

Submission
No 53

**INQUIRY INTO PROCUREMENT PRACTICES OF
GOVERNMENT AGENCIES IN NEW SOUTH WALES AND
ITS IMPACT ON THE SOCIAL DEVELOPMENT OF THE
PEOPLE OF NEW SOUTH WALES**

Organisation: Australian Steel Institute (ASI)

Date Received: 13 March 2024

Submission to the *Inquiry into the procurement practices of government agencies in New South Wales and its impact on the social development of the people of New South Wales*

Submission to the Inquiry into the procurement practices of government agencies in New South Wales and its impact on the social development of the people of New South Wales

The Australian Steel Institute (**ASI**) is pleased to make a submission to the *Inquiry to the procurement practices of government agencies in New South Wales and its impact on the social development of the people of New South Wales*.

Introduction

The ASI is the national peak body representing the entire steel supply chain, from the primary producers through to end users in building and construction, resources, heavy engineering and manufacturing.

The membership base includes approximately 6,000 individuals that are associated with more than 600 corporate memberships and over 350 individual memberships.

A not-for-profit member based organisation, ASI activities extend to, and promote, advocacy and support, steel excellence, standards and compliance, training, events and publications. The ASI provides marketing and technical leadership to promote Australian-made steel as the preferred material to the resources, construction, and manufacturing industries, as well as policy advocacy.

The Australian steel industry

The Australian steel industry consists of three primary steel producers, supported by over 300 steel distribution and processing sites throughout the country and hundreds of manufacturing, fabrication and engineering companies.

Australia's primary steel producers and steel product manufacturers together form a strategically important value chain that has the capability to supply in excess of 90 per cent of the steel grades and qualities required in this country. If special categories such as very large diameter pipe, stainless steel, electrical steel, and tinplate are excluded, then the capability is significantly closer to 100 per cent.

Australia produces around 6 million tonnes of steel per annum across four major manufacturing locations. It is important to note the economic and social contribution of the Australian steel industry. It employs over 100,000 people and generates \$29 billion in annual revenue, and is associated with a disproportionately large share of skilled jobs in regional and rural areas.

The economic contribution of the Australian steel industry is very significant. Based on recently completed analysis conducted by BIS Oxford Economics, it is estimated that for every \$1 million invested,

- 5 workers are employed in the steel and closely related industries,
- \$2.8 million output is contributed to the economy, and

- \$1.1 million of value is added to Australian GDP.

Steel fabrication is essential for manufacturing of bespoke construction products such as foundations, piling, columns, beams, girders, gantries, platforms, and towers. Areas of specialisation include wind turbine towers, transmission towers, storage tanks, chemical processing plant, boilers and pressure vessels, mining infrastructure refurbishment, mobile equipment for underground and surface mining, mobile cranes, bridges, armoured vehicles for Defence, naval and domestic ship building, rolling stock, truck bodies and trailer chassis.

The steel industry is noteworthy in having a high proportion of jobs and businesses located in regional areas or non-capital cities, where unemployment is typically higher than the national average. The industry is technically complex and requires a highly skilled workforce to support it, encouraging the ongoing presence of high-quality tertiary education institutions in regional areas.

The below table sets out the steelmaking capacity and production processes used in Australia. NSW is home to approximately two thirds of national steel production capacity.

Company	Manufacturing Locations	Typical Production	Production Process
BlueScope	Port Kembla, NSW	3.2 million tonnes	Integrated (BF/BOF): iron ore / coal / scrap steel Coke Ovens, Sinter Plant, Blast Furnace, BOF steelmaking
InfraBuild	Laverton, VIC	0.7 million tonnes	EAF route: scrap steel EAF steelmaking
	Rooty Hill, NSW	0.6 million tonnes	
Liberty Primary	Whyalla, SA	1.2 million tonnes	Integrated (BF/BOF): iron ore / coal / scrap steel Coke Ovens, Pellet Plant, Blast Furnace, BOF steelmaking

The steel industry is a key enabler for the nation's renewable energy transition and associated legislated climate targets. Between now and 2030 it is estimated that at least 400,000 tonnes of extra fabricated steelwork will be required per annum to service over 23 GW of existing renewable energy generation projects across wind, solar, water and transmission infrastructure.

Overview of concerns with the current procurement practices

The ASI would like to introduce this submission by providing some examples of issues that have occurred with the current procurement practices over recent years. These issues relate primarily to:

- Loss of significant opportunities to stimulate skilled employment, business investment, and local economic activity in NSW regions due to fabricated steelwork being imported rather than sourced locally. This is in the context of the government contribution to project funding being contingent on being used to *stimulate the regional economy and help create sustainable job opportunities and skills, and to support a project that is transformational for a region, supporting long term economic growth and jobs in the region.* Please refer to Appendix 1 and 2 for details.
- Maintenance and rectification costs in excess of 150% of the original cost of installation being incurred due to lack of in-service performance specifications being included in procurement requirements. Please refer to Appendix 3 for details.

Response to Terms of Reference

The ASI would particularly like to comment on the following clauses of the Terms of Reference, and where appropriate offer recommendations, as follows.

- b) the effectiveness of whole of government and agency procurement arrangements, including standing offers, panels and prequalification schemes, in ensuring that suppliers and their subcontractors deliver value for money and comply with relevant policies and regulations, including labour laws, at the qualification, contract negotiation stage and contract management stages of procurement

Assisting with compliance

As the Australasian Procurement and Construction Council says in its document [Procurement of Construction Products: A Guide to Achieving Compliance](#) (2015):

‘Evidence suggests that the market penetration of non-conforming products in several key construction product sectors in Australia may be up to 50 per cent. This is a sobering and alarming statistic.’

Observable defects such as substandard welding that needed to be ground out and replaced, laminations in plate that could cause catastrophic failure, substandard corrosion protection affecting the life of an asset and generally poor workmanship were found unfortunately to be commonplace on imported structural steelwork.

There also is a price depressing effect from these imports that affects a sector of local fabricators that are forced to chase price at the expense of maintaining their quality systems and procedures. The knock-on effect is that currently many fabricators and steelwork manufacturing SMEs are unable to maintain a reasonable profit that would allow them to reinvest in their businesses, for example in new technology such as robotic automation which could aid competitiveness.

Testing by the steel industry has also identified metallic coated and pre-painted steels that do not meet Australian Standards and regulations. Examples include substandard metallic coating and paint thicknesses and non-conforming levels of lead in paint. The non-compliances are not limited to poor quality and bad workmanship but extend to deliberate fraudulent behaviour with examples such as falsified test certificates, welds made with silicone rubber and then painted, attachment of bolt heads with silicon rather than a through bolt, and water filled tube to compensate for underweight steelwork with fraudulent claims that their products meet particular Australian Standards.

This issue of non-compliant substitutions concerns building surveyors or inspectors who may not have the engineering expertise, knowledge, or often the opportunity to identify steel defects, or check whether the steel supplied is compliant.

