



Materials and Asset Engineering

Steel construction and performance

Specialised knowledge of materials performance, particularly concrete and steel, is key to the success of infrastructure projects.

Whether working with clients in rail, in mining and resources, in water, in highways, or even in ports, we use this knowledge to help them achieve their desired outcome in terms of cost, reliability, performance and safety.

Our worldwide experience covers a wide variety of asset types such as buildings, car parks, bridges, tunnels, water treatment works, industrial facilities, ports and harbours, and coastal and river defences.

We offer our clients specialisation and expertise in the procurement, fabrication, construction and performance of structural steel products for pipelines, jetties, bridges, tunnels, railways, offshore structures and hydropower stations.



Our services

Halcrow provides technical advisory and specification services for the design, construction, maintenance and material performance reviews of steel products used in maritime, rail, water, energy and transportation infrastructure.

- **Steel selection and specification**

We specify and review the mechanical properties of plain carbon steel, high alloy steel, stainless steel and aluminium alloy products before supply and construction to ensure compliance and workmanship are consistent with design specifications and regulatory standards.

- **Welding advisory**

Specification and advice for appropriate welding process of rails, pipelines, reinforcing steel, plates and hollow steel sections including assessment of the metallurgical, mechanical and fusion characteristics for structural and fatigue purpose welds.

Halcrow's advisory services also extend to weld qualification testing, supervision and approval for commercial fabrication including NDT regime.

- **Fire (thermal) effects on steel**

We can assess the effect of fire on the integrity, endurance and residual strength of steel structures by evaluating the material characteristics through in-situ and laboratory testing.

Numerical (FEA) modelling is used to assess thermal load effects from fire events on structural steel members with protective fire-resistant materials during the design phase.



- **Forensic investigations**

In the event of structural failure of any kind, advice is provided on non-conformities across all aspects steel construction. Forensic investigations are undertaken on mechanical components, pipes, welded and bolted connections to identify the root cause of the problem.

Then rectification measures can be recommended to prevent recurrence of a similar incident.



- **Durability and corrosion**

We can specify and predict the service life of steel protective coating systems including selection of steel to ensure they perform adequately under different exposure environments.

Condition assessments are also performed on steel structures to evaluate material loss due to corrosion and estimate their residual design life.



Why Halcrow?

We have been working for clients throughout Australia, New Zealand and the Asia-Pacific region since 1993. We have offices in Sydney, Melbourne, Brisbane and Perth.

At Halcrow we pride ourselves on our strong local delivery capability and client focus. However, when you work with Halcrow you also draw upon our global skills, expertise and experience.

So, whatever the challenge, there's a Halcrow person somewhere in the world who can develop a solution.

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For more about Halcrow, visit halcrow.com