

International Building Quality Centre

Building Product Performance

Part 1a – Supplementary Submissions Paper

1. Chair's Note

1.1 I wish to acknowledge those who took the time to both read the Part 1 paper on building product performance¹ and the contribution made by providing us with a written or verbal submission. We will in turn draw on some of these insights, along with further analysis of the critical issues identified in the problem statement, in developing a framework of good practice regulatory solutions under Part 2.

1.2 What has transpired since we produced Part 1, including an IBQC webinar on the subject, generated a good deal of interest, illustrating that building product performance remains topical. There also appears to be a lot of international endeavour occurring to address shortcomings in this space, which is not confined to the performance of building products.

Dame Judith Hackitt, DBE, FREng, FICChemE, FCGI

2. Purpose

2.1 This short paper provides a condensed record of key points of interest from submissions made to the Part 1 building product performance discussion paper released by the International Building Quality Centre in April 2022. In Part 1 we examined the known problems and challenges associated with ensuring building products both conform to the standards against which they have been tested and once selected for use by the designer, perform in the manner required in order for the building to be compliant with regulations. In exploring these issues, we reflected on the experiences of a number of countries to highlight both successful and negative regulatory outcomes.

2.2 The release was accompanied by an invitation for those with experience and an interest in the subject to review the ten common problems identified in the Part 1 paper, as well as provide input to Part 2, a good practice regulatory framework for building product performance. In the second part we will postulate a good practice framework based on regulatory approaches that have been or can be employed in order to support building product performance.

3. Submissions

3.1 There were a significant number of views of the Part 1 discussion paper and a number of conversations took place with several parties who had an interest in this subject. In total we received written submissions, verbal comments and input from fifteen organisations and individuals from five countries, four of which have not provided consent to be identified. Observation is also informed by a CROSS-Aus Safety Report for construction products – fire test certificates (ID: 1060 2 August 2022)², which was brought to our attention during the submission period.

¹ [Building Product Performance Part 1 – Discussion Paper – IBQC](#)

² The Institution of Structural Engineers

Australia – Simon Croft - Housing Industry Association
Australia – Alex Waldren – Master Builders Australia
Australia – Nayan Das – Dowell Windows
Australia – Nat Andrews – Building Surveyor
Australia – Peter Johnson – Fire Safety Engineer
Australia – Glenn Prigg – Flexitraxx
Australia – Colin Evans – Tenacious Tapes
Australia – Adam Lee – Engineers Australia
Australia – Stuart Henry - Plumbing Products Industry Group
Australia/NZ – Australasian Certification Authority for Reinforcing and Structural Steels
Canada – Michael de Lint

4. Themes

4.1 The key themes that emerge from the submissions to the Part 1 discussion paper can be summarised as follows:

- The ten identified categories of problems were generally well supported and complementary as to the paper's value and content
- Some felt the paper represented primarily commentary rather than propositions; it was too Australian focused; with some constructive suggestions to consider for the second paper
- Role of project managers and education needs consideration
- Corporate culture is important
- Should acknowledge that the broader community is impacted by poor product performance, not just the consumer
- Paper has a focus on fire safety and external wall cladding, which could skew perceptions of applicability to other products
- Testing regime is a critical ingredient
- Education, training and the documentation of product information are critical for practitioners
- The solutions need to consider some form of risk analysis of both product characteristics and application
- The 10 categories of issues illustrate the point that no one party is totally responsible for this situation

4.2 A brief analysis of some other more specific comments are noted below. They include observations about what Paper 1 has done well and where it hasn't captured something of relevance:

- There are products used in the construction industry that have never been tested for compliance, but continue to be used. This is potentially compounded by those with responsibility for authorising their use not having an appropriate level of registration or experience to approve alternative solutions where a standard is not available to test them against. As a result these products become undiagnosed and undiscovered. An effective regulatory framework that is implemented should address this.
- It is impossible for all products in a building to be certified as compliant with national technical codes. The problem needs to be addressed through regulatory means and possibly with the engagement of other actors, such as insurance. The insurance sector broadly has an interest in driving product conformance to reduce liability and exposure through insurance policies they may provide to product manufacturers and suppliers,

building developers and owners. Insurers are also looking at professional indemnity insurance in the context of building officials and practitioners being suitably qualified, competent and experienced in conducting the matters for which they are responsible, make professionally sound decisions and acting ethically in the selection, approval and use of products.

