# Comment – Simon McCarthy

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| I am a Practicing Registered Professional Engineer of Queensland with 30 years of experience in the construction industry. I was engaged as a Subject Matter Expert by QBuild in 2024 to assist in the development of guidelines to design low to mid rise housing, due to my experience in knowledge in using offsite construction.<br>I am regularly engaged to design buildings with the intention of collaborating with builders and manufacturers to increase productivity in construction. Our company is called Systemised Design Group. We systemise the design process, using data from construction to improve efficiency on site. I am sharing our experience with feedback to the Queensland Productivity Commission in the hope that it will be beneficial to this report. |

SYSTEMISED DESIGN GROUP

Queensland Productivity Commission
GPO Box 611
BRISBANE QLD 4001

1 June 2025

**Queensland Productivity Commission – Construction Productivity Response for Initial Input – June 2025**

In reference to the Inquiry's Terms of Reference, I offer the following recommendations to improve productivity in the construction sector, based upon my 30 years of experience in the building industry.

I qualify my recommendations as a Chartered Professional Engineer and a Practicing Registered Professional Engineer of Queensland. In addition, I was engaged as a Subject Matter Expert (SME) by QBuild in 2024 to contribute toward new design guidelines for low-mid rise housing using Modern Methods of Construction.

The status quo approach to construction of housing is clearly not working.
My recommendations for the QPC Productivity Commission are tabled accordingly:

- Limit designing of every new government building project from scratch.
  For instance, 20 new ambulance stations shouldn't need 20 new designs.
  School classrooms are being standardised by private schools – why not government schools?
  The QBuild low-rise apartment layout allowed 17 different configurations for the same site.

- Provide standardised, yet adaptable building grids to reduce re-work and increase predictability.
  Benefits include savings of 10% cost also means 10% more for the same budget.
  Eg. Budget for 1000 homes can provide 1100 using offsite construction – in about half the time.
  This is being adopted in other States as a catalogue (or pattern book) of Gov't approved templates that already meet minimum planning guidelines.
  This follows the success of volume home builders who also utilise a catalogue of ready designs.

- Release government funded housing in yearly targets of say 3000, not in select packages of 10's or 100's. The intention is to open up the pipeline of housing supply to approved builders / manufacturers to supply whatever they can, rather than slow down between release of next package.
  This will allow manufacturers to increase their capability and possibly borrow funds to grow with confidence in the pipeline.
  Any extra homes that are over the yearly quota would be absorbed by other states, community housing providers or private developers.
  This also opens the opportunity for Qld-based housing manufacturers to export housing!

- Consider the "Platforms approach to Construction" being adopted by the UK Government.
  It allows freedom of design, whilst harnessing the benefits of standardisation.
  This approach uses common structural elements that can be configured in different ways for different sectors. It allows design of new buildings to commence with a head-start and build predictability into construction cost & programme. Refer to the attached for visual representation by Bryden Wood UK.
  P-DfMA in Action: How Platforms Transform Buildings from Homes to Hospitals

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- In business case for new building projects, add consideration or allowance for vertical expansion of buildings to deal with concentrated population growth. This is particularly relevant for school classrooms where cost of real estate is related to school zones. The utilisation of airspace instead of land space avoids reduction in landscaping, land cost, construction time, and the need for extra footings, footpaths, water catchment, etc.

- Record construction data to compare with design data – and make benchmark figures public, so that design fees and construction costs for pipeline projects of a similar nature can be based on more accurate records.
  - How often is the estimated construction cost by the QS at the start of construction compared to the as-built construction cost?
  - How often is the estimated construction programme by the Project Manager at the start of construction compared to the actual construction programme at the certificate of occupancy?

- Queensland should consider treating adverse weather conditions the same way that Nordic countries do. That is, utilise offsite construction for a majority of work that can be prefabricated. The known ability to utilise modular / kit-of-parts in a manufacturing environment allows construction to be done undercover, with safer work conditions. This significantly reduces the need to provide allowance for programme delays and minimises the volume of materials and trade traffic to individual sites.

- We need to use teams with experience in the implementation of DfMA (Design for Manufacture and Assembly) to educate other designers, manufacturers and builders on projects where offsite construction is relevant, and how it is to utilise a collaborative approach to design and construction.

- In summary, construction productivity in Queensland can be significantly improved by acknowledging that design quality directly affects construction productivity.
  Changes to design for the purposes of refinement is less expensive and obstructive than changes during construction. It minimises the incidence of RFIs and variations.
  In what other industry does each new project make allowances for change at the last minute?

I trust the above is insightful and beneficial. I hope it provides fresh ideas that will be used to support increased productivity of construction in Queensland.

Please feel free to contact me for continued support, or to provide clarification and further information.

Yours faithfully

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For and on behalf of
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