AUSTRALIAN STEEL INSTITUTE

# SUBMISSION ON DEVELOPING A TRAINING PLAN FOR THE QUEENSLAND MANUFACTURING INDUSTRY

Thank you for the opportunity for the Australian Steel Institute to provide input on the development of a training plan for the Queensland manufacturing sector, as outlined in the Manufacturing Skills Queensland (MSQ) discussion paper. As a key player in the manufacturing landscape, the steel industry recognizes the importance of investing in skills development to drive innovation, enhance productivity, and maintain global competitiveness. We appreciate the opportunity to contribute to this crucial initiative and offer our insights on various aspects of the proposed training plan.

The following report provides an overview of the Queensland Steel Industry and highlights ASI activities in the training and education space. The report seeks to complement the answers ASI has provided in the online survey on the MSQ website.

## OVERVIEW OF QUEENSLAND STEEL FABRICATION INDUSTRY

The Queensland steel supply chain is primarily part of the manufacturing sector. The main participants of the Queensland steel supply chain include steel distributors, rollformers and steel fabricators which are classified as manufacturers. These companies are supported by design engineers, drafting and detailing services, onsite steel erectors, transport companies and associated companies such as painters, galvanisers and equipment providers..

The current state of the Queensland steel construction and fabrication industry is as follows:

- There are 110,000 people employed in the steel industry in Australia. Queensland has 25,000 people employed in the sector. Applying a 3x to 5x manufacturing multiplier, the number of jobs affected in Queensland likely exceeds 100,000, making it a significant employer and important contributor to the Queensland Economy. [1]
- Queensland steel fabricators, distributors and rollformers have committed heavily to new technology in recent times to meet the demands of building and construction projects. Industry 4.0 continues to be embraced by the local steel supply chain from design through to manufacture leading to more efficient production and fabrication processes.
- Steel processing and fabrication capacity has recently increased by close to 30% due to the installation of computer controlled automatic cutting and drilling equipment combined with robotic welding machines. This has provided ample reserve capacity in the Queensland steel supply chain and supports the Government initiatives to foster innovation.
- The capability and capacity of local steel fabricators is further extended by the outsourcing of some functions to a community of specialist subcontractors which carry out steel bending, laser cutting, blast cleaning, painting, hot dip galvanizing and transportation.

**A full list of ASI company members is available to view at the ASI Industry Directory at [www.steel.org.au/industry-directory/](www.steel.org.au/industry-directory/)**

## A THRIVING MANUFACTURING INDUSTRY GENERATES IMPORTANT BENEFITS ACROSS THE WHOLE ECONOMY

With the correct government support over 400,000 new direct jobs can be generated in manufacturing in Australia delivering tens of billions of dollars in additional tax revenue for governments at all levels. [2]

For every $1 million of retained manufacturing business: [3]

- *A further $713,400 of value-added is generated.*
- *$225,300 of tax revenue is generated.*
- *$64,900 worth of welfare benefits is saved.*
- *6 full-time jobs are created or saved.*
- *Important skills sets are retained which are required for on-going industry development.*

## THEME 1 - ATTRACTION AND ENGAGEMENT

To attract and engage individuals in the manufacturing sector, including school leavers and individuals transitioning from other industries, proactive outreach efforts are essential. We suggest implementing targeted marketing campaigns to highlight the diverse career opportunities available in manufacturing, emphasizing the industry's technological advancements, sustainability initiatives, and potential for career growth. Collaborating with educational institutions and vocational training centres can also facilitate the promotion of manufacturing careers and foster stronger ties between academia and industry.

**Current ASI activities supporting this theme include:**

**ASI Careers Centre and Jobs Board**
ASI Careers Centre https://www.steel.org.au/consider-a-career-in-the-steel-industry/.

The ASI Career Centre enables prospective employees to check out the many jobs currently available in Australia's largest steel jobs board and is open to everyone interested in a job in the Australian steel industry. The Careers Centre has unique offerings which are not available through traditional job sites. In addition to job listings, the site offers certified coaching on compiling a resume and handling interviews.

**Support of University Students**
ASI 3rd Year University Student Awards. Presented to the highest achieving structural engineering students based on the results of their 3rd steel design subjects. Every Queensland university teaching structural engineering is invited to participate. The awards consist of a certificate and ASI eLearning course voucher valued at $500 (ASI member prices). This allows the winning student to choose any of the available eLearning courses. The voucher expires 6 months after the date it is presented to the winning student.

