

The Freyssinet Group in Australasia



Sustainable Technology



COVER: left, Austress Menard wick drain installation; middle, Austress Freyssinet cable stayed bridge; right, Reinforced Earth bridge abutment.

THIS PAGE: top left, RECO site supervision during TechSpan® precast concrete arch construction; top right, Austress Menard's mine backfilling technique; bottom, Austress Freyssinet multi-strand post-tensioning system.

The Freyssinet Group

In the specialised civil engineering fields of soils and structures, The Freyssinet Group has an unrivalled reputation.

Globally the Group services 60 countries from 75 operating subsidiaries across five continents and is made up of:

- Freyssinet: prestressing, stay cables and strengthening of structures
- Reinforced Earth: retaining walls and tunnels
- Menard: geotechnical construction and soil improvement.

In Australasia they are represented by Austress Freyssinet, The Reinforced Earth Company (RECO) and Austress Menard who service Australia, New Zealand, Papua New Guinea and neighbouring islands in the Pacific Ocean.

Team commitment

Committed to excellence, the Group's expertise is complemented by the teams' professional working standards.

The Group is made up of a diverse range of professions and locations with one common goal; to combine the quest for technical excellence with outstanding client service.

We are committed to helping our clients achieve their goals through creative, cost effective, quality assured and timely solutions that honour safe work practices and the environment.

Versatile solutions for foundations, structures, bridges, retaining walls, tunnels, soil improvement, construction, repair and maintenance.



THIS PAGE: upgrade works to the Sydney Harbour Bridge. The civil engineering technique of heavy lifting was specially designed for the placement of work gantries underneath the deck of the bridge.

OPPOSITE PAGE: left, design and construction of post-tensioning for the 92 storey Eureka Tower in Melbourne; middle, engineered glass blade feature reaches up the face, over the roof and down the rear of this prominent building in North Sydney; right, heritage restoration of a building facade from the 1920s in Sydney.

Building post-tensioning

Residential and commercial
Shopping centres and car parks
Industrial slabs on grade
Internal design services

Civil engineering

Bridge construction methods
Stay cable structures
Heavy lifting and jacking
Freyssibars, joints and bearings

Glass structures

Specialised awnings
Tensioned structures
Glazed canopies
Engineered facades

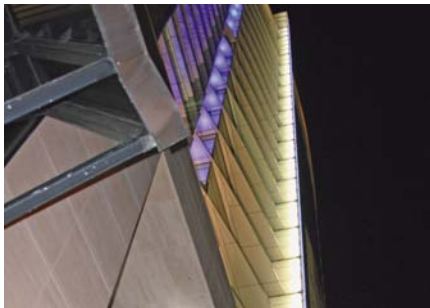
Structural repair

Cathodic protection
Structural strengthening
Additional prestressing
Concrete and facade repairs



Sustainable Technology

Austress Freyssinet



Austress Freyssinet provides specialist design and construction services in the fields of building post-tensioning, civil engineering, glass structures and structural repair.

Building post-tensioning

Advanced knowledge in post-tensioning provides our clients with solutions on their projects providing design alternatives created by our in-house engineering department. Our experienced site staff provide the hands on know-how to complete the project efficiently, safely and on time.

Glass structures

This distinctive medium gives us the freedom to provide our clients with innovative glass engineering solutions that enhance their projects. Our expert services include awnings, engineered facades, tension structures, large glazed panelling and glass canopies.

Civil engineering

Encompassing stay cables, construction methods, heavy lifting and civil engineering products such as Freyssibars, bearings and joints, our civil engineering team offers innovative solutions for energy, transport and industry such as bridges, tunnels, reservoirs, dams and silos.

Through the Group's continuous research and development we can provide cutting edge design alternatives for projects at concept stage to benefit the client and the community.

Structural repair

We have many techniques available to extend the life of ageing structures: strengthening through composite materials including carbon fibre fabric (TFC), shotcrete and additional prestressing; refurbishment through concrete and facade repair, sealing, cathodic protection and realkalisation. The application of high-performance maintenance extends the durability of structures.

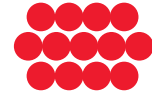


THIS PAGE: RECO's design team developed an elegant solution to the technical challenges presented by the low clearance height of the North Kiama Bypass route and the tight radius of the rail line to the nearby Bombo Quarry in NSW. RECO was engaged to supply temporary TerraTrel® walls so that the construction of the TechSpan® tunnel and the permanent TerraClass® retaining walls could be staged to keep the Princes Highway open to traffic at all times.

OPPOSITE PAGE: left, TerraMet® dump walls are the most cost effective in remote sites such as Rio Tinto's Yandi JSE iron ore mine in the Pilbara Region of WA. The 20 metre high wall has been designed for 495 tonne Komatsu 930E dump trucks; middle, TechSpan® precast concrete arches are widely used for mine reclaim tunnels, as pictured here inside the coal feeder unit at Newpac coal mine in NSW; right, TerraPlus® Reinforced Earth bridge abutments, Richmond Road Exit, Westlink M7 Motorway, NSW.

