

Conserving our public art

The role of art in the public domain has long been recognised as an important part of a city's character. Major cities around the world have for centuries commissioned works of art and created spaces where sculptures can be seen and enjoyed. A source of pleasure and pride for residents, art in public spaces is increasingly an important attraction for visitors.

Contemporary art is rich with innovative use of materials and new technology. In many cases, the artist is required to liaise with engineers and fabricators in the design stage and costing of the artwork.

Here we explore some examples of public art in Australasia and how they relate to the world of corrosion.

Protective Coatings

Giant Blackbird



Image supplied by Thiess John Holland and taken by Heaven Photography International®

Located along EastLink, between Cheltenham Road and the Dandenong Bypass in Melbourne, this 13 metre high, 19 metre long painted fabricated steel sculpture depicts a giant blackbird with a wing span of 7.5 metres, ominously contemplating an object; part worm and part generic modernist sculpture.

ACA member International® was briefed to supply anti-graffiti coatings with long-term colour and gloss retention. Brendan Mutimer of International® said "the substrate

was mild steel which was blasted and coated with our products to provide a protective barrier against natural and human elements. Architectural demand for vibrant colours in order to make a strong statement was at the centre of the design brief. The challenge for the construction company therefore was to marry these impressive aesthetic requirements with long term outdoor performance, in terms of weatherability and corrosion protection."

The applicator of the project was Elliott Engineering who fabricated the bird and worm out of steel plate, therefore it was just a matter of abrasive blasting and coating the whole structure. Paul Elliott of Elliott Engineering said "it was all blasted and coated at our premises before being sent off to site. Due to the physical size and weight of the structure it was blasted and coated in parts: feet, legs, body, wings and tail. The worm was also blasted and coated at our facility in two parts."

Galvanizing

Desiring Machine



The Desiring Machine is a public artwork made entirely of galvanized steel. Weighing approximately 50 tonnes, the structure is 36 metres long, nine metres high and eight metres wide. The corrosion protection of galvanizing will ensure that it has a long lifespan with a minimum requirement for maintenance.

The Desiring Machine is also part of Melbourne's EastLink Tollway and aims to blend with the environment. The finish of bare galvanized steel not only blends in well – visible without being stark or "artificial" – but galvanized steel is also an iconic part of the Australian rural landscape.

The Desiring Machine is made up of well over 200 individual pieces of intricately fabricated steel. The extensive amount of cutting required meant that a Farley machine was used for the fabrications. The individual sections were drawn up on a CAD program and these were then transposed into software that fed cutting details to the machine. So many intricate pieces also meant that there was extensive finishing and detailing of edges and surfaces both after fabrication and after galvanizing.

Artist Simeon Nelson said "Desiring Machine is a fallen tree/tower lying by the roadway. It is a crashed relic of machine-age desire putting down new roots into the earth. To motorists speeding past, it is an indeterminate blur, a silhouetted filigree that might be a decaying windmill or other piece of obsolete agricultural machinery – a relic of the struggle of humans to co-exist with nature".

Stainless Steel

SubWharfyn



A childhood spent yacht racing was artists Braddon Snape's inspiration for his intriguing piece entitled 'The SubWharfyn' at Darling Harbour in Sydney.

"I was always surrounded by beautifully machined or crafted stainless steel rigging and equipment," he said. So when Sydney Wharf commissioned Mr Snape to create a large-scale work depicting the relationship between people and the sea, stainless steel seemed like a natural choice.

Sydney Wharf recognised the potential for stainless steel to meet the requirements of the project for both aesthetics and durability. "The use of stainless steel relates to its surroundings on both a conceptual and material level," Sydney Wharf's Shaun Farren said. "It has a connection with the maritime context and is durable in a marine environment."

ASSDA Accredited Fabricator Marko Stainless provided their fabrication services for the project, using 450 kilograms of laser cut 3mm sheet in grade 316 stainless steel to produce 'The SubWharfyn' from a 1:20 wooden model. Three panels comprise the body, which were rolled to form the curved sides. The panels were TIG welded, and blades MIG welded after initial polishing. All welds were pickled, and the entire sculpture passivated after completion.

The Rusty Look

Per Capita



'Per Capita' is a ten tonne sculpture constructed from weathering steel plate. Created by artist Cathryn Monro, Per Capita is located on the corner of Cable St and Tory St in Wellington. Four large upright profiles, up to four metres high, are welded with small weathering steel gussets onto a weathering steel base plate. This is then bolted with weathering steel holding-down bolts into concrete footers. The concrete footers are supported by concrete piles which go down 3.5 metres into the ground.

Cathryn Monro said "Per Capita means 'for each head of population'. The composition of the work is very simple; it's a 4 piece puzzle. Yet the pieces don't fit together. So it's not simple anymore. An obvious sense of fitting and belonging is immediately confounded. Per Capita seeks to open up the question of what it means to be a New Zealander and to publicize the importance of that conversation".

"In a city where buildings are becoming more dominant I wanted to scale up the presence of humanity. A city fundamentally is about people. Their identity is built on beliefs and the stories they tell about themselves. We are a nation of people, and a city in particular, affected by the weather. I chose to work in weathering steel because like us it changes and develops in response to weather, time and the forces of nature. While durable and strong it is also earthy and organic" said Cathryn.

Raed El Sarraf of New Zealand Heavy Engineering Research Association (HERA) has estimated the corrosion rate of the weathering steel in what is known as a washed zone (where the steel is in an exposed environment and is periodically washed by the rain) as having a total steel loss of 1.8mm over 100 years. Considering that the thickness of the weathering steel of "Per Capita" is 40mm, the estimated washed corrosion rate was deemed to be acceptable. However, assuming a worst case scenario of the sculpture being in an unwashed

zone (i.e. sheltered from being washed by the rain but still exposed to the wind and salt from the sea) the total estimated steel loss over 100 years was 13.5mm. Note the very big difference between the washed and unwashed steel lost values.

Backyard Sculpture



A 2.4 metre high and 1.3 metre wide Boab tree sculpture (based on the Australian Native Brachytyten tree) was part of the Gold award winning display garden at the 2009 Melbourne International Flower and Garden Show.

Designer Paal Grant said "the sculpture is a mixture of copper and mild steel which was sealed with a special two pack finish. I used the rusty steel because I like the natural warmth and tones of rust. I believe the rust finish won't date because it has already aged and it blends harmoniously with the environment".

Conservation

When an artist creates a piece of work, particularly for outdoor installations, there is a public perception that those works will last in perpetuity. Although certain metals are known to be long-lasting, their appearance and longevity outdoors can be adversely affected by a combination of factors.

Excessive handling, environmental exposure (rain, pollution, ultraviolet radiation), the site location and vandalism can result in damage to the sculpture's surface. If left untreated, corrosion may develop and irreversibly alter the surface of the metal. Lesser known causes of deterioration are inherent

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