Builders and project managers may take on the responsibility of site inspection but often do not have the skills or knowledge to understand compliance at a material or

fabrication level. Moreover, for structural steelwork there is currently no reliable system for surveillance of imported building products apart from product failure. However, if defects with major structural steel items are discovered, the prime contractor often has no alternative to meet the time constraints but to accept faulty product or try to patch repair any defects.

In 2014, the ASI implemented a National Structural Steelwork Compliance scheme that allows steelwork fabricators to elect to be audited for compliance capability. It is voluntary and relies on contractor engagement and good purchasing practice for its success. It is modelled on the steel product compliance principles used in the UK where there is a risk categorisation for each type of structure and the fabricator capability requirements are commensurate with the level of complexity and nature of the risk profile involved. There is a comparable voluntary scheme used in the USA.

The scheme is open to all fabrication companies from any country and provides the engineer and client reassurance that the subcontractor is certified as being capable of carrying out the work to Australian Standard requirements at a predetermined risk category of the project. The objective of [Steelwork Compliance Australia](#) (SCA) is to provide quality compliance certification for the supply, fabrication and erection of structural steelwork to AS/NZS 5131 by the requirements of the ASI National Structural Steelwork Compliance Scheme (NSSCS).

In a similar vein, NSW has a direction issued by the NSW Procurement Board, which requires compliance with AS/NZS 5131 *Structural Steelwork – Fabrication and Erection* and will, wherever practicable, specify the use of certified steel fabricators and erectors. The relevant publication is PBD-2016-03: [Construction standards and conformance](#)

Recommendations:

The concept already applied within the NSW procurement policy frameworks should be extended so that:

- (a) All structural steel products should be sourced from mills with Australasian Certification Authority for Reinforcing and Structural Steel (ACRS) or comparable independent third-party certification;**
- (b) All fabricated steelwork products should be obtained from suppliers certified by Steelwork Compliance Australia third-party certification;**
- (c) All structural steel and fabricated products should be sourced from businesses accredited under the steel industry's Steel Sustainability Australia certification program; and**
- (d) steelwork meeting Australian Standard AS/NZS 5131 should be used by all agencies when entering into contracts for the construction of all forms of building. This should be a condition imposed by the NSW government for any agency or local government jurisdiction receiving NSW government funds for infrastructure projects.**

- e) the evaluation criteria used in tenders and how they are weighted in making a decision to award a contract, in particular consideration of:
 - (i) local content
 - (ii) value for money
 - (iii) social, economic and labour market outcomes
 - (iv) environmental considerations, such as sustainable sourcing, energy efficiency and waste reduction
 - (v) innovation
 - (vi) subcontracting arrangements

Value for money and whole of life considerations

When assessing value for money officials must consider the relevant financial and non-financial costs and benefits of each proposal.

The ASI considers the definition of what constitutes ‘value for money’ used by many Australian governments in procurement documentation is construed in a relatively narrow way, overly focusing on achieving the cheapest cost option rather than the option that benefits the economy as a whole.

In addition, ‘whole of life’ considerations are not given appropriate weight as they relate to large infrastructure projects. Purchasing locally provides other significant savings for a projects whole-of-life costing, like lower inventory to manage, reduced lead times and improved after-sales support.

Continuity of work within the local industry helps ensure that the existing high skills base is available for ongoing maintenance. Onsite inspection costs can be significantly reduced where the personnel involved are resident in the region.

Locally fabricated steelwork can take advantage of road, rail or local sea transportation, maximising flexibility and economy in meeting delivery schedules and ensuring that project schedules are met.

Regular face-to-face contact between the builder, fabricator and detailer ensures that delays are minimised when design or site erection schedule changes arise. The industry is serviced by a network of steel distribution centres throughout Australia that stock a depth and range of steel products enabling fabricators to quickly source material to respond quickly and cost-effectively to any changes.

Finally, a whole family of Australian Standards ensures safe and economic use of steel. Australian Standards are used as a matter of course by Australian-based members of the steel supply chain. They ensure mechanical properties, chemical composition, dimensional and mass tolerance. They cover welding, painting, galvanising and design to deliver quality and reliable solutions. Like links in a chain, if one Standard’s requirements are not met, the whole system is likely to fail.

These are clearly matters that should be dealt with exhaustively in any guidance given with regards to ‘whole of life’ and ‘value for money’ issues.

Maintenance of this supply chain capacity (jobs, capabilities, skills and investment) also clearly offers social and environmental advantages to the nation, as well as providing procurers with a greater choice of vendor.

Value for money evaluation should incorporate triple bottom line, social, economic and environmental sustainability considerations as well as whole of life costing. A wider view of what constitutes ‘value for money’ should continue to be adopted.

The Australasian Procurement and Construction Council (APCC) published the [*Australian and New Zealand Government Framework for Sustainable Procurement*](#), which contained the following principles that guide the implementation of sustainable procurement:

1. Adopt strategies to avoid unnecessary consumption and manage demand;
2. In the context of whole-of-life value for money, select products and services which have lower environmental impacts across their life cycle compared with competing products and services;
3. Foster a viable Australian and New Zealand market for sustainable products and services by supporting businesses and industry groups that demonstrate innovation in sustainability; and
4. Support suppliers to government who are socially responsible and adopt ethical practices.

Further guidance is set out in 12 principles in the APCC publication *Procurement of Construction Products – A Guide to Achieving Compliance (2015)*.

Recommendation

Government procurement regulatory instruments should make mandatory adherence to the Principles for Procurement and Conformance of Construction Products set out in the APCC document *Procurement of Construction Products – A Guide to Achieving Compliance*.

- h) procurement best practice to encourage ethical conduct and promote social development in other jurisdictions, both nationally and internationally

Steel Sustainability Australia

The [Steel Sustainability Australia](#) (SSA) certification program was established by the ASI to identify sustainable steel suppliers by assessing the environmental and social impact of their steelwork manufacturing and processing operations. The SSA program engages the entire steel value chain by certifying downstream steel fabricators, roll formers, and reinforcing processors and verifying upstream steel producers against best practice environmental, social and governance (ESG) indicators.

The accreditation is designed to be used by regulators, building and construction proponents, specifiers and procurers including government agencies, and environmental rating agencies and bodies such as the Green Building Council of Australia to determine sustainable steel suppliers and products, and to support sustainability targets such as reductions in embodied carbon. SSA certification assures steel suppliers, and their products are sustainably manufactured and processed and are sourced through responsible and ethical supply chains.

Accordingly, it is recommended that NSW government procurement policies should make it a mandatory requirement for procurers to source steel products from businesses accredited under the SSA program.

Recommendation

All structural steel and fabricated products should be sourced from businesses certified under the SSA Certification Program.

Yours sincerely

David Varcoe

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Appendix 1 - Regional Rail – Dubbo Maintenance Facility

16th December 2020

Project Director – Dubbo Maintenance Facility Transport for NSW

Regional Rail – Dubbo Maintenance Facility

This letter is in relation to the Transport for NSW (TfNSW) project to build a Regional Rail Maintenance Facility in Dubbo NSW for train maintenance. The Australian Steel Institute (ASI) has been advised that the contract for supply of fabricated steelwork and related steel components has been awarded to a business that will import these items. If this information is correct then a significant opportunity to stimulate skilled employment, business investment, and local economic activity has been lost to NSW regions.