Retaining walls
 Bridge abutments
 Tunnels and culverts
 Mine dump structures
 Containment dykes

Wharf and quay walls
 Dams and weirs
 Materials handling
 Blast barriers
 Landscaping



Reinforced Earth

Sustainable Technology

The Reinforced Earth Company



RECO designs and supplies retaining wall and tunnel solutions.

RECO is historically recognised as the inventor and market leader of the Mechanically Stabilised Earth (MSE) retaining wall industry.

Today, RECO designs and supplies retaining wall and tunnel solutions to civil engineering contractors who build major road, rail and mining infrastructure.

Reinforced Earth structures

A strong and durable mass gravity retaining wall created by combining selected granular, engineered backfill with steel or synthetic tensile reinforcements and a modular facing system.

TechSpan® precast concrete arch systems

TechSpan® is a three-pin, two-piece funicular curve shaped arch. It is the leading precast concrete arch system available in Australia and New Zealand.

Reinforced Earth walls and TechSpan® buried arch tunnels have revolutionised construction with wide-ranging applications in roadways, railways, mining, industrial, energy, hydraulic, military and protective structures.

RECO's experienced team of engineers and technicians offer assistance at every stage of the project from conception, feasibility, tendering, design, manufacture and construction, to maintenance, performance and upgrades.

Each project is treated individually, resulting in solutions which combine innovation and technical expertise. This knowledge has grown through the proven performance of over 30,000 structures installed on five continents over the past 40 years.



THIS PAGE: located at the 37 hectare site of the former Newcastle Steelworks, the soil bentonite ground water barrier stretches 1.5 kilometres and reaches depths between 30 and 50 metres, diverting groundwater flows from the most contaminated areas on the site.

OPPOSITE PAGE: left, dynamic compaction for the Portland Wind Energy site; middle, jet grouting foundation works for the Lisarow Rail Bridge; right, retaining walls, Queenstown New Zealand.

Cavity grouting
 Controlled modulus columns (CMC)
 Ground anchors
 Slurry walls
 Compaction grouting
 Soil mixing
 Dynamic compaction
 Dynamic replacement

Vacuum consolidation
 Vertical drains
 Jet grouting
 Vibro compaction
 Micro piles
 Stone columns
 Permeation grouting
 Soil anchors (SBMA)



Sustainable Technology

Austress Menard



Austress Menard delivers a comprehensive range of geotechnical and ground improvement solutions.

Ground improvement

Ground improvement activities, with or without material inclusions, offer a variety of innovative techniques. The former delivers the global improvement of soil moduli whilst the latter yields increased density and shear strength to the ground.

Dam stability and enhancement

Design criteria for dams are constantly evolving. As a result, innovative geotechnical solutions are required to ensure compliance with changing Standards.

There are two principal areas of Austress Menard's expertise; the treatment of the dam foundation rock to eliminate seepage and erosion via a variety of grouting techniques and secondly, the improvement of stability against failure by the use of high capacity ground anchors.

Earth retention

Retaining walls are frequently a feature associated with deep excavations, particularly where space limitations preclude battered excavation slopes. Austress Menard offers complete retaining wall and retention systems.

Ground water barriers in soils

Whether a relatively impermeable barrier against water movement is required, or a barrier to prevent the transportation of water-borne contaminants for environmental reasons, Austress Menard offers a comprehensive range of options, from continuous pile/jet grout walls to slurry walls constructed under bentonite or bentonite/cement suspensions.

Freyssinet, the sustainable group

Safety

Our employees are our most valuable asset. Their safety and well being are of the highest priority, so we provide health and safety risk management systems that conform to the best possible work practices. Safety is a responsibility for everyone and through continual training, development and awareness we can work in a healthy and safe environment.

Innovation

Since Eugène Freyssinet invented prestressed concrete in the 1920s, the Freyssinet Group has based its growth on dynamic innovation.

Reinforced Earth retaining walls and the Menard Vacuum Consolidation technique illustrate technological advances that have changed the civil engineering world. The Group allocates more than 1.5 percent of its turnover to innovation each year.

Environment

The 'Sustainable Technology' signature illustrates the Group's commitment to protecting the environment and its desire to develop and offer sustainable, energy-saving solutions with low greenhouse gas emissions.

Studies of carbon dioxide emissions from our sites show that Freyssinet Group technologies reduce carbon dioxide emissions when compared with traditional construction techniques. Also, by their nature, the Group's solutions for repair, strengthening and maintenance extend structure service life, thus reducing our effect on the environment and conserving our natural resources.

Quality

We deliver the highest quality client service through staff expertise, timely performance and advanced products and services.

We are committed to continuously improving the effectiveness of our systems to meet the requirements of ISO9001.

The Freyssinet Group is committed to a sustainable approach through our technologies, people and social responsibilities.

Valuing quality, safety and the environment



Top left, vacuum consolidation; top right, ground anchors and suspension bridge; middle from left, cathodic protection of prestressing concrete, culvert with TerraPlus® Reinforced Earth headwalls, carbon fibre strengthening (TFC) and cathodic protection; bottom, TechSpan® precast concrete arch construction.

Offices in Australasia



Austress Freyssinet

www.freyssinet.com.au
www.freyssinet.co.nz

The Reinforced Earth Company

www.reinforcedearth.com.au
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Austress Menard

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