

# A SLICE OF HISTORY

MAIN CONSTRUCTION COMPANY : Mirvac  
ARCHITECT : Sissons  
STRUCTURAL ENGINEER : Arcadis  
CONSTRUCTION VALUE : \$157 million



The \$157M South Eveleigh Locomotive Workshop refurbishment spans 31,000m<sup>2</sup> over 3-storeys across 15 bays creating a hybrid mixed-use destination bringing together contemporary retail and commercial spaces within one of Sydney's most historic precincts while incorporating key heritage elements.

**The Locomotive Workshop in Sydney's South Eveleigh was constructed in the 1880's and is a heritage listed building of significant historical importance to New South Wales.**

It has played a pivotal role in the history of railways, manufacturing and industrialisation, and the birth of labour unionisation in the state.

Leading Australian property group Mirvac has transformed the Locomotive Workshop into a dynamic mixed-use precinct with 8,000m<sup>2</sup> of bespoke retail offerings, around 23,000m<sup>2</sup> of modern infill office and heritage interpretation installations.

The development, wholly owned by Mirvac, has been carefully designed to preserve and celebrate the building fabric, its extensive collection of original machinery and artifacts, and the ongoing presence of blacksmithing activity on the site. It will set an industry leading precedent for adaptive reuse of heritage assets.

"This project was really like building a commercial development and a museum at the same time," said Adam Sutherland, NSW Operations Manager for Mirvac. "We were building in and around the heritage structures the whole time and we needed to be very careful with everything we did."

The works involved extensive alterations to the existing structure as the previous 1990's fitout was fully removed to return the building to a bare shell. A new composite deck was then added with the old and new structure carefully tied together. Around 20,000m<sup>2</sup> of existing roof was also fully upgraded to enhance its thermal, acoustic and waterproofing performance.

A major internal intervention was the construction of a new tunnel and travelator to connect the workshop to an adjacent carpark building. To build the tunnel new penetrations were formed through the existing building fabric which required careful investigation and management of risks.

"The new build elements of the works are designed to be reversible and sensitive to the building's heritage," Adam said. "The design was carefully developed by our team in consultation with the community and Heritage NSW to bring new life to the site while preserving its legacy. The whole team gave 100% effort to get it right."

The heritage elements of the workshop brought many risks and challenges to the project including the condition of the existing roof, structure and services and the presence of hazardous materials, lead dust and ground contamination.

"We had to carefully work around other construction works and also tenants moving in nearby," Adam said. "A lot of staging of works was needed and we had to carefully manage the programme's critical path."

The Locomotive Workshop is part of an extensive redevelopment of the whole South Eveleigh precinct which also includes other commercial buildings, pedestrian thoroughfares, open spaces and public art.

"Previously, the site was quite underutilised with a tired business park feel," explained Adam. "We've turned it into a new era thriving

technology and innovation precinct, closely integrated with the wider community."

The Locomotive Workshop project was completed in stages with Mirvac working hand-in-hand with tenants and their design teams to complete fitouts and hand over commercial tenancies.

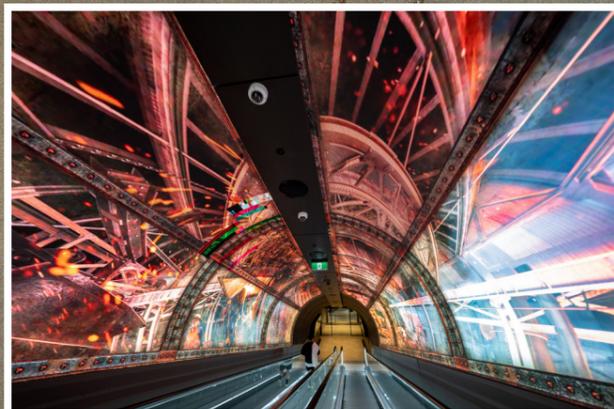
Mirvac approached the project from the start with a long-term vision to ensure the future viability of the site. They will remain closely involved over the long term to manage, operate and maintain the Locomotive Workshop.

