

03 February 2022

**OffsiteNZ's Feedback on the  
Commerce Commission's  
Residential Building Supplies Market Study**

**Re: OffsiteNZ's response to Preliminary Issues Paper**

**Introduction**

OffsiteNZ is a non-profit membership organisation that informs, educates, and advocates for innovation and excellence in offsite design and construction in New Zealand. OffsiteNZ represents 245 businesses and individuals, including designers, architects, engineers, builders, developers, clients, and researchers.

OffsiteNZ has been at the forefront of the offsite sector over the last 12 years and is confident that offsite manufacturing and new processes and technologies can achieve a better built environment; high quality, smarter, greener, safer, faster, more innovative and efficient building solutions. OffsiteNZ's vision is for offsite construction in New Zealand to be mainstream, with productivity high and value created for clients and society.

**General Comments**

OffsiteNZ supports in principle the intent of the Residential Building Supplies Market Study. Our following comments and feedback will focus only on matters relating to the offsite manufacturing sector and covers prefabrication and prefabricators.

The key observation is that the document currently does not explicitly list prefabricators or offsite manufacturers as a stakeholder. Offsite manufacturers are distinctly different from general builders and face unique challenges in the context of this review. The Building Amendment Act 2021 specifically supports the adoption of offsite manufacturing sector via Factory Certification (Modular Component Manufacturing Scheme) and an improved consenting process that removes the "friction" that the offsite sector currently encounters. Specifying offsite manufacturers as a distinct stakeholder would mean that this Market Study is reflective of the current industry.

It is recommended that the following additions are made:

- Figure 1: Prefabrication listed as a process, NOT as a separate stakeholder. Recommendation to include prefabricators.
- The definition of Manufacturers (pg3) to include prefabricators.

- The term 'novel' describing prefabrication implies this methodology is new. However offsite manufacturing is a well-established domestically and internationally. Recommendation is to delete the term “novel”.
- Figure 2: High level summary of the construction process should include offsite manufacturing as this will highlight the benefits of Quality Control earlier on/higher up (in the factory) rather than assessing ("policing") buildings on site.

### **Answers to specific Offsite/Prefabricator questions:**

#### **Questions on the supply chain for residential building supplies in New Zealand**

Q4-6 See General Comments.

#### **Questions on the demand and supply chain pressures on residential construction**

Q14 OSM will become more relevant as performance of our buildings improves. There will be a more sustained trend towards more offsite solutions over future decades.

Q15 Offsite manufacturing is a proven way to raise construction productivity, reduce waste (including process wastes), raise quality, improve health and safety (both physical and mental) and encourage diversity, equity and inclusion (OffsiteNZ's Research 2021).

Increased use of prefabricated housing has shown <sup>[1]</sup> that there is 20% cost saving, 50% time saving and overall 11.1% productivity improvement.

Q16 Volumetric, modular and hybrid (including penalised) offsite technologies offers significant advantages. More responsibility goes to the supplier for the performance (cost, quality, time, and sustainability) of the offsite product. Offsite is a supply-driven industry and increasing modularity embeds the innovation which helps to address the long-term pressure <sup>[2]</sup>.

#### **Questions on the evolving regulatory framework around residential construction**

Q18 More offsite manufacturing on certain types of residential building supplies will impact the following (non-comprehensive list):

- larger sheet-goods instead of small format sheets for site install; use mech lifting equipment in factory for large sheets e.g. 2.4x6m
- stapling of linings instead of nailing/screwing (nailing/screwing is possible too, however stapling is easier to automate)
- raftered closed roof panels instead of site built trussed roofs

Q19 Please describe any other major recent or ongoing regulatory changes that might affect demand for certain types of residential building supplies.

Q19: The Building Amendment Act 2021 is a significant development in the support of offsite manufacturing as outlined in General Comments. Building for Climate Change, zero carbon by 2050, a drive to improve workforce wellbeing, and the numerous policies regarding diversity, equity and inclusion will underpin the adoption of offsite manufacturing.

