Stainless NZ

NEW ZEALAND STAINLESS STEEL DEVELOPMENT ASSOCIATION

Issue No. 31 SUMMER 2016

A sea change for our industry

Contract Mechanical Services (CMS) provides mechanical engineering services designed and built to requirements and installed by its team of experienced mechanical fitters and welders.

The company is based in Tauranga but a trip up to Auckland a few months ago by managing director Dennis Gore led to a chain of events that without exaggeration could well reflect a sea change for the New Zealand stainless industry.

"I often attend the NZSSDA seminars as keeping up with the play is vital in our industry," says Dennis. "This one focused on using stainless steel members in construction."

Availability makes the difference

The seminar discussed Montanstahl – a major Swiss producer and supplier of stainless steel structural sections and special custom steel profiles. The company has recently opened an office in Singapore and the talk was on the viability, and now affordability, of using stainless steel. This was important news as stainless steel members or beams available in New Zealand for construction were limited.

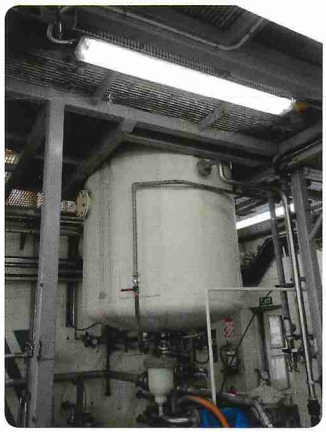
Stainless steel as a construction material was already widely celebrated in Europe with entire bridges made from 316 and duplex stainless steels, but not in New Zealand – apart from the odd footbridge.

Returning to Tauranga, three weeks later Orica New Zealand, a major supplier of chemical products to industry sectors, contacted CMS with a crisis on its hands. The framing for a key part of their plant, a chemical mixing reactor, needed urgent attention. The frame, in mild steel, had become compromised and the company needed the support structure repaired with only a three-day shutdown.

"The trouble is we would have had to remove the mixer, a large tank in appearance, to adequately repair, weld and repaint the heavily rusting frame – but this could not happen in that tight timeframe."

Stainless steel provides the solution

In the light of the information gained at the NZSSDA seminar, Dennis suggested the idea of getting the required frame built from stainless steel by Vulcan Stainless, with the material custom supplied by



Montanstahl. The plan was to get the necessary members made to order and then to prop up Orica's mixing reactor and slot the stainless steel frame in under it. Of course one very persuasive factor was stainless steel's extremely rugged nature and the fact that this was potentially a very toxic, chemical environment. Orica went for the idea.

"The final design was by Richard Spiers, Principal Senior Civil and Geotechnical Engineer at Mas Engineering," says Dennis. "The open-section beams chosen for the design had advantages over closed beams already in place – mainly that there could be no hidden internal deterioration, although using grade 316 stainless steel meant the lifecycle of the new frame would be extremely long.

"The opportunity was also taken to upgrade the seismic strength of the structure at the same time. Over 15 metres of stainless steel universal beams was supplied and, with the reactor propped up, then welded into place – no further treatment or upkeep required. With the time saved on stripping out the old frame, and reactor, then fixing it and painting it to protect it, CMS was able to meet the deadline required."

The big picture

Other factors played a part beyond availability, too, says Dennis.

"The current price of stainless steel has never been lower – these are good days for stainless steel in terms of architecture and structural elements. The combination of availability, affordability, and the seamless option of laser welding make for great industry advances. And the hope is that when the ease of use and life cycle advantages – low maintenance, always looking great, easily recycled – are more widely known, that the architectural community will come to rely on stainless steel even if prices rise again."

"A few weeks down the track, and Orica was over the moon with its new mixer frame. This was a great result for us," says Dennis.

This Issue:

A sea change for our industry | St Louis' Gateway Arch – 50 years on and old-school stainless steel still going strong ... | A wild zebra loose in Los Angeles? | Inner strengths – stainless rebar in construction | Industry Profile – Deon Nieuwoudt