Comment – Manufacturing Skills Queensland

Comment
Manufacturing Skills Queensland's submission to the Queensland Productivity Commission's Interim Report on Construction Industry Productivity deliberately focuses on two critical and interconnected areas: Modern Methods of Construction (MMC) and Apprenticeships and Training Pathways. We have chosen these focus areas because they represent the nexus where manufacturing innovation meets construction challenges, creating both immediate opportunities and significant future potential for Queensland.

Ground Floor, Suite 2, 87 Wickham Terrace
SPRING HILL QLD 4000

1800 MSQ 000 (1800 677 000)
[redacted] | msq.org.au

ABN 89 663 505 191

Queensland Productivity Commission
266 George Street
PO Box 12078
George Street, QLD 4003

SUBMISSION IN RESPONSE TO INTERIM REPORT – CONSTRUCTION INQUIRY

Building Queensland's Future: Investing in Modern Methods of Construction for Economic Growth, Housing Solutions and Workforce Development

Manufacturing Skills Queensland's submission to the Queensland Productivity Commission's Interim Report on Construction Industry Productivity deliberately focuses on two critical and interconnected areas: Modern Methods of Construction (MMC) and Apprenticeships and Training Pathways. We have chosen these focus areas because they represent the nexus where manufacturing innovation meets construction challenges, creating both immediate opportunities and significant future potential for Queensland.

While the Commission's report addresses numerous aspects of construction productivity, we believe that the transformation of construction through manufacturing principles (MMC) and the development of appropriate skills pathways to support this evolution represent major opportunities for sustainable productivity improvement. The economic data demonstrating the existing 32.1% integration between manufacturing and construction sectors[i] provides a foundation upon which Queensland can build world-class MMC capabilities, but only if supported by reimagined training frameworks that bridge traditional industry boundaries. Our submission therefore examines these two areas, providing both analysis and practical recommendations to accelerate Queensland's progress in this crucial space.

Manufacturing plays a crucial and evolving role in Queensland's construction industry, contributing significantly to economic growth, innovation, and sustainability. The manufacturing sector generated $28.9 billion in value-add in 2023–24, accounting for 5.7% of the Gross State Product[ii], with nearly half of the workforce located outside Greater Brisbane[iii]. This regional distribution highlights the potential for MMC to support balanced economic development across the state.

Queensland is already seeing promising examples of MMC in action. PT Blink's innovative approach enabled the construction of a seven-storey apartment block in Brisbane in just 11 days by utilising off-site manufacturing techniques[iv]. Similarly, DC Constructions NQ in Garbutt specialises in transportable homes, producing structures off-site that are then transported to their final locations[v]. These examples demonstrate the potential for MMC to address Queensland's housing challenges at speed and scale.

MSQ is actively supporting the development of the skilled workforce needed for this sector. However, significant challenges remain in aligning our training systems with the evolving needs of MMC. Our submission outlines these challenges and provides recommendations for addressing the skills misalignment, and cross-industry collaboration deficits that currently impede MMC adoption in Queensland.

Global examples from countries with high adoption including Sweden, Japan, and Germany demonstrate that countries investing in MMC are delivering housing at scale while creating high-value jobs and driving economic growth[vi]. Queensland risks being left behind if we don't align our training systems with this industrial evolution happening at the intersection of construction and manufacturing.

MSQ looks forward to continuing to work with the Queensland Productivity Commission and other stakeholders to realise the full potential of MMC in addressing our state's housing and construction challenges.

Sincerely,

[redacted]

Rebecca Andrews
Chief Executive Officer
Manufacturing Skills Queensland

14.0 Modern Methods of Construction (MMC)

Modern Methods of Construction represent the evolution of traditional building approaches through the integration of manufacturing principles, digital technologies, and innovative materials. This convergence creates opportunities for significant productivity improvements, quality enhancements, and cost efficiencies while addressing Queensland's housing challenges. The following key issues highlight both the barriers to widespread MMC adoption and the substantial economic opportunities that await with strategic investment and coordination.

KEY ISSUES

Industry Transition Gap: Queensland's construction industry is not evolving quickly enough toward modern methods of construction, creating a widening productivity gap compared to international leaders in prefabricated and modular building technologies. This lag is evident in the slow adoption of factory-based production techniques that have revolutionised construction efficiency in countries and the proportion of homes built using MMC[vii]. While there are some excellent examples of Queensland manufacturers working in this space (including but not limited to ATCO Structures[viii], Modscape[ix], Mob Box Pty Ltd[x] and more), without accelerated transformation, Queensland risks being unable to meet its ambitious housing targets while international competitors continue to advance manufacturing-led construction approaches. Queensland's economic data reveals manufacturing already contributes 32.1%[i] of inputs to construction, creating a natural foundation for MMC transformation. However, these interconnected sectors operate in traditional silos rather than through the integrated production systems seen in international leaders.