"We want to be a good neighbour and make a positive impact on the community," Adam said. "This is an iconic and unique Sydney building and we are proud to have breathed new life into it while allowing it to retain its heritage. Now with the activation of the retail areas and public precincts we are excited to see it in full swing!"

**For more information contact Mirvac**, Level 28, 200 George Street, Sydney NSW 2000, phone 02 9080 8000, website [www.mirvac.com](http://www.mirvac.com)

**Below** Curio Projects have delivered an interpretative experience that brings new life to the Locomotive Workshops.

**Below** Fredon Air re-engineered aspects of the concept design to ensure it fit heritage and council requirements.



**The South Eveleigh – Locomotive Workshop, one of New South Wales’ most significant heritage buildings, is being transformed by Mirvac into a commercial and retail hub.** Heritage consultants Curio Projects have delivered an interpretative experience that brings new life to this previously under-utilised asset while showcasing its rich history.

Curio worked with Mirvac and the precinct’s tenants to obtain over 50 heritage approvals. They worked with each of the tenants to get viable outcomes that were acceptable to Heritage NSW and the City of Sydney Council while also achieving functional, exciting spaces.

Curio were involved in multiple community consultations inform the heritage outcomes and help it reflect the deep connection between Redfern and the Locomotive Workshop over the years.

“There are layers of history on this site from its origins as Aboriginal Country through its use from the 1870s as a locomotive manufacturing workshop to its most recent role as a technology hub. There are so many stories to tell,” said Natalie Vinton, CEO. “This was one of, if not, the state’s biggest employer and arguably started Australia’s industrial revolution,” Natalie continued. “Neighbourhoods built

up around the site to support it. It was a rare urban Aboriginal employment hub and a hotspot for unionisation. Mirvac haven’t taken any shortcuts in creating a world-class facility that reflects this amazing heritage.”

The project incorporates interventions such as Aboriginal gardens, a fully operational blacksmith’s operation, cultural heritage tours, special events, displays, digital exhibitions and interpretative artworks.

“There is nothing else like it,” said Natalie. “Our vision was to create an industrial museum that is as authentic as possible for experts while also delivering elements of surprise and engagement for the general public in a space that is commercially usable.”

Based in Sydney and Tasmania, the Curio Projects team delivers a holistic and innovative approach to heritage management through interpretation, storytelling and placemaking to create sustainable and exciting cultural legacies.

**For more information contact Curio Projects, 5 Blackfriars Street, Chippendale NSW 2008, email [info@curioprojects.com.au](mailto:info@curioprojects.com.au), website [www.curioprojects.com.au](http://www.curioprojects.com.au)  [curio\\_projects](https://www.facebook.com/curio_projects)**

**The Locomotive Workshop building at South Eveleigh is one of NSW most significant heritage buildings and is being transformed by Mirvac into a multi-purpose precinct with retail, dining, office and fitness offerings.** Fredon was appointed by developer Mirvac as the Design and Construct (D&C) mechanical contractor for the project.

“We re-engineered many aspects of the concept design to make to work well for Mirvac while also fitting around the heritage requirements,” said David Womersley, Project Manager.

“We had to plan and design the details carefully to satisfy the architects, council and Heritage NSW.”

Fredon developed a Building Information Model (BIM) of the design which was coordinated with the rest of the project in 3D. “A lot of work was done on the model to get it right beforehand,” said David.

“Then onsite we had myself as the project manager plus a full-time senior engineer and site manager to address any unforeseen issues as they came up.”

Careful planning was necessary on the project since the mechanical installations were exposed as part of the final design.

“On some projects the services are hidden but here it was all on display as part of the finished product,” explained David. “The work we did to comply with the requirements was not easy but we are proud to have achieved a result that looks really good.”

Established in 1968, Fredon is a leading provider of installation and maintenance solutions in asset services, electrical and communications, HVAC, technology, security and infrastructure. They are an engineering business that can take full responsibility for the design and delivery of outcomes that are workable, energy-efficient and better performing in terms of cost.

With a nationwide presence and a track record of major projects, innovations and industry awards, Fredon offers industry-leading technical solutions and expertise across all their divisions.

