.3.1). With the European Union mandating Digital Product Passports for construction products from 2028 (§4.4.2.4), analogous costs are foreseeable for Australian manufacturers exporting or importing engineered components.

A framing point. Traceability is currently modelled as a compliance cost of Scheme participation. In practice it is a dual-purpose investment: the same capability that supports certification also supports inventory accuracy, production visibility, warranty and defect management and customer integration - benefits realised whether or not a manufacturer joins the Scheme. The analysis acknowledges this indirectly when it notes that firms outside the Scheme may undertake their own uplift including “digital traceability solutions”, and that this is not modelled (§4.1.1.4). We suggest the final analysis treat traceability as an investment with benefits inside and outside the Scheme, rather than solely as a participation cost.

Baseline mandatory inspection costs (see 5.1.2)

21. If you are a Prefabricated Construction manufacturer, do you currently incur mandatory inspection costs? Yes / No

No response. GS1 Australia is not a manufacturer.

22. If you are a Prefabricated Construction manufacturer, do the indicative inspection costs in Table 5 reflect your experience? Yes / No

No response. GS1 Australia is not a manufacturer.

23. If you are a Prefabricated Construction manufacturer, are you charged a premium for inspections in regional or remote areas? Yes / No / Unsure

No response. GS1 Australia is not a manufacturer.

24. If you are a building surveyor, do you charge differently for inspections of Prefabricated Construction buildings compared to traditional construction? Yes / No

No response. GS1 Australia is not a building surveyor.

Costing approach and assumptions (see 5.2.1)

25. If you are a Prefabricated Construction manufacturer, would you expect to incur any additional costs as a direct result of participating in the Scheme that are not already identified in the draft Economic Analysis report? Yes / No / Unsure

No response. GS1 Australia is not a manufacturer. We address cost factors not identified in the analysis at Question 30.

26. If you are a Prefabricated Construction manufacturer, are costs reflective of what you anticipate you would incur? Please explain your answer with reference to your organisational maturity.

No response. GS1 Australia is not a manufacturer.

27. If you are a Prefabricated Construction manufacturer, do you consider the assumptions in the draft Economic Analysis report regarding manufacturer maturity, including the systems, processes and controls already in place and the level of uplift required to comply with the Scheme Rules, to be reasonable? Yes / No / Unsure

No response. GS1 Australia is not a manufacturer.

28. If you are a potential Design Assessment Body or a Certification Body considering participating in the Scheme, do you believe the draft Economic Analysis report appropriately captures the costs associated with delivering assessment and certification services under the draft Scheme Rules? Please consider these costs in the context of applying to one manufacturer. Yes / No / Unsure

No response. GS1 Australia is not a prospective Design Assessment Body or Certification Body.

29. Do any cost estimates appear too high or too low? Too high / Too low / Not enough information to assess

Response: Not enough information to assess

Please explain your answer and provide evidence.

We select this option deliberately. Our concern with Table 10 is not that a figure is set too high or too low, but that the categories are not comparable, which prevents assessment of whether any of them is right.

Table 10 (p.83) presents four options as alternatives: GS1 Standards (barcode solution) at \$675 to \$15,000 annually; QR Codes at \$800 to \$2,400; RFID Solutions at \$7,000 to \$140,000; and Digital Product Passport Solutions at \$16,500 to \$165,000.

These are not four things a manufacturer chooses between, and the same report says so fourteen pages earlier: “GS1 standards don’t require a specific technology solution. Manufacturers can adopt QR codes, RFID tags, Digital Product Passports or other technology while maintaining a consistent identification approach” (§4.4.2.3). The same section states that adoption costs “generally relate to process changes, governance and system alignment activities” rather than to hardware.

Identification standards are the layer defining what an identifier means. QR codes and RFID tags are carriers that encode it. Digital Product Passports are an application built on top. A manufacturer applying a QR code that carries a globally unique identifier has acquired a QR labelling capability - not a QR labelling capability plus a separate standards product. The table as drafted invites a manufacturer to read those as two purchases.

Two consequences follow.

First, the table overstates the marginal cost of the pathway the analysis itself identifies as preferred, by presenting as a discrete purchase what is substantially a decision about how identifiers on labels that will be printed anyway are structured.

Second, the table omits the cost of the alternative entirely. The integration, reconciliation and rework costs arising from incompatible schemes appear nowhere, although the analysis’s own Legrand case study describes exactly those costs materialising (Appendix F 7.6.3.2).

Why this matters beyond presentation. Break-even under the central case requires 36 Class 1 or 23 Class 2 builds annually (§1.3.1), and the analysis cautions that firm-level benefits are sensitive to pricing, “potentially concentrating the benefits among larger manufacturers” (§4.3.3.2). How traceability cost is characterised therefore bears on which manufacturers can afford to participate at all.

