

Melbourne University Arts Centre West

University of Melbourne Galvanized to Face the Future

The \$66 million Arts West Redevelopment Project was one of the University of Melbourne's most significant infrastructure project in recent years. The project enabled the creation of dynamic new teaching and learning spaces for staff and students alike at the university's Parkville campus.

A major component of the Arts West Redevelopment project was the renovation of the university's Faculty of Arts building on Macleod Road. The new building, built over seven levels on Professors Walk opposite the heritage Old Arts Faculty Building, provides the University's Arts Precinct with a dedicated, high-quality teaching and learning environment.

The new building reflects the latest pedagogical thinking as applied in the Faculty of Arts curricula. In an era when campuses must offer something beyond online study, Arts West's spaces are tailored to project-based collaborative, interactive, seminar, discursive and didactic modes of teaching and learning.

One of the most stunning and distinctive visual features of the new Faculty of Arts building is its louvered façade, which involved ground-breaking use of steel. The building effectively has two skins: a glass wall and a structure of parallel horizontal steel fins or louvres—resembling deep exterior Venetian blinds. The steel sections of each louvre have been shaped so that they form part of a series of 3D images. The images are 'pressed' into the façade and reveal themselves to viewers at different times of the day and from different viewpoints.

The series of images 'pressed' into the façade feature selected objects from the University of Melbourne's 23 Cultural Collections and represent the concept of object-based learning—the philosophy for which the building was custom designed. The façade is both a passive solar-control element and an architectural manifestation of the Faculty of Arts.

Galvanizing the Steel Louvres

To protect the steel from corrosion and add visual appeal, the project team opted to galvanize the louvres. Industrial Galvanizers was engaged to coat the 480 individual steel sections in zinc prior to their delivery to the University of Melbourne construction site.

The project team chose galvanizing due to its durable nature, commenting that the stability of the galvanized surface meant that the time between maintenance inspections is much longer than other products, thus reducing the life cycle costs of the structure.

Industrial Galvanizers' plant in suburban Campbellfield, north of the Melbourne CBD, completed each batch of the galvanized steel louvres within an average turnaround of two to three working days in the plant.

While the iconic façade on the Arts faculty building was being installed, Industrial Galvanizers had to contend with the constraints of restricted site access for the trucks delivering the oversize galvanized sections. The University of Melbourne is in a leafy area north of Melbourne's CBD, but most of the buildings are nestled close together with narrow laneways between them, making it difficult to manoeuvre large vehicles.

According to Aaron King (Managing Director, Industrial Galvanizers Australia), "All the façade sections were numbered as they had to be installed in a very precise sequence," King added. "It was a challenge to get the semi-trailers in and unload the steel because they had to be taken off in such a way that they could be lifted up the building without double handling. The panels were packed with spacers and carpet so that the coating would not be damaged as the client wanted to maintain an 'architectural' look and finish. The sequencing was a critical aspect of the project to ensure the shaped sections correctly formed the embedded image."

The durability of the galvanizing process meant stacks of panels could be stored on site with exposure to the elements and a construction environment. The coating has a unique metallurgical

structure which gives outstanding resistance to mechanical damage in transport, erection and service.

Different environments are classified on a scale of C1 to C5, with C1 being a very benign location to C5 being extremely severe in terms of temperature extremes, humidity and corrosive components such as salt or chemicals. Average suburban areas—such as where the University of Melbourne is located—are mostly classified as C2.

The Standard AS/NZS 4680 called for minimum average zinc coating thickness of 85 microns for the items galvanized in this project. The estimated life-span and performance of a galvanized structure is calculated using the thickness of the zinc coating and the severity of the operating environment. Combining the results—Parkville being C2 and the zinc thickness meeting the requirements of the standard—gives the new façade an expected life-span of more than 99 years.

A galvanized structure lasts longer and requires less frequent inspections, so in the vast majority of cases is the cheapest process in the longer term. Every part of a galvanized article is protected, even recesses, sharp corners and inaccessible areas. No coating applied to a structure or fabrication after completion can provide the same protection. Maintenance requirements add to the life-cycle costs of any facility or structure, especially when work shutdown or disruption to production is involved.

About Industrial Galvanizers

Industrial Galvanizers is one of Australia’s largest hot-dip galvanizing companies and a recognised leader in protective metal coatings. Industrial Galvanizers currently operates eight sites across four Australian States.

The hot dip baths at Industrial Galvanizers can accommodate pieces up to 12m in length, 1.8m wide and 2.7m deep. “We can work with larger structures if they have been designed in sections that can be bolted together after galvanizing,” King said. “Alternatively, if an object exceeds the dimensions of our zinc bath, it is possible to progressively or ‘double’ dip larger single pieces.”

With ten zinc kettles and over 350 employees Australia-wide, Industrial Galvanizers provides services to a diverse range of industries and is renowned for liaising with clients to provide the best solution for each project. Their sectors of operation include commercial and residential construction, infrastructure, manufacturing, mining, oil and gas, and agriculture.

The majority of the steel that Industrial Galvanizers processes comes in fairly regular shapes, but the company also occasionally galvanizes sculptures and art installations. “The unusual shapes break up the monotony of I-beams and girders that come through,” King said.

According to King, “Galvanization provides a long lasting, tough, durable coating that provides complete corrosion protection both inside and out, in addition to enhancing the appearance. However, the choice of coating ultimately depends on what the client needs, plus galvanization is not appropriate for every situation. Asset owners need to consider initial cost, lifecycle costs, aesthetics and the environment when choosing a coating system.”

PROJECT TEAM

Developer and Owner: Melbourne University

Architect and Specifier: ARM and Architectus

Project Manager: Aurecon

Main Contractor: Kane Constructions

Structural Engineer: Irwinconsult

Steel Supplier: BlueScope

Steel Fabricator: Fab Metal Specialists

Hot Dip Galvanizer: Industrial Galvanizers



Photography: University of Melbourne