**For more information contact Fredon Air, 123 Wetherill Street, Silverwater NSW 2128, phone 02 9475 9400, website [www.fredon.com.au](http://www.fredon.com.au)**



**Below** Red 8 Roofing installed new corrugated roof sheets, flashings, insulation, and more for the South Eveleigh project.



**Below** Sissons created new structures reflecting the original locomotive routes and significant heritage of the building.



**Red 8 Roofing is one of Australia's largest and most highly regarded metal roofing companies.** They were recently appointed to upgrade the roof of stages 1-4 at South Eveleigh, with stage 2 being the Locomotive Workshops, as part of its recent transformation by Mirvac.

Red 8 Roofing stripped off the roof coverings that were previously installed and exposed the original internal heritage roof which was retained. They then applied new corrugated roof sheets, flashings, insulation, skylights and dome lights and a new safe access system.

The existing heritage roof had to be treated with care, particularly where new penetrations needed to be formed. In addition some of the purlin support for the roof sheets were in poor condition and needed to be replaced.

Red 8 Roofing knew the site well having installed roofing to other areas of the Australian Technology Park. "One really challenging aspect was access around the site which was constrained by one side which is the rail line," said Jason Cavanagh, Director. "We installed a buggy to carry roof sheets up to 90m across the roof where the construction crane couldn't reach."

The presence of tenants such as Channel 7 Studios onsite meant that Red 8 Roofing had to be very careful to avoid causing disruption, meaning night shifts were often required during the works.

"It was a difficult project but we had a good team on the job and have worked with Mirvac for years so we had no problems," Jason said. "We had no incidents and no defects on the project which is a sign of a successful job."

With over 30 years experience in the roofing industry, Red 8 Roofing offers superior workmanship and customer service that is second to none. Their diverse, talented team services New South Wales, Queensland and the ACT with industry-leading experience in metal roofing of all types.

*For more information contact Red 8 Roofing, 5/12-16 Mangrove Lane, Taren Point NSW 2229, phone 1800 429 110, email office@red8roofing.com.au, website www.red8roofing.com.au*

**Sydney based practice Sissons Architects were the lead designers for the recent transformation of the South Eveleigh Locomotive Workshops.**

The Locomotive Workshops are a significant industrial heritage asset dating from the 1880s. Understanding its history was an important part of the design process. "The workshop was built in stages over time," said Nick Sissons, Partner. "The building housed a wide variety of functions, all working in concert to build and maintain the early years of the NSW railway network. It was a significant building as it brought together a diverse workforce that formed the early years of the labour movement."

"Right from the start it was important for us to try and find building's rhythm," Nick continued. "We wanted to capture its heartbeat and restore something of its former spatial glory."

Their approach was to remove the building's recent poor quality fitouts and create new lightweight mezzanine structures oriented around a central 'road' reflecting the original axial route through the building. The final design includes top-lit commercial spaces, a rich retail mix, heritage interpretation areas and an operational blacksmith at the

project's heart. The new structures are fully removable and detached from the original structure to celebrate and protect the building's heritage. Sissons produced a 3D digital design model, using modern CAD systems to visualise what the spaces would look like and how they would be constructed.