The TfNSW website states in reference to this specific project under the heading of Regional Rail,

‘A new train maintenance facility will be built in Dubbo to stimulate the regional economy and help create sustainable job opportunities and skills.’

<https://www.transport.nsw.gov.au/projects/current-projects/regional-rail>

Regional economic benefit. Clearly, sourcing of fabricated steelwork from imported supply means that the intended regional economic stimulation, job opportunities and skills creation for this important aspect of the project will not result.

NSW employment multiplier benefit. The broader multiplier effects associated with sophisticated manufacturing in NSW are also lost. Steel’s multiplier effect sees as many as six workers employed in related industries for each person directly employed in the steel industry.

Environmental consequence. In addition, the extra transport distance for imported steel products mean that embodied carbon associated with transport will be two to three times higher than would be the case for locally sourced steel.

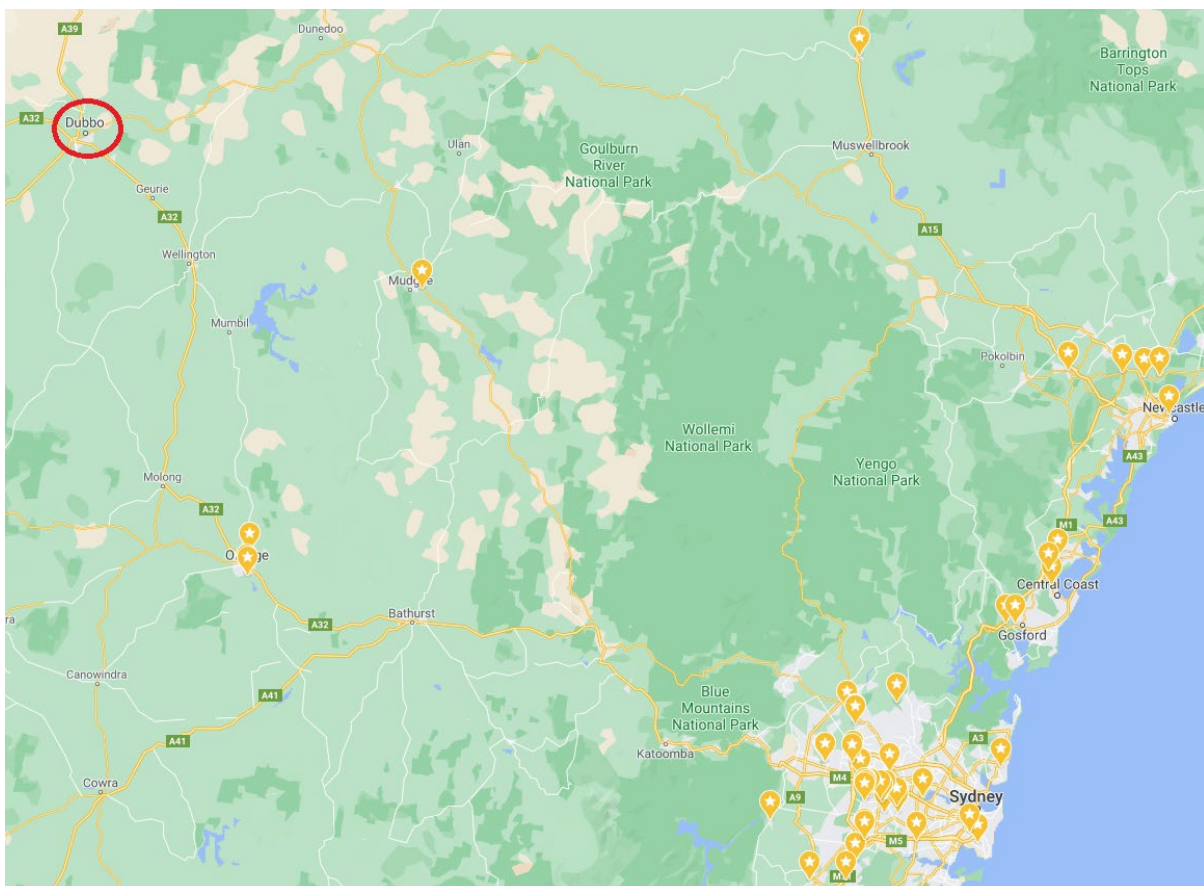
Sustainable design criteria. The TfNSW document titled Sustainable Design Guidelines – Supporting Tools Document (May 2017), lists in Appendix G – Steel and Timber Sustainable Procurement Requirements, details a series of sustainable design requirements. Of relevance to this project, it states *‘Structural Steel: at least 60% of fabricated structural steelwork is supplied by a steel fabricator / steel contractor accredited to the ASI Environmental Sustainability Charter (ESC) or equivalent scheme to be approved by TfNSW.’* It is unclear whether imported steel will meet this expectation.

Significant Regional Economic Opportunity

The scope of work for the project as advised in an expression of interest document dated 7th June 2019, which was provided by CPB Contractors as part of a briefing to tenderers, includes the statement, *'the purpose of this EOI is to understand the capacity and capability of local and regional contractors'*. The intent of this statement is consistent with the above quoted TfNSW website statement in that it seeks to maximise the economic benefit to the region as a result of the work being done by local businesses with the appropriate capacity and capability.

This type of project is particularly significant for regional areas because the required steel construction materials are all made in NSW, and the associated skilled work can be done completely by local businesses employing local people. Projects of this size are also ideal because they provide sufficient continuity of work for SME businesses to invest in state-of-the-art equipment, hire new staff, and undertake the building of skills through training, without causing any distortion to the local economy. Very large projects can have an unintended negative effect on local economies by creating a huge peak in demand that temporarily drives up prices but leaves no lasting benefit or legacy such as improved regional capability and skills.

There are many capable NSW steel fabrication businesses that are ideally placed to support a regional project such as this. The map below shows the location of the approximately 60 ASI steel fabricator members located within a 300km radius of the project site.



For a typical SME steel fabricator, with permanent workforce of 60 to 70 staff, securing a project such as Dubbo Maintenance Facility would represent approximately 40% of their work for a year, equating to 25 jobs secured. This business would then subcontract specialist work such as galvanizing, painting and detailing to other co-located local businesses, with associated employment of another 20 people for the life of the project. In total, at least 45 directly employed skilled jobs would be expected to flow from this project, with many more indirect local jobs created due to the economic multiplier effect.

Significant NSW Economic Opportunity

The NSW steel industry is blessed with abundant local steel production capacity and manufacturing capabilities that are ideally located to deliver an efficient supply chain.

- NSW hosts the majority of national primary and secondary steelmaking assets, with associated co-located downstream manufacturing and fabrication assets.
- All of the steel products required for this project can be sourced from NSW manufacturing businesses.

Steel's multiplier effect sees as many as six workers employed in related industries for each person employed in the steel industry. For this project, which has a value of approximately \$12 to \$15 million just for the buildings component, the wider social and economic benefit that would flow from this work is evident from reference to the analysis provided below.