ASI 4th Year University Student Scholarship. Launched in 2024 in conjunction with the Queensland University of Technology (QUT) and supported by Queensland manufacturer Orrcon Steel. The successful student receives a scholarship of $10,000 to undertake a 4th year thesis on a steel topic which this year is “Screw in Steel Piles”.

ASI University Student Lectures. Lectures offered and presented by ASI State Managers on steel design and construction to 2nd and 3rd year structural engineering students at Queensland Universities.

**World Skills Australia (WSA)**
ASI is a World Skills Australia partner for the next 2 years and is supporting the Welding and Construction Steelwork categories in conjunction with Weld Australia and the Outsource Institute. The 2023 national competition was held in Melbourne on 17-19 August as part of the Victorian Careers & Employment Expo. The competition was undertaken by TAFE students. The winning students will be travelling to Lyon in France in September next year to compete in the international competition.

The following events are planned for 2024 leading up to when the Australian competitors depart for Lyon to compete in the international competition:

- Global Skills Challenge to be held at a Victorian TAFE College in April/May. Overseas competitors will be attending this event which will allow the Australian competitors to experience competing against world class competitors.
- Skills Excellence Forum to be held in Adelaide. Selected Australian competitors will speak at the Forum to promote the WorldSkills Competition
- Government event at Parliament House in Canberra in June. Federal Government ministers will interact with the Australian competitors and be informed of the competition.
- Farewell Ceremony to be held in Melbourne in September. This event will be held just prior to the competitors flying to Lyon to compete in the international competition

ASI sees its partnership with WSA as an excellent way to promote greater skills achievement by its steel fabricator members and the apprentices in their employ. Creating and promoting role models in the WSA winners can act as a catalyst to attract school leavers to a career in the steel industry.

Further details at https://www.worldskills.org.au

**ASI Webpage for Career Advisors**
ASI is developing a new webpage designed for secondary school careers advisers and teachers. Careers advisors are key influencers with students and require the appropriate resources to be able to provide information on the various careers in steel. By helping them to be more effective in educating students about careers in steel, it will increase the level of awareness and interest in both the trades and professions, which will hopefully translate into more school-based apprenticeships, apprenticeships, traineeships and boost interest in STEM generally.

**Connecting with Schools**
ASI is proactive in supporting its members to connect with their local schools to offer students opportunities such as workshop tours or hands-on activities with steel. These types of real-world experiences help young people make more informed career choices.

## THEME 2 – TRANSFORMATION AND LEADERSHIP

As the manufacturing landscape continues to evolve, effective leadership and a culture of continuous improvement are imperative for driving organizational transformation. We recommend incorporating leadership development programs into the training plan to equip current and future industry leaders with the skills and competencies needed to navigate change, inspire innovation, and foster a supportive work environment. Emphasizing ethical leadership, strategic thinking, and effective communication will empower manufacturing professionals to lead their teams and organizations towards sustainable growth and success.

**Current ASI activities supporting this theme include:**

**Certification Schemes**
A key focus area for ASI is lifting the skills, compliance, sustainability and industry performance of the Australian steel supply chain via 3 certification schemes being:

National Structural Steelwork Compliance Scheme
ASI has developed the National Structural Steelwork Compliance Scheme (NSSCS) to pre-qualify steel fabricators to ensure they have the correct systems in place and employ skilled workers to achieve the required quality of work and meet the requirements of Australian standards.

The NSSCS is an independent third-party quality compliance and certification system for the supply, fabrication, and erection of structural steelwork in Australia. The technical basis for the NSSCS is founded on Australian Standard AS/NZS 5131 'Structural steelwork – Fabrication and erection' and is applicable to structures designed to AS 4100 (structural steelwork), AS/NZS 5100.6 (bridges) and supporting Australian Standards, including those for welding, bolting and corrosion protection. Steelwork Compliance Australia (SCA) is accredited by the Joint Accreditation System of Australia and New Zealand (JASANZ) to audit and certify steel fabricators to the full requirements of AS/NZS 5131. The list of certified fabricators can be found at https://www.scacompliance.com.au/

Steel Sustainability Australia
Established in collaboration with the Green Building Council of Australia (GBCA), the Steel Sustainability Australia (SSA) certification program is helping to drive meaningful improvement in the environmental footprint of its certified steel supply chain companies. The program assesses environmental and social impact across the steel value chain in the manufacturing, fabrication and processing of steel.
The scheme is a recognised initiative under the GBCA Responsible Products Framework, gaining 'Good or Best practice' product recognition in the Green Star Buildings rating tool.
Requests for SSA certification are included in project specifications by specifiers. The list of certified manufacturers can be found at www.steelsustainability.com.au