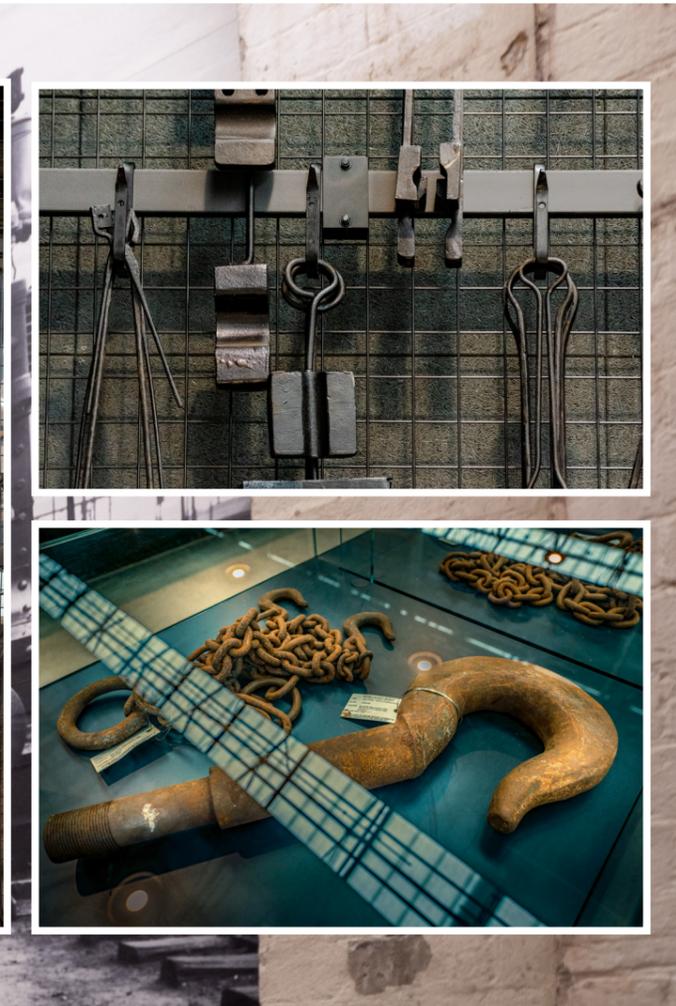
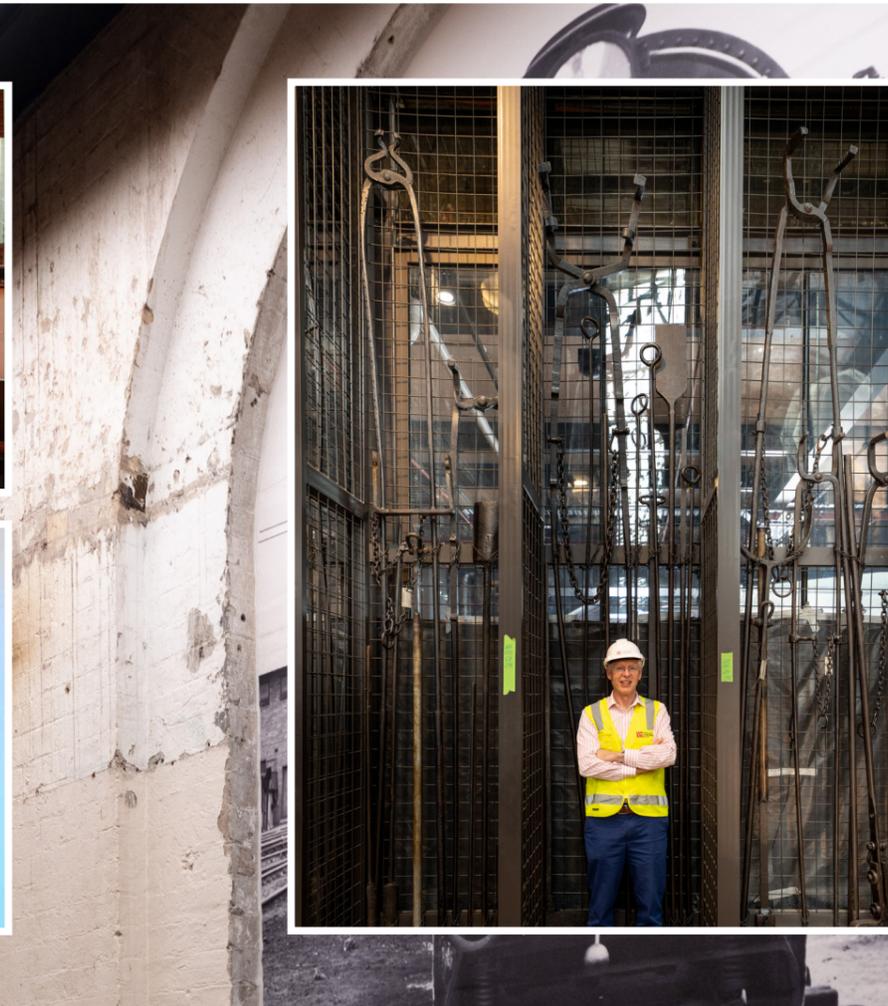
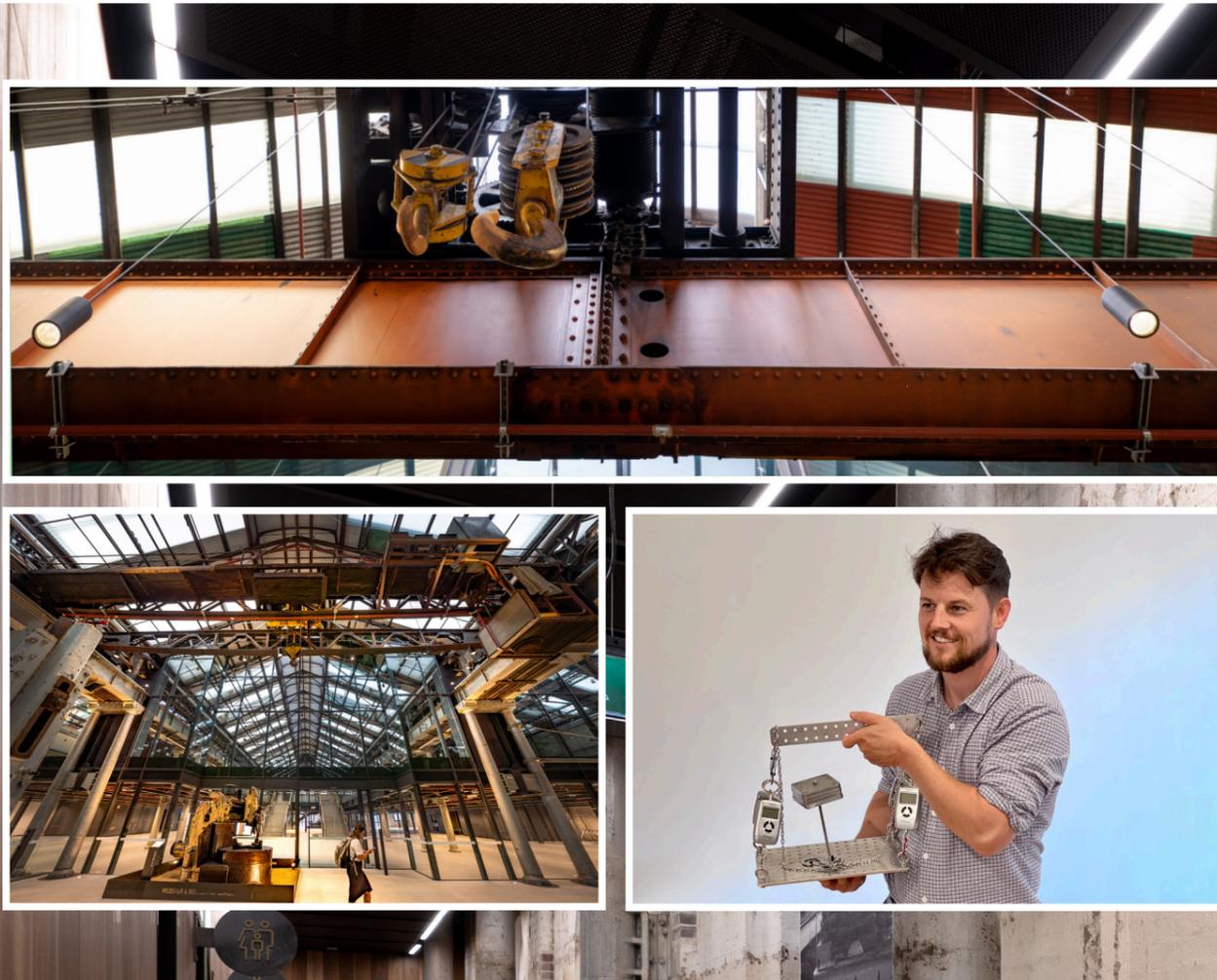
"The project was a great showcase for preserving old structures using new technology," Nick said. Sissons worked closely with developer Mirvac to ensure the project's success. "Mirvac were highly motivated to make this an active, successful building," Nick said. "Many of the new insertions like the carpark travelator and loading dock became opportunities to showcase the story of the building. Mirvac were really focused on delivering the best possible result for the project."