For every \$1 million of steel revenue:

- \$1.87 million is added to the economy;
- 16 FTEs are employed in the economy;
- \$165,000 in welfare savings is realised;
- \$590,300 is contributed to the national budget in tax revenue;

(State of Steel Report, Type I and Type II, pages 4 and 5).

Environmental Consequence

The NSW Government has aligned itself to the Paris Agreement to deliver a net zero carbon society by 2050. It released the *Net Zero Plan Stage 1 2020-2030* (Department of Planning, Industry and Environment) program on 14th March 2020 as an early step towards supporting the reduction of embodied carbon in the building and construction sector. The local steel industry is committed to working with the NSW Government to achieve this goal. ASI and its steel producer members are actively engaged with a NSW Government funded World Wildlife Fund project to progress the objective of reducing the embodied carbon of building materials.

Considering the steel requirements for the Dubbo Maintenance Facility project, the typical source of imported fabricated steel is from south east or north Asia, with the associated sea freight transport distance being 8,500km to 9,500km via container ship. Using a Transport Emission Factor (TEF) of 0.0193 kgCO₂e/tonne.km, when it is considered that about 1,425 tonnes steel will be required for the project, this equates to approximately 250 tonnes of extra CO₂ associated just with the sea freight. Or considered another way, the embodied carbon associated with steel transport will be approximately three times greater than if locally produced steel was used.

In support of the NSW Government commitment to achieve net zero carbon by 2050, the ASI strongly recommends that the transport contribution to embodied carbon be considered for all projects.

Sustainable Design

The TfNSW Sustainable Design Guidelines cover a range of measures designed to improve overall project sustainability and ensure responsible sourcing of materials. Locally produced and fabricated steel is well placed to fully comply with these guidelines.

- S.1 *All Steel: to be sourced from a steelmaker that is a current member of the Worldsteel Climate Action Programme.*
- All Australian steelmakers are current members of this Programme.
- S.2 *All Steel: to be sourced from a steelmaker with an ISO 14001 certified EMS.*
- All Australian steelmakers have an ISO 14001 certified EMS.
- S.3 *All Steel: If the contractor is sourcing steel from a steel maker and/or fabricator that sources from a developing country, the contractor undertakes to ensure that the supplier's operations are in compliance with local regulations and do not contravene internationally accepted human rights standards (through compliance with the International Labour Organization's Fundamental Conventions and commitment to the UN Global Compact principles).*
- Australian steelmakers produce their steel locally with no sourcing from a developing country.
- S.4 *Structural Steel: at least 60% of fabricated structural steelwork is supplied by a steel fabricator / steel contractor accredited to the ASI Environmental Sustainability Charter (ESC) or equivalent scheme to be approved by TfNSW.*
- There are more than 20 ESC members in NSW alone and over 60 nationally.

In support of the principles that underpin the TfNSW Sustainable Design Guidelines, the ASI strongly recommends that the capability of steel suppliers and fabricators to meet these guidelines be considered for all projects.

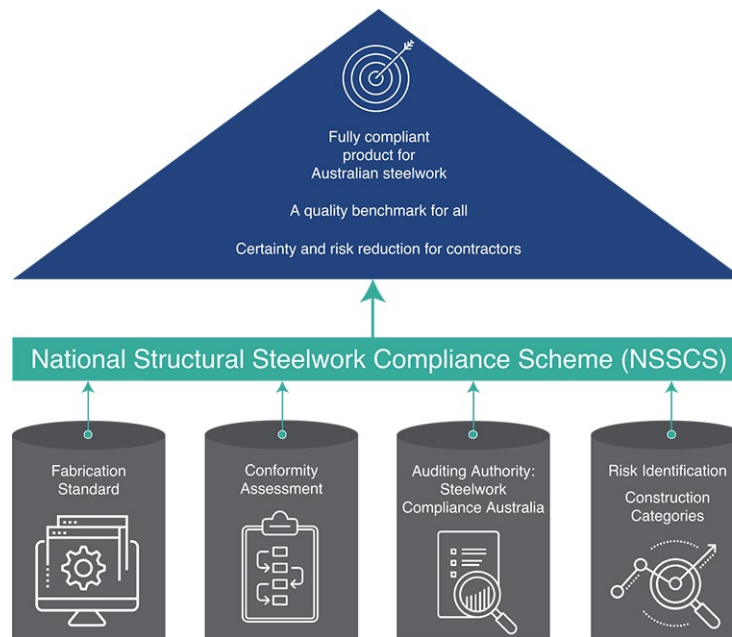
Steelwork Compliance Australia (SCA)

The ASI developed the National Structural Steelwork Compliance Scheme (NSSCS) to help control the fabrication and erection process, thereby ensuring fit-for-purpose deliverables. The NSSCS is an independent third-party quality compliance and certification system for supply, fabrication and erection of structural steelwork in Australia. The technical basis for the NSSCS is founded on AS/NZS 5131 Structural steelwork – Fabrication and erection, and is applicable to structures designed to AS 4100 (structural steelwork).

The NSSCS comprises four supporting pillars:

- AS/NZS 5131 as the technical foundation;
- Risk assessment and engineer selection of the Construction Category for the particular project;
- Conformity assessment to the requirements of AS/NZS 5131;

- Auditing and certification of fabricators to one of the Construction Categories through the separate body Steelwork Compliance Australia (SCA).



The objective of Steelwork Compliance Australia (SCA) is to provide quality compliance certification for the supply, fabrication and erection of structural steelwork to be used in Australia, giving clients the ability to select steelwork fabricators who have been independently assessed as having capability to achieve compliance to the relevant Australian Standards required to complete the Construction Category for their project.

- SCA certification means that a fabricator has already completed an independent audit to confirm their capability to meet all requirements of AS/NZS 5131 Structural steelwork – Fabrication and erection.
- Project auditing and monitoring costs should be lower for SCA certified fabricators.
- SCA certification enables fabricators to become more efficient and reliable.
- The need for re-work to address quality or other non-compliance issue should be minimised, thereby helping to protect project schedules.

NSW has 15 SCA certified fabricators with a further 15 currently being assessed for certification. In recognition of the above benefits, it is recommended that TfNSW specify in contracts that structural steelwork needs to be supplied by fabricators with Steelwork Compliance Australia (SCA) (or equivalent) certification.

Conclusion

In writing this letter, the ASI is seeking to confirm whether imported steel will in fact be sourced for the Dubbo Maintenance Facility project, or if there is still an opportunity for it to be supplied by local businesses?

In the event that a decision has been made to source imported steel for this project, the ASI is seeking an assurance that for future comparable projects, the significant regional and state economic opportunities associated with local steel sourcing, will be given full consideration as part of the tendering process.

In addition, for future comparable projects, the ASI strongly recommends that appropriate recognition be given to the importance of minimising environmental consequences, maximising sustainable design, and the prioritisation of independently assessed capability to comply with Australian standards. In practice, this means that when assessing project tenders, the capability of steel suppliers and fabricators to meet TfNSW Sustainable Design Guidelines and ensure compliance with AS/NZS 5131 is carefully considered.