- The purpose/scope of the paper could be more clearly defined. It is mostly focused on certain geographic regions and certain categories of buildings. For example, is the problem statement of this discussion paper (and subsequently content of potentially part 2 of this series) applicable to single storey houses? Also, it seems the majority of the case studies are either from the UK or Australia. It does mention a little paragraph on Nigeria but it's not specific to any project, unlike Grenfell or Lacrosse. So, can the scope clearly point out exclusions (if any) be it geographical regions or types of buildings.
- Could the role of project managers and clients also be examined? Project operations are influenced by the budget and project managers/clients play a crucial role in managing key elements of the budget too. Project operations are influenced by the budget and project managers play a crucial role in managing key elements of the budget too. Core competencies of practitioners and course content for education of those practitioners is lacking when it comes to both understanding what is expected of practitioners, but what they need to be looking for and how to exercise judgement in this space. Education and training need to feature as part of a good regulatory framework.
- The paper should bring to light the role of the educators and academia in creating competent professionals for the industry. The course content (globally) for engineers and practitioners needs an overhaul. Content is required on product and component brands while teaching core elements of a building. It is time our course creators improve collaborations with industry and deliver industry insights directly to the students. Education and training need to feature as part of a good regulatory framework.
- Continuing professional development and manufacturers sponsoring training is unproductive if it is not teaching industry actors correctly or involves products that are non-conforming. The course material and presenters need to be able to demonstrate correct installation in order to meet the requirements of national codes and standards. This theme can be picked up in Part 2.
- Terms of art that clearly distinguish between different modes of failure across the life cycle of products, which typically have differing causes and mitigations, was seen as being potentially useful. Having a common nomenclature might be a helpful adjunct to a regulatory framework for product performance.
- Are modular construction and 3D-printed buildings a product, a building or both? Whilst this is not something that specifically relates to whether a product performs or not, it does speak to the importance of a system needing to be flexible in dealing with innovative products.
- There was not much about the way in which the product is labelled/ marketed/ advertised and how this activity is regulated. This feels like an omission given the UK's recent experience, and the more fundamental (likely universal) knowledge asymmetry between those who make the product and those who test, regulate, specify, purchase, install and maintain it. Breaches of the rules need to be treated harshly to reflect the potential resulting harm.

- One observation was that there was not much about company and sector culture and norms. Any regulatory system is open to abuse and it might be worth being more pointed about a hard-nosed approach of expected value of cooperating/betraying the requirement to do the right thing. It was suggested that in the UK a reasonable assessment might conclude that the bottom-line risk to a regulated party under the existing regime of doing the right thing, currently exceeds the risk of doing the wrong thing, especially if the actor has high market share, once you consider low likelihood of being caught and relatively small likely sanction if caught. If true, this would appear to make the system more vulnerable to predatory, unscrupulous actors. Paper 1 did depict the importance of the subject of culture and will feature in Paper 2 to promote ethical behaviour alongside other practices that should act to promote a better culture.
- Is there an international cooperation component worth exploring. In a system where it is conjectured that manufacturers appear to enjoy an irreducible informational advantage over regulators and consumers, should governments and regulators seek to redress the balance a bit by making sure that 'bad faith' breaches by a manufacturer in one jurisdiction are reported to and can be acted upon by jurisdictions. Manufacturers are subject to different regulatory requirements in different jurisdictions, which fragments and weakens the leverage that regulators and consumers have over them, so what if jurisdictions agreed, for instance, that certain types of breaches (like, say, knowingly lying to a regulator in another jurisdiction) would carry ramifications in all jurisdictions.
- It may be worth seeing whether there are any case studies beyond construction products - from any sector/ regulatory regime - from which we could draw transferable insights/ nuggets about how to solve the problem of incentivising good behaviour despite the constraints of irreducible information asymmetry.
- The steps associated with testing, commissioning and record keeping are missing from some sections of the document. These are key steps and often where an engineer might identify the incorrect use of a product. This needs to be adequately represented in the Part 2 framework both in terms of the adequacy of the test as well as the test results being available and subject to competent assessment as part of certification and in product application.
- A key challenge/issue is the willingness of suppliers to sell products that will be used inappropriately by people who should (but don't) know better. Discussion is warranted regarding the closure of the loop from real-world product use back to product design, manufacture, and sales. Whilst it was suggested to include surveillance of actual product use, ensuring product suppliers are informed of misuse and then able to respond, this would in fact constitute non-compliant use of a product, which a good practice framework is aiming to address, including surveillance and holding various parties in the supply chain accountable.
- A comment made in relation to trigger thresholds for third-party certification, where anything that has a life safety purpose should be required to have this level of assessment, goes to the heart of any good practice framework. It is also what has tested many models that have attempted to put some parameters around how many building products are captured in a process for mandatory third-party product certification. In a performance-based approach, the question of threshold is often left to the discretion of the practitioner or an arbitrary description of risk. The Framework will need to consider more sophisticated methods for when products are required to be certified to the ISO 17060 suite. A term such as life safety needs to be consistently interpreted, which lends itself to a form of centralised application.