Q20 To date yes and this will continue until the regulations for the Building Amendment Act 2021 are written and put into practice. The Building Act was never written for the adoption of offsite solutions and there has created “friction” in the building system which slows down the build process, increased cost and general frustration and has been a barrier to entry of competitors. As a consequence, the all-important scale, innovation and workforce development has been sub optimal.

There are currently no standardisation/standards for the most important offsite systems and needs to be address by the industry and regulators. In addition, there is currently no standards or guidance for in-factory QA for prefabricators.

There are inherent complexity due to variation in the prefabrication process and products<sup>[3]</sup> which highlights the importance of the need to develop standards. Further, no knowledge base public has the potential to help the prefab companies. It is argued that there is limited expertise at the regulatory authority which delays the consenting process.

There is potential to include block chain technology<sup>[4]</sup> which has potential to integrate the supply chains well and whole building process will be streamlined.

### **Questions on impact of climate change for building supplies**

Q22 A cohesive approach by the construction industry and government is required to “connect the dots” between the benefits of offsite manufacturing and the adoption of LEAN principles. Too often industry discussion, white papers and policy documents that discuss climate change but are silent when it comes to the benefits of offsite. **Higher performance building designs are likely to make prefabrication more relevant and viable. More complex assemblies, requiring more coordination, easier to achieve high levels of quality in controlled process, i.e., factory.**

### **Questions on our high-level approach for our market study into residential building supplies**

Q24 Yes, international benchmarking is very important of both the offsite and onsite sectors. International alignment is important.

Q25 Engage with Offsite NZ and consider specific industry research.

### **Questions on vertical integration**

Q35 Vertical integration of material manufacturers, developer, builder, and prefabricator provides an obvious and significant competitive advantage compared to offsite only businesses. It is considered important that offsite operations should have access to wholesale distribution and pricing directly from the raw material manufacturer.

### **Questions on regulatory and standards systems**

Q49 NZ currently lacks standards for most important offsite systems. There is large capital expense for small entrants to develop 'their' system. This is a significant barrier. Furthermore, an organic approach to the development of offsite systems and QA results in a fragmented offsite landscape full of different ways of doing things, slowing uptake. Consenting of offsite designs are currently not standardised or streamlined across TCAs. Standardisation of selected and important offsite systems, could result in efficiencies in design, production, consenting and assembly. Currently it is virtually impossible for small players to develop their own OSM system, QA regime, market and expand 'their' system, by themselves.

Q54 The new modular component manufacturer certification scheme must be part of the pathway so small offsite companies are able to grow.

### **Questions on behavioural impediments**

Q56b All products/raw materials should be made available to the market clearly declaring relevant basic mechanical, thermal and acoustic properties

### **Questions on other issues and prioritisation**

62.1 Wind and earthquake considerations are not a unique requirement to design of buildings in NZ. Design methods for them may be different, but the requirements are not unique. This is important when importing materials from other jurisdictions testing to different standards.

62.2 "Window size measure" up is a symptom of industry inefficiency. There is no need to measure up if designers/manufacturers work to the same set of plans. Standard sizes could offer efficiencies to manufacturers.

Yours sincerely,



Scott Fisher  
CEO, OffsiteNZ

**References:**

1. Shahzad, W., J. Mbachu, and N. Domingo, *Marginal Productivity Gained Through Prefabrication: Case Studies of Building Projects in Auckland*. Buildings, 2015. **5**(1): p. 196-208.
2. Masood, R., et al., *A Systematic Review on Supply Chain Management in Prefabricated House-Building Research*. Buildings, 2022. **12**(1): p. 40.
3. Masood, R., J.B.P. Lim, and V.A. Gonzalez, *Performance of the Supply Chains for New Zealand Prefabricated house-building*. Sustainable Cities and Society, 2021: p. 102537.
4. Bakhtiarizadeh, E., et al., *Blockchain and Information Integration: Applications in New Zealand's Prefabrication Supply Chain*. Buildings, 2021. **11**(12): p. 608.