Recommendation. We recommend Table 10 be restructured to distinguish the identification and data layer from carrier technologies and applications built upon it, consistent with §4.4.2.3, and that the cost of non-standardised implementation be presented alongside the cost of standardised implementation.

30. Are there any other factors not considered in the analysis that would significantly increase or decrease costs? Yes / No / Unsure

Response: Yes

If yes, please explain your answer and provide evidence.

Factors that would increase costs

- **The cost of non-standardisation, borne downstream.** Where manufacturers implement incompatible identification, builders and surveyors absorb reconciliation effort at handover, and manufacturers supplying multiple customers maintain parallel labelling and data formats. None of this appears in the current cost model.
- **Identifier discontinuity over the retention period.** Rule 2.5.11(b) requires records for at least ten years. Where identifiers depend on a particular software provider or internal numbering scheme,

a change of system, ownership or provider within that period may require re-establishment of the traceability chain, or leave it broken. Neither cost is modelled.

- **Maintaining parallel systems for import and export.** Manufacturers importing engineered components, or exporting product into markets adopting Digital Product Passport requirements (§4.4.2.4), may maintain two identification approaches where the Scheme's requirements do not align with international practice.

Factors that would decrease costs

- **Reuse of identification already held.** Many manufacturers, and a larger proportion of their suppliers, already hold and apply standardised identification for other purposes. Where the Scheme permits that existing identification to be reused, the incremental cost is process and governance rather than acquisition, consistent with §4.4.2.3.
- **Avoided bespoke integration.** A common identification basis removes the need for per-customer and per-jurisdiction integration work, which the Legrand case study indicates is a material cost at scale (Appendix F 7.6.3.2).
- **Shared implementation guidance.** Where a common approach exists, guidance can be produced once for the sector rather than developed by each manufacturer and each certification body independently.

Scheme Rules

31. Do you have any concerns about the proposed Scheme Rules? *Select all that apply.* Requirements are inconsistent / Requirements are duplicative / Requirements are unnecessary / Requirements may be difficult to implement / Important requirements are missing / Requirements may result in unintended consequences / Other concerns (please specify)

Response: Requirements are inconsistent; Important requirements are missing; Requirements may result in unintended consequences

Please explain your response.

Requirements are inconsistent. We identify two inconsistencies, both between documents rather than within the Rules.

1. The draft Economic Analysis identifies alignment with GS1 standards as the “preferred interoperable pathway” for traceability under the Scheme (§4.4.3), and lists inconsistent standards adoption as a risk of fragmented or siloed data systems (§4.4.4.3). The Discussion paper’s scope table and Rule 2.5.11 leave both technology and method to manufacturer discretion. The Rules do not give effect to the finding in the analysis that supports them.
2. Table 10 of the analysis prices identification standards as an alternative to QR codes, RFID and Digital Product Passports, while §4.4.2.3 of the same document states that those standards do not require any particular technology and can be applied through any of them. This is set out at Question 29.

Important requirements are missing. Three, each addressed above.

1. A definition of “unique product identification” in Rule 2.5.15(c)(1). See Question 19.
2. A minimum identification granularity. Rules 2.5.5(a)(4) and 5.5(e) require recalls to be conducted in accordance with the ACCC Consumer Product Safety Recall Guidelines, and Rule 2.5.11(a)(2) requires the ability to identify affected components. Nothing specifies whether identification is at model, batch or unit level. Without that, a manufacturer may hold a recall obligation they cannot discharge with precision, and a regulator cannot know in advance how wide a recall

would need to be. We recommend a minimum granularity sufficient to bound the affected population.

3. Provision for declarations and certificates to be verified at the point of reliance. See Questions 18 and 19.

Requirements may result in unintended consequences. Two follow from the above.

1. **Fragmentation.** Discretion over identification method, combined with the cost-minimisation behaviour the analysis assumes (p.82), is likely to produce mutually unreadable systems across certified manufacturers - reproducing in the data layer the fragmentation the Scheme is intended to reduce.
2. **Cost of entry.** Where each manufacturer implements a bespoke solution rather than reusing established standards, the cost of participation rises, which acts against the smaller manufacturers the analysis already identifies as least likely to reach break-even (§4.3.3.2).

32. Do the proposed Scheme Rules provide sufficient assurance that a certified manufacturer can consistently produce compliant prefabricated buildings and components in accordance with approved designs and specifications? Yes / No / Unsure

Response: Unsure

Please explain your answer. You may wish to comment in general and/or on specific sections.

We comment only on the provisions within our expertise.

The Rules governing quality management, factory production control, personnel competence, procurement and incoming goods, facilities and equipment, and change control (Rules 2.5.4 to 2.5.10) appear to us to be substantial and coherently constructed, and we express no view on their adequacy, which is a matter for certification bodies and manufacturers.