On all their projects, Sissons combines commercial realities with creativity, logic and big picture thinking. "We love to solve difficult problems with clever thinking," Nick said. "Sometimes the simplest solution can be the hardest to find."

*For more information contact Sissons, phone 02 8904 1853, email studio@sissons.com.au, website www.sissons.com.au*

Below Edwards Heavy Lift developed the temporary works to reduce impacts on the unique heritage structure of the building.

Below ICS restored the original heritage machinery and tools for integration into Mirvac's refurbishment.



**South Eveleigh – Locomotive Workshop's transformation into a mixed-use precinct required careful planning to mitigate impacts on the unique heritage structure and its contents.**

Edwards Heavy Lift designed the temporary works for the project including developing construction methodologies and temporary structural supports and assessing heritage items for lifting, removal and reinstatement.

One complex area of the works was the roof that was extensively reconfigured requiring access. Edwards Heavy Lift worked closely with the developer Mirvac to assess and certify the live loading potential of the roof and define the maximum roof area that could be impacted at any time.

Another challenge was the need to move the heritage equipment and machinery located in the workshop for cleaning. "All the equipment is historic and unique with no manual or technical drawings," explained Stuart Edwards, Director.

"We did a comparative analysis of existing load paths to determine safe lifting methods for each item. In some cases we proposed a lifting

method that replicated the current state but when that wasn't possible we designed custom-built cradles to allow the items to be moved safely."

Planning of the works was complex as some existing areas were congested with a large amount of equipment and closely spaced columns. Planning of transport routes and crane access methods was required. Height and width limitations for road transport also had to be considered.

"In the end the project went smoothly," Stuart said. "The heritage aspect of this job was pretty unique but we do a lot of this type of work involving lifting unusual and valuable items."

Edwards Heavy Lift is a leading provider of specialist engineering for heavy lifting, transport and specialist construction methodology across many industry sectors. Years of practical experience allow them to cover both temporary and permanent works and provide complete turn-key solutions that are cost-effective, safe and buildable.

*For more information contact Edwards Heavy Lift, 43 Main Street, Clunes NSW 2480, phone 02 6629 1862*

**International Conservation Services (ICS) is Australia's largest private fine art and heritage conservation practice.**

Their world-class team of conservators and heritage experts conserve and secure artworks and items of cultural value.

The Locomotive Workshop contains a large range of original heritage machinery and tools reflecting the many layers of history at the site. ICS was appointed to restore the items for integration into Mirvac's refurbishment of the site into high-quality office and retail space.

"Our role was to restore the historical tools and machinery to their former glory, retaining their character, while protecting and making them fit for display in a way that clearly shows the processes and functions performed in the Locomotive Workshop," said CEO Julian Bickersteth.