- It was also suggested that durability could also be considered alongside critical life safety systems as a trigger. This, however, would set a low threshold test if its purpose is to require mandatory third-party certification. Whilst durability of products is important, it is more an issue of product disclosure to inform practitioners and consumers of reliability, endurance and maintenance.
- Another suggestion is to require that a team of practitioners' review plans prior to construction to ensure all key inputs are provided into the design process, and that there be a lead designer or coordinator that addresses any conflicting views from the team. It is arguable that this is not the role of regulation, but rather market driven. Nor is it confined to the exercise of building products, but the entire design and construct process. In this respect the importance of peer review, independent approval and third-party certification are features of good practice regulation already identified by the IBQC³ and in existence in many building regulatory systems.
- One submission identified some variations to the problems identified in the Part 1 paper, which it can be anticipated will be covered through a good practice model. Namely:
 - Product substitution with non-compliant materials and distribution 'shandying' (mixing of compliant and non-compliant materials).
 - Fraudulent labelling, and more frequently the rebranding of imported products resulting in deliberate misrepresentation.
 - Lack of uptake by industries to engage in product traceability, citing perceived cost pressures, and an ability to manage stock as justification for avoidance.
- When looking at solutions for building product performance it will be important to include mandatory levels of minimum product information; independent certification bodies; improved product labelling and digital traceability technology; and improved research, surveillance and information sharing. These are all acknowledged as features of a good practice regulatory model, noting that research is sensitive, since governments do not typically fund the research for proprietary products and the manufacturers that do will want to retain a level of commercial confidence over their own research. This then brings it back to the model ensuring that there are mechanisms of transparency to enable information that supports any claims being made to be verified by practitioners and regulators.
- Standards development can be dominated by large manufacturers who have far greater financial and technical resources to dedicate to the development of test methods and other aspects compared with fire authorities, test laboratories and design practitioners. As a result, the test methods may not relate to real life application for products but simply become a barrier to market entry for some and not others. A good practice model should feature a requirement that test methods provide for repeatable performance of products in real life circumstances.
- The role of plumbing products was raised in a submission, pointing to the need for any response to address the problems identified through a comprehensive multi-targeted approach. This was considered particularly important given the community safety, commercial and plumbing contractor viability issues that exist. The challenges include the need for a better understanding by government and the community of the societal health risks inherent in plumbing, better informed manufacturers/suppliers, retailers, plumbers and consumers about their rights and obligations and consistency in the regulatory approach to sale of products and their use. Key points about the way forward that are relevant to the international context of the IBQC's work on this subject include, a

³ [IBQC-Principles-for-Good-Practice-Building-Regulation.pdf](#)

whole of supply chain focus on all players; options to address both the sale and use of certified products including a voluntary retail code; and more stringent penalties for false certification by accredited bodies.

- Another submission identified the need for the rigor of product assessment to be commensurate with the risk that product failure poses to safety objectives. This would potentially triage the importance level of a product based on its role in safety, to the level of certification required and reduce the onus of responsibility on practitioners to select or accept the appropriate option. It was suggested that systems that allow all options for evidence of suitability to be treated equally can facilitate an inconsistent marketplace that can be exploited and doesn't incentivize good practice to satisfy design objectives. This can price out the good manufacturers and practitioners rather than provide support to them. To have confidence, industry needs a consistent target and a consistent way of knowing it's been met by practitioners and authorities having jurisdiction. Other important aspects like documentation and traceability can be built on this with education to maintain competent skills about understanding and application of the requirements.
- It was suggested that the ISO Standards suite for product conformity provides a valuable internationally recognised framework, which the IBQC could use to identify the thresholds of controls appropriate for different product groups based on their contribution to safety and the risk their failure poses to safety objectives.