Yours Sincerely,
David Varcoe

State Manager NSW/ACT Australian Steel Institute

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About the Australian Steel Institute

The Australian Steel Institute (ASI) is the nation's peak body representing the entire steel supply chain, from the primary producers through to end users in building and construction, resources, heavy engineering and manufacturing.

A member-based organisation, the ASI's activities extend to, and promote, advocacy and support, steel excellence, standards and compliance, training, events and publications. The ASI provides marketing and technical leadership to promote Australian-made steel as the preferred material to the building, construction, resources, and manufacturing industries, as well as policy advocacy to government.

Appendix 1

Dubbo Maintenance Facility Scope of Work

The scope of work for buildings as advised in an expression of interest document dated 7th June 2019, which was provided by CPB Contractors as part of a briefing to tenderers, is as follows:

- *The maintenance facility building would include:*
 - *three tracks to undertake maintenance activities partly housed within a single covered enclosure. The size of the building would be approximately 200 metres by 70 metres and would include a storage area, loading dock and diesel delivery area – used for the delivery and storage of plant, equipment and diesel fuel;*
 - *Wheel lathe – a separate building allowing for train wheels to be periodically machined using an underfloor wheel lathe;*
 - *Train wash – an enclosed structure comprising automated wash equipment for train.*
- *Administration building – a building comprising office facilities, kitchen, dining area and amenities;*
- *Security building;*

In summary, the project as it would be executed involves the following main items:

- 1 large building for passenger train maintenance
- 2 smaller washing and refurbishment buildings
- Admin, security and several other minor buildings

ASI estimate the total steel supply requirements to be approximately as follows:

Steel Type	Purpose	Quantity
Structural Steelwork	Columns, rafters, roof beams, door supports, bracing etc.	850 tonnes
Other steelwork	Platforms, stairs, gratings, handrails, supports etc.	250 tonnes
Purlins and girts	Support for roof and wall cladding	150 tonnes
Insulated panel and profiled sheeting	Roof and wall cladding components	175 tonnes
Total		1,425 tonnes



AUSTRALIAN STEEL INSTITUTE

Appendix 2 - Batemans Bay Regional Aquatic, Arts and Leisure centre

18th January 2021

Attention:

**Senior Project Manager
ADCO Constructions**

Batemans Bay Regional Aquatic, Arts and Leisure centre

This letter is in relation to the Eurobodalla Shire Council project to build a new Regional Aquatic, Arts and Leisure Centre at Batemans Bay. The Australian Steel Institute (ASI) has been advised that the contract for supply of fabricated steelwork and related steel components has been awarded to a business that will import these items. If this information is correct then a significant opportunity to stimulate skilled employment, business investment, and local economic activity has been lost to NSW regions.

A significant proportion (\$25 million) of the project funding has been provided via the Commonwealth Regional Growth Fund. The Australian Government GrantConnect website entry for this project, GA40115, states:

‘Purpose: The grant has been awarded to support a project that is transformational for a region, supporting long term economic growth and jobs in the region.’

<https://www.grants.gov.au/Ga/Show/67949bde-c08e-fe05-80c3-51ad4ba275b6>

Regional economic benefit. Clearly, sourcing of fabricated steelwork from imported supply means that the intended regional economic stimulation, job opportunities and skills creation for this important aspect of the project will not result.

NSW employment multiplier benefit. The broader multiplier effects associated with sophisticated manufacturing in NSW are also lost. Steel’s multiplier effect sees as many as six workers employed in related industries for each person directly employed in the steel industry.

Environmental consequence. In addition, the extra transport distance for imported steel products mean that embodied carbon associated with transport will be two to three times higher than would be the case for locally sourced steel.

Structural Steel Specification. The structural steel specification for this project (document number 185171 dated 13/2/2020), prepared by TTW states on page 5/26:

The following certifications are required for this project:

- *Steelwork shall be fabricated by fabricators certified under the ASI ‘National Structural Steelwork Compliance Scheme’ (NSSCS) (see <http://www.scacompliance.com.au/>).*

It is unclear whether imported steel will meet this expectation and we strongly recommend verification to ensure the steelwork meets the quality standards that the design engineer has specified.

Significant Regional Economic Opportunity

The Australian Government factsheet for the Regional Growth Fund (RGF) states,

The expected outcomes of the Program are to:

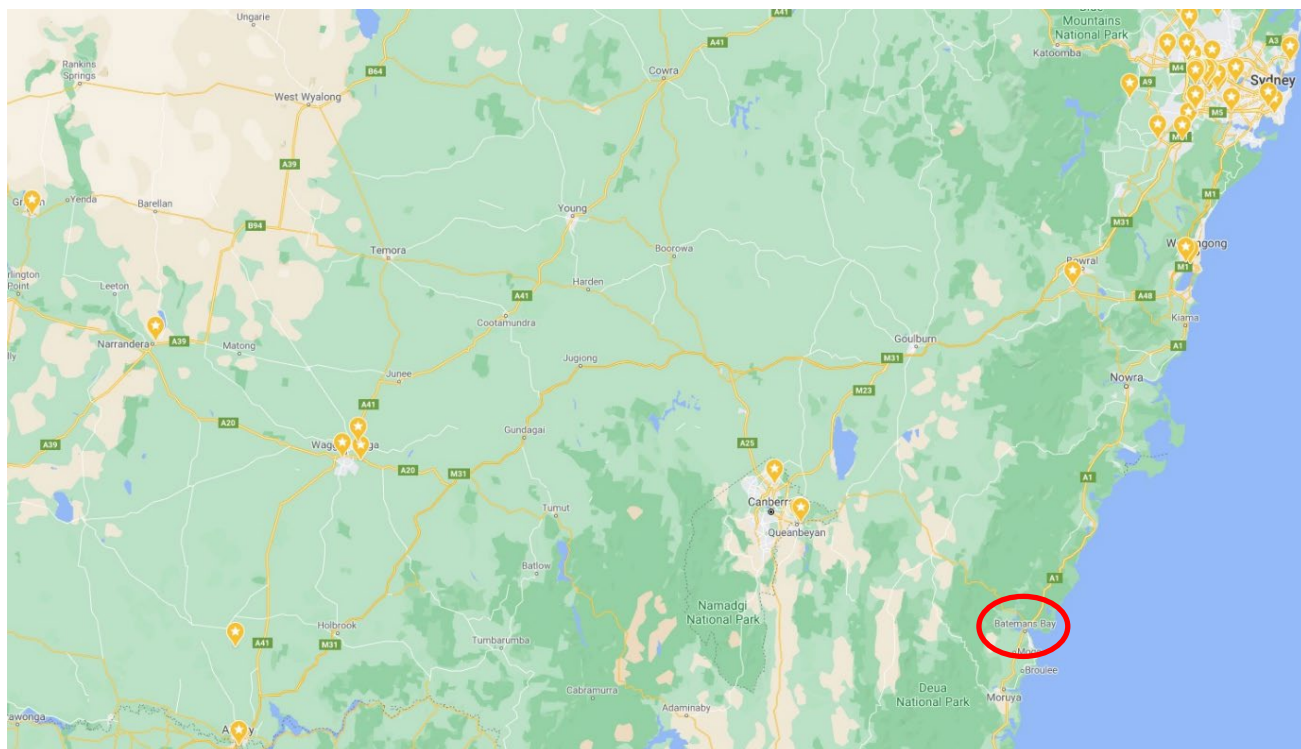
- *create jobs*
- *drive economic growth*
- *build stronger regional communities.*

<https://www.regional.gov.au/regional/programs/files/RGF-Fact-Sheet.pdf>

Therefore, the RGF seeks to maximise the economic benefit to the region as a result of the work being done by local businesses with the appropriate capability.