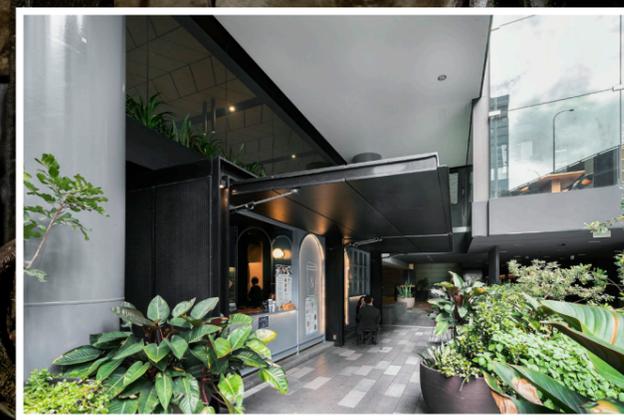
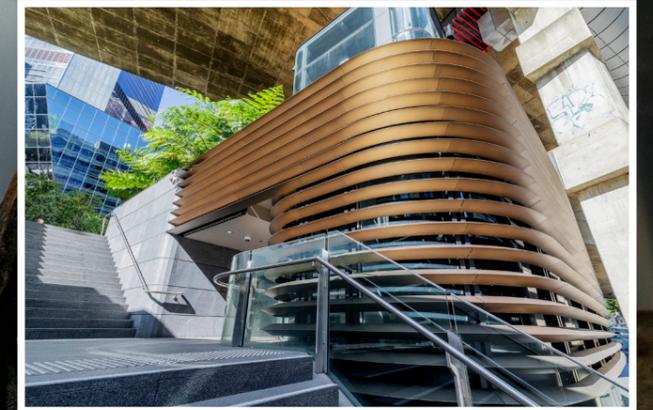
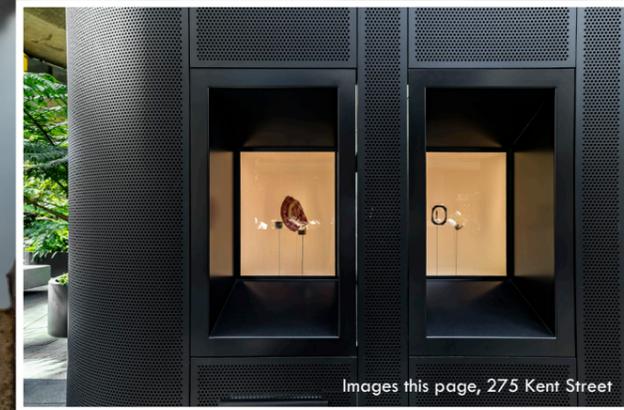
To achieve this ICS moved most items to a warehouse for cleaning, surface stabilisation and coating. Minor modifications were made to items with moving parts to make them safe for display. Some large items such as the locomotive turntable were restored in-situ. After restoration, the items were transferred into a new display area

onsite, accompanied by information boards to showcase the activities that were performed in the workshop. Records of each item, with documentation of the cleaning and maintenance process, are now online for future public access.

The sheer size, weight and bulk of the collection presented a major challenge for conservators (many of the pieces of machinery weigh over 40 tonnes). Larger items, like furnaces and flues, required ICS to find innovative ways to safely display them in their new environment. ICS worked closely with Mirvac throughout the project to achieve the best possible outcome for this unique collection.

With labs in Sydney, Canberra, Melbourne and Perth, ICS provides a range of conservation, restoration and collection management services for everything from colonial buildings to marine artifacts, painted surfaces, mosaics, sculptures, outdoor heritage, and fine and decorative arts.

*For more information contact International Conservation Services, 53 Victoria Avenue, Chatswood NSW 2067, phone 02 9417 3311, email ics@icsconservation.com, website www.icsconservation.com.au*



City Projects are a specialist provider of high-end commercial fitout and residential construction serving New South Wales and Victoria. The company is focused on delivering high quality finishes on time and within budget, with their attention to detail and dedication to operational excellence helping them build a strong reputation and establish long-term relationships with many clients.

As part of the restoration and rejuvenation of the South Eveleigh – Locomotive Workshop, City Projects were appointed by developer Mirvac to provide an acoustic enclosure for the roof platform that housed the plant equipment serving the project.

City Projects worked closely with the acoustic engineer, Mirvac and the project design team to understand the requirements and design a suitable solution. This collaboration resulted in AcoustiSorb sound-absorbing panels being selected for the project since the product buildup and insulation density allowed the project's acoustic requirements to be achieved.

"This was a challenging project with a lot of complexity driven by the physical characteristics of the roof," said Alex Macinger, Director.

"We put a lot of time into pre-planning and ensuring buildability. Ultimately it was a smooth process onsite, we planned it well which paid off for us in the end."

City Projects provides a diverse range of services including both principal contracting and subcontracting. Whilst delivering South Eveleigh, City Projects along side Developer Mirvac, delivered Westpac's Head Office at 275 Kent Street. This project showcased their capability to engage and successfully deliver on a complex scope.

"We are versatile to meet our clients' varying needs," said Alex. "We can take on diverse and challenging scopes which has helped us establish repeat clients. At South Eveleigh we are proud to have worked with Mirvac to deliver a good solution."

For more information contact City Projects, Unit 2, 175 Lower Gibbes Street, Roseville NSW 2069, phone 02 9417 7297, email admin@cityprojects.com.au, website www.cityprojects.com.au