Skills Alignment: There is a misalignment between traditional construction training and the evolving skills required for MMC, which combines manufacturing, digital literacy, and construction expertise in ways our current training system doesn't adequately address. Despite this misalignment, significant foundations already exist, data from 2020 to 2024 in Queensland shows substantial engagement with manufacturing qualifications in the construction sector—Certificate III in Cabinet Making and Timber Technology (665 enrolments), Certificate III in Engineering - Fabrication Trade (620), and Certificate III in Engineering - Mechanical Trade (235)[xi]. These existing cross-industry pathways demonstrate potential integration points, but structured frameworks are lacking to fully leverage these qualifications (and others) for MMC applications. The hybridisation of manufacturing and construction requires entirely new approaches to vocational education that build upon these existing foundations while creating specialised MMC pathways. The economic interdependence is clear—with 38.36% of residential construction inputs coming from manufacturing sub-industries[i]. This existing relationship provides a foundation for skills development but requires structured pathways that recognise the integrated nature of these industries.

Cross-Industry Collaboration Deficit: Our consultation with industry suggests construction and manufacturing industries are siloes, preventing knowledge sharing and collaborative approaches needed to drive MMC innovation and implementation at scale. Traditional industry boundaries create artificial barriers between sectors that must work together seamlessly to deliver MMC solutions. The absence of established forums and networks, and even a common language connecting these industries inhibits the transfer of technologies, processes, and skills that could accelerate Queensland's MMC capability development.

Underutilised Economic Opportunity: Queensland is missing significant economic diversification opportunities by not proactively developing its manufacturing capabilities in construction, particularly as international examples demonstrate MMC can deliver housing solutions at scale while creating high-skilled jobs. The convergence of construction and manufacturing presents possibilities for creating new domestic supply chains, reducing import dependencies, and developing exportable expertise. By failing to invest in this emerging sector, Queensland risks becoming a technology importer rather than a developer and exporter. Critical manufacturing sectors already show overwhelming dependency on construction, with wood products (88.2%), structural metal (58.4%), and cement/concrete (87.3%) sectors primarily serving construction[i]. MMC represents an opportunity to transform these existing supply chains into higher-value, more productive systems, and explore new ones that can address housing challenges while creating advanced manufacturing jobs. The manufacturing sector offers deep expertise in automation, precision engineering, and scalable production systems, which can be harnessed to support the construction industry by improving build quality, accelerating project timelines, and enabling more efficient, cost-effective delivery of housing and infrastructure through industry 4.0 standards that are already used in the manufacturing industry.

International Training and Skills Frameworks: Observing work done by other countries provides valuable insights for Queensland's MMC development pathway. A recent report by the CSA Public Policy Centre in Canada[xii] highlights a way forward through comprehensive training initiatives targeting the entire MMC ecosystem. The report outlines how provinces like Ontario and British Columbia have developed specialised guidance materials for building officials, while the Canadian Standards Association is creating online training courses that address the unique aspects of factory-built construction. These frameworks recognise that effective MMC implementation requires knowledge development across multiple stakeholders—including developers, architects, engineers, financiers, and regulatory authorities—not just construction workers. Drawing from international examples like this could accelerate Queensland's capacity to develop the cross-disciplinary workforce needed for successful MMC adoption and create an Australian-based framework for training and skills.

RECOMMENDATIONS

1. **Explore MMC-Specific Qualification Requirements:** Explore training pathways that recognise the hybrid nature of MMC skills, incorporating elements of manufacturing processes, digital technologies, and traditional construction techniques. These frameworks should enable the development of new micro-credentials that can supplement existing trade qualifications and provide clear career progression pathways. Special consideration should be given to transitioning pathways for existing construction workers to gain manufacturing competencies without starting their training from scratch. One approach could be to focus on areas with high manufacturing-construction integration-particularly wood products, structural metal—to develop pilot programs that demonstrate MMCs potential.

2. **Form an MMC Industry Leadership Council and Training Sub-Committee:** Form a council of key stakeholders from construction, manufacturing, education, and government to coordinate Queensland's MMC strategy. The council should include both large firms and SMEs, with authority to advise on policy reforms and coordinate cross-sector initiatives. A dedicated Training Sub-Committee should focus specifically on developing workforce capabilities required for advanced manufacturing in construction.

16.0 Apprenticeships and Training Pathways

The successful implementation of Modern Methods of Construction depends fundamentally on a workforce equipped with the right skills at the intersection of construction and manufacturing. Existing training frameworks, however, were designed for traditional construction environments and require evolution to support MMC's growth. The following issues outline the critical gaps in current training approaches and the transformations needed to develop Queensland's future MMC workforce.