ShedSafe
ShedSafe is a third-party accreditation program managed by the Australian Steel Institute (ASI) that works with ASI members and their certifying engineers to supply sheds that are compliant with the National Construction Code. ShedSafe members have their engineering audited on an annual basis by third party independent engineers to ensure their design principles are compliant with the National Construction Code. ShedSafe members also use the ShedSafe site check site classification program to determine the correct site wind speed for the building, and is certified by the engineer prior to manufacture. Further details can be found at https://shedsafe.com.au/

## THEME 3 – TRAINING, SKILLS AND QUALIFICATIONS

The cornerstone of a robust training plan is the provision of relevant and high-quality training programs tailored to the needs of the manufacturing workforce. We advocate for the development of competency-based training frameworks that align with industry standards and best practice. These programs should cover a wide range of technical skills, including welding, materials science, and automation, as well as soft skills such as problem-solving, teamwork, and adaptability. Additionally, establishing pathways for industry-recognized certifications and qualifications will enable workers to validate their skills and enhance their employability within the sector.

**Current ASI activities supporting this theme include:**

**In-person seminars and technical presentations**. These are presented on topics of interest to the design and manufacturing sector. Examples include design to Australian standards, bolting, welding, corrosion protection, composite design.

**Online webinars**. These are available to view online over a 4 week period. Topics have included Site Inspection of Structural Steelwork, Workshop Inspection of Structural Steelwork, Reducing the Risk of Fatigue of Welded Steelwork, Design and Installation of Insulated Sandwich Panels, Introduction to Cold-Formed Light Gauge Steel (LGS) and LGS Detailing

**eLearning Courses**. The ASI eLearning portal brings together in one location relevant curated high-quality learning material for all stakeholders involved in and/or servicing the Australian steel supply chain. The eLearning platform is designed to help meet the Continuing Professional Development (CPD) needs of steel industry professionals via engaging online courses that are available 24/7 every day of the year. Over 60 courses are currently available with more to be added. Expert speakers deliver the pre-recorded courses, in the form of multiple 20 minute videos. Multiple choice quizzes are undertaken by participants at the completion of each sub topic. The quizzes provide an assessment of competency in the subject material.

The Steel Induction eLearning Course provides an overview of the industry and the employees' role in steel. This simple, easy to use course caters for everyone from factory floor and administration employees to engineering graduates. It is designed to provide an overview of the steel industry giving context to an employee's role, responsibilities and interaction with other members of the steel supply chain. There are three options available in the course; Basics, Fundamentals and Fundamentals Extended.

- Basics – for general steel industry staff in areas such as administration, finance, HR,IT, supply chain and logistics
- Fundamentals and Fundamentals Extended – for technical, engineering and design roles

Depending on the modules completed, staff will:

- Understand how steel is made, from preparation of raw materials through reduction and refining to shaping into the final steel product
- Understand the different types of steel products and their uses
- Be aware of the range of post-processing available to create the structural steel products
- Appreciate and identify the quality needed to ensure products are fit-for-purpose and risk minimised
- Understand the steel supply chain and where they fit into it.

All of the eLearning courses are available at https://learn.steel.org.au/

**Vocational Education courses** consisting of Rollformers course, Steel Distributors course and ShedSafe Shed Builder Course

Rollformers Course - Certificate II in Engineering – Roll Forming (MEM20105)
Developed by Kangan Institute and Frontline Group with guidance from ASI members Apex, ARM, BBC, Dematic, Metroll, Rondo, Steeline, Stramit and Stratco. The course has been set up to be delivered by an RTO and consists of 14 modules. Each module consists of 2 hours of classroom training and one hour on the factory floor with the teacher to observe and confirm competence

Some of the products produced from the roll forming process include:

- Corrugated roof sheeting
- Guttering and downpipes
- Wall cladding
- Garage Doors
- Fence posts and panels

Steel Distributors Course - Certificate II in Engineering – Distribution & Processing (MEM20105)
Developed and piloted by TAFE NSW in partnership with ASI member Southern Steel. The course has been set up to be delivered by an RTO and consists of 14 modules. Each module consists of 2 hours of classroom training and one hour on the factory floor with the teacher to observe and confirm competence.