This type of project is particularly significant for regional areas because the required steel construction materials are all made or readily available in NSW, and the associated skilled work can be done completely by local businesses employing local people. Projects of this size are also ideal because they provide sufficient continuity of work for SME businesses to invest in state-of-the-art equipment, hire new staff, and undertake the building of skills through training, without causing any distortion to the local economy. Very large projects can have an unintended negative effect on local economies by creating a huge peak in demand that temporarily drives up prices but leaves no lasting benefit or legacy such as improved regional capability and skills.

There are many capable NSW steel fabrication businesses that are ideally placed to support a regional project such as this. The map below shows the location of the approximately 60 ASI steel fabricator members located within a 350km radius of the project site. It is important to reinforce the requirement for the chosen fabricator to be certified to the National Structural Steelwork Compliance Scheme (NSSCS) as specified.



For a typical SME steel fabricator, with permanent workforce of 30 staff, securing a project such as Batemans Bay Regional Aquatic Centre would represent approximately 20% of their work for a year, equating to at least 6 jobs secured. This business would then typically subcontract specialist work such as galvanizing, painting and detailing to other co-located local businesses, with associated employment of at least another 10 people for the life of the project. In total, at least 16 directly employed skilled jobs would be expected to flow from this project, with many more indirect local jobs created due to the economic multiplier effect.

Significant NSW Economic Opportunity

The NSW steel industry is blessed with abundant local steel production capacity and manufacturing capabilities that are ideally located to deliver an efficient supply chain.

- NSW hosts the majority of national primary and secondary steelmaking assets, with associated co-located downstream manufacturing and fabrication assets.
- The steel products required for this project can be sourced from NSW manufacturing businesses, or distributors that source from manufacturers located in other states.

Steel's multiplier effect sees as many as six workers employed in related industries for each person employed in the steel industry. For this project, which has a value of approximately \$2 to \$3 million just for the fabricated steelwork and related steel components, the wider social and economic benefit that would flow from this work is evident from reference to the analysis provided below.

For every \$1 million of steel revenue:

- \$1.87 million is added to the economy;
- 16 FTEs are employed in the economy;
- \$165,000 in welfare savings is realised;

- \$590,300 is contributed to the national budget in tax revenue; (State of Steel Report, Type I and Type II, pages 4 and 5).

Environmental Consequence

The NSW Government has aligned itself to the Paris Agreement to deliver a net zero carbon society by 2050. It released the *Net Zero Plan Stage 1 2020-2030* (Department of Planning, Industry and Environment) program on 14th March 2020 as an early step towards supporting the reduction of embodied carbon in the building and construction sector. The local steel industry is committed to working with the NSW Government to achieve this goal. ASI and its steel producer members are actively engaged with the NSW Government funded World Wildlife Fund project to progress the objective of reducing the embodied carbon of building materials.

Considering the steel requirements for the Batemans Bay Regional Aquatic Centre project, the typical source of imported fabricated steel is from south east or north Asia, with the associated sea freight transport distance being 8,500km to 9,500km via container ship. Using a Transport Emission Factor (TEF) of 0.0193 kgCO₂e/tonne.km, when it is considered that about 320 tonnes steel (structural elements plus purlins) will be required for the project, this equates to approximately 55 tonnes of extra CO₂ associated just with the sea freight. Or considered another way, the embodied carbon associated with steel transport will be approximately three times greater than if locally produced steel was used.

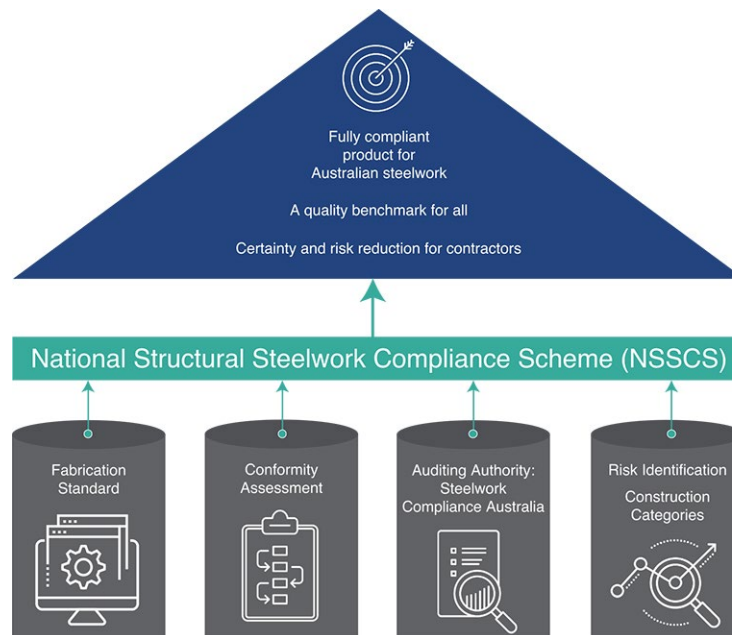
In support of the NSW Government commitment to achieve net zero carbon by 2050, the ASI strongly recommends that the transport contribution to embodied carbon be considered for all projects.

Steelwork Compliance Australia (SCA)

The ASI developed the National Structural Steelwork Compliance Scheme (NSSCS) to help control the fabrication and erection process, thereby ensuring fit-for-purpose deliverables. The NSSCS is an independent third-party quality compliance and certification system for supply, fabrication and erection of structural steelwork in Australia. The technical basis for the NSSCS is founded on AS/NZS 5131 Structural steelwork – Fabrication and Erection, and is applicable to structures designed to AS 4100 (structural steelwork).

The NSSCS comprises four supporting pillars:

- AS/NZS 5131 as the technical foundation;
- Risk assessment and engineer selection of the Construction Category for the particular project;
- Conformity assessment to the requirements of AS/NZS 5131;
- Auditing and certification of fabricators to one of the Construction Categories through the independent third party body Steelwork Compliance Australia (SCA).



The objective of Steelwork Compliance Australia (SCA) is to provide quality compliance certification for the supply, fabrication and erection of structural steelwork to be used in Australia, giving clients the ability to select steelwork fabricators who have been independently assessed as having capability to achieve compliance to the relevant Australian Standards required to complete the Construction Category for their project.

