

Engineers obliged to assure quality and compliance

The common pursuit of high product integrity and project standards by engineering professionals along with our ethical code promoting safety offer important and practical ways to align requirements and facilitate proper outcomes. It is our duty of care.

As a chartered professional engineer and member of Engineers Australia (EA), the ASI and Australian Manufacturing Forum, I have had many discussions about global competitiveness and raising awareness of the growing problems from compromising product compliance. It is good to see the ASI taking constructive action with this issue, not only to support Australian steel producers and fabricators to achieve a technically level playing field, but also to promote compliance of all plant and construction materials to be fit for purpose with enduring safety.

See <http://steel.org.au/elibrary/asi-technical-notes/>

This has included joint events with EA, considered relevant given our profession's key responsibility for due technical diligence and continued safety of plant and equipment. Each company in the chain for any project will have engineers involved from designing, building, project managing, operating or maintaining. It is logical to expect this common thread to ensure sound judgement to achieve appropriate standards. All this while navigating the commercial and logistical issues that can sometimes spur compromises.

Such initiatives gain further credibility when avoiding over generalising comparative quality and workmanship. While we have experienced a wider range of integrity and capability from overseas suppliers, we need to acknowledge a degree of variation within Australia as well. The aim is to achieve adherence to a technically equal playing field via proper scrutiny and reporting compliance and project outcomes. The initiative taken by the ASI to develop a National Structural Steelwork Compliance Scheme (NSSCS) and a growing number of Australian fabricators committing to it show how to professionally handle such situations.

Australian Standards have proven a sound benchmark, yet to be globally relevant we cannot be too parochial about standards provided those alternative standards meet the performance outcomes established by our benchmark Australian Standards and compliance can be assured. Engineering companies, steel fabricators and equipment manufacturers successful with projects across borders get to understand and practically comply with any relevant standards nominated. The underlying issue is more about appropriate scrutiny, planned contingencies, more strategic expediting (getting it right up front) and measures to assure correct outcomes and verify compliance.

We should accept that our professional obligation outweighs any one project or employer. While practical judgements are occasionally required if a shift from the original ideal is possible, this must never justify any rationale compromising a proven standard or risking harm. Following employer directions known to be risky will not absolve an engineer from responsibility.

* **EDITOR'S NOTE:** The ASI provides technical training courses on all aspects of steel design.

I've been disappointed with a few visiting project engineers not experienced with, nor interested to study welding and coatings technology, yet tasked with inspections and expediting critical fabricated products.* During my time leading fabrication businesses I also experienced supply chain logistical problems leading to unnecessary stress and delays due to an engineering company utilising overseas engineering drafting without prequalification. The extra costs incurred by the engineering company and fabricator from reprocessing poor drawings were well beyond any savings offered. We must learn from these experiences, continue to expand our knowledge and be prepared to objectively quantify the costs and risks in a format that others comprehend and will follow.

Thankfully most engineers do work to a high standard. However more engineers need to collectively exert a greater influence on companies if we want broader respect for compliance. Our reality is that there is an abundance of quality international suppliers. I have toured much larger scale engineering workshops in South Korea, China and India that demonstrate very high quality and capabilities so our efforts should focus more on sorting out the bad ones.

This requires more funds for better scrutiny and clarity around standards and requirements along with preparedness to uphold those requirements and lift awareness throughout the organisations involved. I believe the commitment to technical parity will assist in closing the competitive gap for Australian sourcing which retains some advantages of flexibility, logistics, enduring national capabilities and commercial confidence.

Significant material failures have been published and I expect many more incidents go unpublished. Some of these cases show the ridiculous lengths some suppliers will go to regarding material substitution, poor workmanship and cover up. There is a potential risk of failures from many large projects being carried out with stretched technical resources. This quieter period offers time to correct any potential compliance deficiencies and implement procedural changes to remain in place no matter the level of activity.

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