Some of the processes carried out by Steel Distributors include:

- Loading and unloading steel from transport
- Movement of steel via overhead cranes
- Sorting and storage of steel
- Setting and operation of CNC equipment
- Cutting & drilling steel

ShedSafe Shed Builder Training Course "Erection of Prefabricated Metal-Framed Homes and Structures"

- Course developed in conjunction with Masters in Building Training (MIBT)
- Self-paced web based training program to be completed over a 2 year period
- On completion of the course each participant receives a certificate of attainment
- A recognition of prior learning (RPL) option is also available for experienced shed builders

Further details at https://shedsafe.com.au/shed-builder-training-course/

## THEME 4 – ADVANCEMENT AND THE FUTURE

To support career advancement and future-proof the manufacturing workforce, it is crucial to offer ongoing learning and development opportunities. We propose the implementation of upskilling and reskilling initiatives that address emerging technologies, industry trends, and market demands. Investing in advanced training modules on topics such as CNC fabrication equipment, digitalization, and sustainability will empower workers to stay ahead of the curve and contribute to the industry's continued growth and innovation. Furthermore, fostering a culture of lifelong learning and providing incentives for professional development will encourage individuals to pursue career advancement opportunities within the manufacturing sector.

**Current ASI activities supporting this theme include:**

**Support of the Australian Construction Modellers Association (ACMA)**
The profession of steel detailing is increasingly aligned with 3D modelling and the rich immersive technologies thar are coming together to allow a complete supply chain based on the 3D model produced by steel detailers being millimetre perfect. Hence we are increasingly seeing steel detailers in the role of construction modelers responsible for developing and coordinating the 3D model ultimately used for fabricating and erecting the structure.

ASI is supporting ACMA in its development of a new course for Steel Detailers/Construction Modellers which will highlight the latest technology on 3D modelling and on-site point cloud scanning to facilitate efficient fabrication and erection of structural steelwork.

The new course which will consist of 15 modules is being developed by Paul McLeod of Tekcon Services and will use the ASI Steel Detailer's Handbook as the basis for the course. The board of ACMA has approved the self-funding of the first 5 modules and is seeking financial support to help fund the remaining 10 modules.

## THEME 5 – DIVERSITY IN MANUFACTURING

Promoting diversity and inclusion is not only a moral imperative but also a strategic advantage for the manufacturing industry. We support initiatives aimed at increasing diversity across all levels of the workforce, including gender diversity, cultural diversity, and neurodiversity. Implementing targeted recruitment strategies, offering mentorship and support programs for underrepresented groups, and promoting inclusive workplace policies are effective ways to create a more diverse and inclusive manufacturing environment. Embracing diverse perspectives and experiences will enrich the industry's creativity, innovation, and problem-solving capabilities, ultimately driving greater success and sustainability.

**Current ASI activities supporting this theme include:**

**ASI Diversity and Inclusiveness Group**
The ASI Diversity and Inclusiveness Group was formed to provide a forum for members to share 'success stories' from their workplaces. The experience of business leaders from a wide range of small and medium sized businesses that have implemented policies and initiatives to increase workplace diversity and inclusiveness were documented in a recent Steel Australia magazine feature article. It is also planned to produce a more detailed version of these success stories in booklet form, in order to provide likeminded business leaders with practical strategies and ideas.

## SPECIFIC SUPPORT ASI IS SEEKING

In conclusion, the steel industry is committed to collaborating with Manufacturing Skills Queensland and other stakeholders to develop a comprehensive training plan that addresses the evolving needs of the manufacturing workforce. By prioritizing attraction and engagement, fostering leadership excellence, providing relevant training and qualifications, supporting career advancement, and promoting diversity and inclusion, we can build a skilled and resilient manufacturing workforce capable of driving Queensland's economic prosperity and industrial growth.

**Specific areas that ASI is seeking support**

Marketing and funding assistance from MSQ to:

- increase the uptake of the ASI Steel Induction eLearning course amongst the Queensland steel supply chain.
- Increase the uptake of the Vocational Education courses being the rollformers course, steel distributors course and ShedSafe Shed Builder Course amongst the Queensland steel supply chain
- Funding support to the Australian Construction Modellers Association to complete and release its course on Steel Detailing and Construction Modelling to upskill the industry to the latest technology.

Thank you for considering our input. We look forward to contributing further to this important initiative.

## REFERENCES


1. Capabilities of the Australian steel industry to supply major projects in Australia - available to download at www.steel.org.au/about-us/our-industry/
2. AMWU "A Fair Share for Australian Manufacturing: Manufacturing Renewal for the Post-COVID Economy"
3. Industry Capability Network (ICN), "Economic impacts of the manufacturing and services sectors"