- SCA certification means that a fabricator has already completed an independent audit to confirm their capability to meet all requirements of AS/NZS 5131 Structural steelwork – Fabrication and Erection.
- Project auditing and monitoring costs should be lower for steelwork produced by SCA certified fabricators.
- SCA certification enables fabricators to become more efficient and reliable.
- The need for re-work to address quality or other non-compliance issue should be minimised, thereby helping to protect project schedules.

NSW has 15 SCA certified fabricators, with a further 15 businesses currently being assessed for certification. Therefore, the documented project structural steel specification requirement that 'Steelwork shall be fabricated by fabricators certified under the ASI National Structural Steelwork Compliance Scheme (NSSCS)' can readily be achieved without limiting the competitive field of capable fabricators.

Conclusion

In writing this letter, the ASI is seeking to confirm whether imported steel will in fact be sourced for the Batemans Bay Regional Aquatic Centre project, or if there is still an opportunity for it to be supplied by local businesses?

In the event that a decision has been made to source imported steel for this project, the ASI is seeking an assurance that for future comparable projects, the significant

regional and state economic opportunities associated with local steel sourcing, will be given full consideration as part of the tendering process.

In addition, for future comparable projects, the ASI strongly recommends that appropriate recognition be given to the importance of minimising environmental consequences, and the prioritisation of independently assessed capability to comply with Australian standards. In practice, this means that when assessing project tenders, the capability of steel suppliers and fabricators to ensure compliance with AS/NZS 5131 is carefully considered.

The ASI is at your disposal to assist with any further information relating to the National Structural Steelwork Compliance Scheme, compliance to Australian Standards, and encourages the Eurobodalla Shire Council to utilise the freely available National Structural Steelwork Specification for future projects.

<https://www.steel.org.au/focus-areas/quality-and-compliance/national-structural-steelwork-specification/>

Yours Sincerely,
David Varcoe

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About the Australian Steel Institute

The Australian Steel Institute (ASI) is the nation's peak body representing the entire steel supply chain, from the primary producers through to end users in building and construction, resources, heavy engineering and manufacturing.

A member-based organisation, the ASI's activities extend to, and promote, advocacy and support, steel excellence, standards and compliance, training, events and publications. The ASI provides marketing and technical leadership to promote Australian-made steel as the preferred material to the building, construction, resources, and manufacturing industries, as well as policy advocacy to government.



AUSTRALIAN STEEL INSTITUTE

Appendix 3 - Selection of steel suppliers for school security fencing

16th February 2022

Selection of steel suppliers for school security fencing

This letter is concerned with the selection of steel suppliers for the products used to construct security fencing for NSW Department of Education schools. The Australian Steel Institute (ASI) has undertaken a comparative testing program to evaluate security fencing. In the interests of ensuring best value for money, whilst also maximising the useful service life, the ASI would like to share the findings from this investigation and offer some recommendations for procurement consideration. Our investigation concluded that the chosen product specification has a significant impact on corrosion resistance, which in turn can result in premature failure, leading to greatly reduced service life.

Overview of Security Fencing

The item that has been investigated is the welded tube fence panel that is attached to regularly spaced square posts.



Figure 1: Example of welded tube panel design security fence.

These fence panels are typically constructed from square or rectangular steel tubes, that are welded to form the final lattice structure. After welding, the panel is given a series of surface coatings for protection against corrosion. Depending on the product design, several protective coating layers may be used. The two-layer approach includes firstly a zinc layer for sacrificial protection against corrosion, followed by a paint coating layer that acts as a barrier to the onset of corrosion, as well as providing the desired final product colour finish. The thickness of the zinc layer equates directly to the extent of the protection against corrosion, with a thicker layer providing protection for a longer period.

The Importance of Corrosion Resistance

Once the panel has started to corrode, which creates an immediate aesthetic issue, a more serious problem of corrosion of the structural steel tubes or posts will also start to occur. Once initiated, corrosion of steel (or rusting), progresses relatively rapidly which results in the loss of structural integrity. In practical terms this will likely result in the fence failing prematurely. The failure may be accelerated by physical impacts such as strong wind, tree branches, vehicles, or even something as simple as being hit by a ball or similar sporting situation.



Figure 2: Example of structural failure of a fence panel due to corrosion.

The problem typically starts with corrosion of the outer protective coating layer, which exhibits as ‘white rust’, and then proceeds to corrosion of the structural steel, which exhibits as ‘red rust’.

Clearly the premature failure of a fence panel is very undesirable because:

- unless the condition of the fence is being regularly monitored, it will likely occur without any prior indication or notice;
- an unexpected catastrophic failure may result in injury to people or damage to property;
- the failure of a fence panel compromises the security of the associated property;
- the shortened lifetime will result in an added maintenance or replacement cost burden for the asset owner, which is unbudgeted.

Comparative Testing Program

The ASI testing program used two different steel suppliers, with the respective product properties shown in the table below. Both of the tested product designs are currently used by the NSW Department of Education for school security fencing.

Supplier	Component	Wall Thickness (mm)	Zinc Layer (µm)	Paint Layer (µm)
A	Vertical tube 25 mm x 25 mm	1.1	20	70
B		0.8	2	145
A	Horizontal tube 40 mm x 40 mm	1.4	20	30
B		1.1	2	200

This analysis indicates that two quite different corrosion protection strategies are being used to determine the product design in each case. Supplier A is using a relatively thick zinc layer to maximise the sacrificial protection, whilst Supplier B is relying mostly on a thick paint layer to maximise barrier protection.

The question as to which design strategy is most effective, depends on the mechanism by which corrosion is initiated. Often this will occur when there is physical damage to the outer barrier layer that then causes the zinc layer beneath, or even the steel itself, to be exposed to corrosive agents such as dirt and salt. Physical damage could occur due to scratching of the surface during transport, handling and installation, or it could also occur due to abrasion impacts whilst in service. In very hot and sunny conditions, it may also occur due to shrinkage and cracking of the paint payer.

Corrosion Testing Method

A widely used method to evaluate corrosion resistance is the Salt Spray Test. This is a controlled laboratory test that subjects the sample to cycles of dryness and wetness, whilst maintaining a salty atmosphere. It attempts to accelerate the corrosion process that would be encountered in the field, so as to provide results in a relatively short time period. Samples from both suppliers were subjected to testing in a Salt Spray cabinet for over 800 hours, in order to determine whether the identified differences in product design translated into significantly different corrosion

resistance. The specific testing cycle used was 'ASTM B117 Salt Spray'. The Salt Spray Test is widely understood to be a very harsh test that tests steel products to the point of failure due to corrosion. Therefore, it is important to remember that what is being evaluated is the relative corrosion resistance of different product designs.