KEY ISSUES

Current Training Models: Current apprenticeship models remain largely unchanged despite the need to evolve construction methods, with training content not keeping pace with technological advancements including MMC approaches. Training packages continue to emphasise traditional on-site techniques while giving minimal attention to factory-based production methods increasingly used globally. The rigid structure of traditional apprenticeships lacks the flexibility needed to incorporate emerging manufacturing skills alongside core construction competencies.

Insufficient Cross-Sector Skills Development: Training pathways are siloed within traditional construction trades rather than cultivating the cross-disciplinary skills needed for modern construction environments that increasingly incorporate manufacturing processes. Students in construction-related training rarely gain exposure to manufacturing principles, robotics, or production line efficiencies that are central to MMC operations. This siloed approach fails to prepare workers for environments where construction and manufacturing processes are increasingly integrated.

Limited Manufacturing Skills Integration: Apprenticeship frameworks fail to incorporate manufacturing skills that are becoming essential as construction evolves toward more prefabrication and modular approaches. Current training places minimal emphasis on production efficiency principles, quality assurance in manufacturing settings, or the operation of advanced manufacturing equipment increasingly used in MMC facilities. The absence of these manufacturing competencies in construction training creates a significant skills gap for the emerging MMC workforce.

RECOMMENDATIONS

1. **Establish an MMC Skills Mapping Initiative:** Commission a comprehensive skills mapping analysis across the MMC ecosystem to identify critical workforce capabilities, gaps, and future requirements, creating a strategic roadmap for Queensland's MMC sector that bridges construction, manufacturing, and digital skills. This initiative should engage industry stakeholders from both construction and manufacturing sectors to ensure identified skills pathways reflect actual industry needs. The mapping should extend beyond technical trade skills to encompass project management, digital literacy, and advanced manufacturing capabilities required in MMC environments. MSQ is able to work with state and federal stakeholders in an agile way to support this initiative.

2. **Explore MMC-Focused Apprenticeship Streams:** Explore specialised pathways that combine traditional construction skills with manufacturing and digital capabilities, creating a new generation of workers equipped for the MMC sector. These pathways should include rotations between factory and site environments to build comprehensive understanding of the full MMC value chain. Curriculum should emphasise both the technical skills and collaborative work practices essential in integrated MMC operations where multiple trades work simultaneously in factory settings. MSQ is able to work with state and federal stakeholders in an agile way to explore streams.

3. **Invest in Training Materials:** Create a comprehensive suite of training materials that combine traditional construction skills with manufacturing and digital capabilities. These standardised resources should be designed for immediate adoption by all registered training organisations, ensuring consistent, high-quality training delivery across Queensland. Materials should incorporate both factory and on-site components, emphasising collaborative work practices essential in integrated MMC environments where multiple trades operate simultaneously. This standardised approach will accelerate delivery and enable rapid scaling of MMC workforce development. MSQ is able to work with state and federal stakeholders in an agile way to design and develop resources.

REFERENCES

[i] Australian Bureau of Statistics. (2022-23). *Australian National Accounts: Supply Use Tables*. ABS. https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-supply-use-tables/latest-release

[ii] Australian Bureau of Statistics. (2023-24-financial-year). *Australian National Accounts: State Accounts*. ABS. https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-state-accounts/latest-release

[iii] Australian Bureau of Statistics. (2025, July). *Labour Force, Australia, Detailed*. ABS. https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia-detailed/latest-release

[iv] Gabel, E. (2025, January 20). Building superstructures in 11 days: Inside the new world of smart construction. Innovators Magazine. From https://www.innovatorsmag.com/superstructures-built-in-11-days-inside-the-new-world-of-smart-construction/

[v] DC Constructions NQ. (2025). High-end modular construction: Specialising in the design, construction and installation of transportable buildings throughout Queensland. From https://dcconstructionsnq.com.au/

[vi] Savills Research. (2023). Why modern methods of construction are a good fit. Savills Impacts. From, from https://impacts.savills.com/technology/why-modern-methods-of-construction-are-a-good-fit.html

[vii] Savills Research. (2023). Why modern methods of construction are a good fit. Savills Impacts. From, from https://impacts.savills.com/technology/why-modern-methods-of-construction-are-a-good-fit.html

[viii] ATCO Structures. (2023). Modular and Prefabricated Building Solutions in Queensland. Retrieved from https://www.atcosl.com.au/

[ix] Modscape. (2024). Queensland Modular Building Solutions. Retrieved from https://www.modscape.com.au/

[x] MOB BOX PTY LTD. (2025). Customized container solutions: Shipping containers & portable buildings. Retrieved from https://www.mobbox.com.au/

[xi] National Centre for Vocational Education Research. (2020 to 2024). *Apprentices and trainees.* NCVER. https://www.ncver.edu.au/research-and-statistics/data/databuilder#

[xii] CSA Public Policy Centre. (2024). Seizing the Modular Construction Opportunity. CSA Group. Retrieved from https://www.modular.org/2024/02/15/seizing-the-modular-construction-opportunity-csa-group-report/