Our reservation is confined to whether the assurance those systems generate can be *relied upon by others*. Under this Scheme, assurance no longer travels as an inspection; it travels as a declaration and the records behind it. The provisions that carry it across organisational boundaries - Rule 2.5.11 on traceability and Rule 2.5.15 on the Manufacturer Declaration of Conformity - do not currently ensure that a third party can resolve, verify or rely upon what they are given.

With the amendments recommended at Questions 14, 19 and 31, we consider the Rules would provide that assurance.

Additional feedback

34. Do you have any additional feedback you believe we should consider as part of this consultation?

On the framing of this submission. GS1 Australia supports the Scheme. The shift from inspecting work to certifying the systems that produce it is well matched to how prefabricated construction is actually delivered, and the draft Scheme Rules are a considered piece of work. Our comments are directed at making that model verifiable in practice, not at whether it should proceed.

On what we have not commented on. We have left unanswered those questions concerning practitioner licensing, insurability, inspection and surveillance frequency, manufacturer cost experience, and certification and design assessment body economics. These are properly matters for manufacturers, certifiers, insurers and the industry associations, and we would not want a standards organisation's view to be weighed alongside theirs on questions where they hold the evidence.

An observation offered for checking. Section 1.3.2 of the draft Economic Analysis states that a 2D and kit-of-parts manufacturer producing 50 builds annually with a 1% throughput uplift would build "an

additional 5 buildings every year”, and that 100 builds with a 5% uplift would yield “an additional 50 buildings every year”. The methodology at §4.3.6 appears internally consistent, correctly working an example of 20 builds with a 2.5% uplift to one additional build every two years. We raise the executive summary figures only so they can be checked against the model.

An offer of assistance. Rule 2.2.8 requires the Scheme Administrator to convene coordination and consistency forums with certification bodies, the Accreditation Body and design assessment bodies, and permits other subject matter experts to be invited. Should it assist, GS1 Australia would be glad to contribute on identification and data exchange matters, to support the development of implementation guidance with industry, and to assist in mapping Scheme terminology to Standards Australia Handbook SA HB 268. We offer this as a neutral standards body with no commercial interest in the Scheme’s outcome.

Companion material. A discussion paper for industry, *What Does Assurance Look Like When the Building Is Made in a Factory?*, is published alongside this submission and may be uploaded as supporting information.

Annex A - Standards referred to in this submission

The following international standards have been identically adopted by Standards Australia as Australian Standards. Identical adoption means the international text is adopted without change, following review confirming it is suitable for use in Australia. They are available from the Standards Australia store.

ISO/IEC 15459-1:2014	AS ISO/IEC 15459.1:2023	Unique identification - individual transport units
ISO/IEC 15459-2:2015	AS ISO/IEC 15459.2:2024	Registration procedures for issuing agencies
ISO/IEC 15459-3:2014	AS ISO/IEC 15459.3:2024	Common rules for unique identification
ISO/IEC 15459-4:2014	AS ISO/IEC 15459.4:2023	Unique identification - individual products and packages
ISO/IEC 15459-5:2014	AS ISO/IEC 15459.5:2023	Unique identification - returnable transport items
ISO/IEC 15459-6:2014	AS ISO/IEC 15459.6:2023	Unique identification - groupings
ISO/IEC 15418:2016	AS ISO/IEC 15418:2023	Application identifiers and data identifiers
ISO/IEC 18975:2024	AS ISO/IEC 18975:2025	Encoding and resolving identifiers over HTTP
ISO/IEC 19987:2024	AS ISO/IEC 19987:2025	EPC Information Services - sharing event data between organisations
ISO/IEC 19988:2024	AS ISO/IEC 19988:2025	Core Business Vocabulary - shared terminology for that event data

These are Australian Standards (AS ISO/IEC). They are not joint Australian/New Zealand standards.

Sources: Standards Australia store, <https://store.standards.org.au/>; GS1 Australia, Identical Adoption FAQs, <https://www.gs1au.org/resources/faqs/identical-adoption>

References

- Australian Building Codes Board, *National Voluntary Certification Scheme for Manufacturers of Prefabricated Construction - Discussion paper*, July 2026.
- Australian Building Codes Board, *National Voluntary Certification Scheme for Manufacturers of Prefabricated Construction - Draft Scheme Rules*, 2026.
- 35 South Advisors Pty Ltd for the Australian Building Codes Board, *Draft Economic Analysis - National Voluntary Certification Scheme for Modern Methods of Construction*, July 2026.
- Standards Australia Handbook SA HB 268, *Prefabricated building - Glossary of terms*.

This submission is provided to inform a public consultation. It is not legal or professional advice.