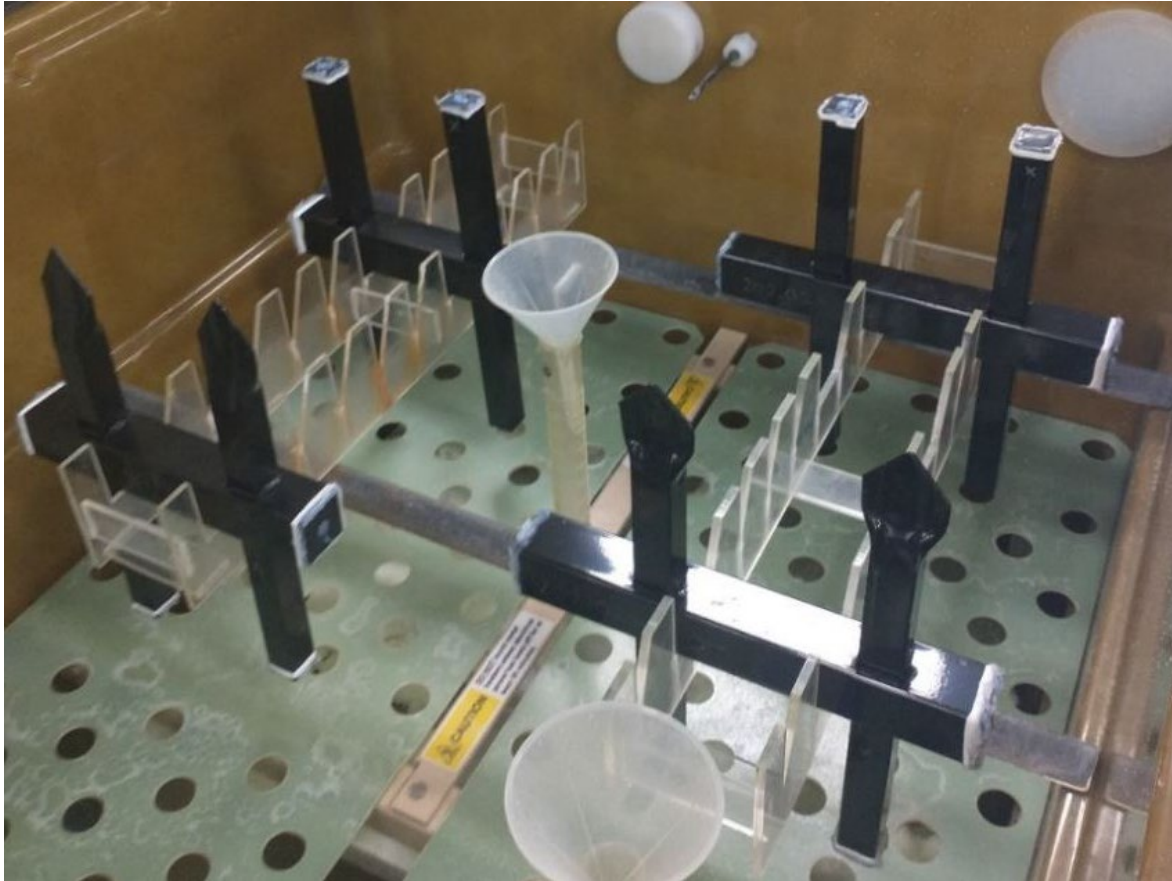


Figure 3: Salt Spray test cabinet.

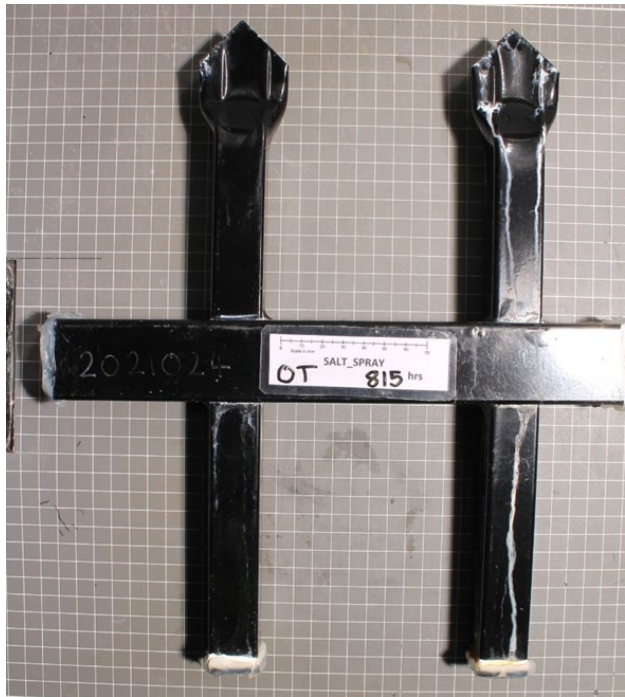
The above image shows samples from each supplier positioned in the Salt Spray cabinet prior to commencement of testing. For practical reasons, the large fence panels have been cut into small sections so they can fit into the chamber. When tubes have been cut during this process, the exposed cross section has been protected with epoxy to prevent corrosion occurring at that location.

Summary of Test Results

All samples displayed some degree of corrosion after 815 hours of continuous exposure. Examples of samples after testing are shown in Figures 4 and 5.

The samples from Supplier A performed relatively well, with some white rust in evidence. This indicates that the coating layer is providing sacrificial protection to the structural steel as intended.

The samples from Supplier B performed poorly, with significant red rust in evidence. This indicates that corrosion of the structural steel has started, due to lack of protection from the coating layer.



Supplier A



Supplier B

Figure 4: Front side of top of fence panel after 815 hours of testing.



Supplier A



Supplier B

Figure 5: Vertical tube drip edge after 815 hours of testing.

The white streaks are associated with white rust, meaning that the zinc layer is providing sacrificial protection of the structural steel. The red streaks are associated with red rust, meaning that the structural steel has started to corrode.

Cost of Premature Failure

As already noted, if a security fence fails prematurely, it may result in an injury to people, damage to property, and the loss of secure protection for an asset.

Considering just the financial impact of a premature failure, there will likely be a significant cost associated with removal of the damaged sections of fence and replacement with new components. The task of replacement may be complicated if it proves difficult to source identical replacement parts. Repair work is also typically more labour intensive than a new installation due to the complexity of the work, so labour cost will also be significantly higher.

Anecdotal information provided to the ASI by fence supplier/installers indicates that the cost of rectification for defective or prematurely failed product is approximately 1.5 times higher than the initial cost of installation.

Recommendations

The ASI has received advice from member businesses, that a significant number of school security fences that utilise a product design comparable to that of Supplier B, have failed prematurely in service. Conversely the security fences that utilise a product design comparable to that of Supplier A have demonstrated good longevity in service. The conclusion is the product design used by Supplier A provides significantly better service life due to greater corrosion resistance.

Based on the findings from the comparative testing program, the ASI would like to offer two recommendations for consideration, as follows:

1. Create a product specification for procurement of security fencing by the NSW Department of Education.
2. Include in this specification that the product design must include a zinc coating layer with mean thickness greater than 19 μm , ideally 20 μm . This coating thickness is equivalent to the widely available 275 g/m^2 zinc coating class, typically referred to as 'Z275'¹.

¹ AS 1397:2021 Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium

If there are any questions regarding the comparative test program methodology and interpretation of results, the ASI would be pleased to provide access to additional detailed testing information and reports.

Yours Sincerely,
David Varcoe

**State Manager NSW/ACT
National Manufacturing Advisor**



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Representing, promoting, educating and supporting the Australian steel industry.

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