THE SOLUTION FOR CORROSION

Composite Rebar
For Concrete Structures

Increased Security
Reduced Life Cycle Cost

www.vrodaustralia.com.au
"The Solution for Concrete Durability"

Moving forward the only factor influencing the durability and life expectancy of concrete will be the concrete itself and not the reinforcing.

Historically with every concrete structure built it has been the reverse. It has been the steel reinforcing that has caused the concrete to fail.

NON-EXISTENT CORROSION

STRENGTH

DURABILITY

EASY SITE HANDLING AND EASY CUTTING

ELECTROMAGNETICALLY NEUTRAL
The Most Remarkable Evolution
Since the Beginning of Reinforced Concrete

There is no way around the use of reinforced concrete in the construction of buildings and structures. However, steel reinforcement often causes expensive problems both in terms of logistics and in length of service life.

At last, thanks to V•Rod, owners of structures can take advantage of a major evolution in reinforced concrete technology. This means:

- More secure structures
- Non-existent corrosion
- Life cycle on Human Health, Ecosystems, Climate change and resources
  Range from 64% - 85% lower than Steel

The advantages of V•Rod rebar are backed by years of testing and actual field results, in the most demanding conditions. From now on, limitation will lie with the concrete, and not the reinforcement.

More Advantages, Less Problems

The technology of reinforced concrete is facing a serious degradation problem in structures due to the corrosion of steel rebar. Concrete corrosion costs Australia over 26 Billion Annually.

Several options have been explored, most notably the use of galvanized steel rebar, epoxy coated or stainless steel. The results, however, have been disappointing as these solutions have turned out to be less than effective or cost prohibitive.

Fibre-reinforced polymer (FRP) rebar has proven to be the solution. Lightweight corrosion resistant, and offering excellent tensile strength and high mechanical performance. V•Rod rebar is installed much like steel rebar, but with fewer handling and storage problems.
V•Rod rebar gives designers, contractors and owners of structures the following advantages:

**Corrosion Resistant** - V•Rod rebar does not rust, even in the harshest environments. It does not react to salt, chemical products or the alkaline present in concrete.

**Thermal Expansion** - V•Rod rebar offers a level if thermal expansion comparable to concrete due to its 80% silica content.

**Electrical and Magnetic Neutrality** - V•Rod rebar does not contain any metal; it will not cause any interference in contact with strong magnetic fields or when operating sensitive electronic instruments.

**Thermal Insulation** - V•Rod rebar does not create a thermal bridge within structures.

**Lightweight** - V•Rod rebar is 4 times lighter than steel rebar. It is much easier to handle and in most cases, one truck load will be sufficient to supply the rebar even for an entire project.

**Simplified On-Site Management** - V•Rod rebar can be delivered at the right time and in the exact quantity needed at the site. Various specifications such as the length, angles or bends of special sections are prepared in the plant.

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**A comparable service life**

The corrosion of the oxidized steel rebar has degraded the concrete around it.

The V•Rod rebar is intact and surrounded by healthy concrete.

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**A Future with Confidence**

As a solution for the future, V•Rod rebar is also a solution we can be confident in as attested by its qualification for the presence in the CSA codes for bridges and building constructions, as well as its adoption under the specific standards or related authorities in many Canadian Provinces, American state and North American Cities.

Standards Australia are directly adapting these design and manufacturing Standards.

Project design methods have been developed thanks to many pilot projects completed by the best of Quebec and Canadian expertise under the control of ISIS Canada and with the participation of reputable researches such as Mr Brahim Benmokrane, PhD Engineering.
Advantages in the Field

It has now been established with documented proof that V•Rod rebar represents an advantageous solution in a wide range of reinforced concrete applications. What’s more it is possible to integrate fibre optic sensors (fibre Bragg gratings) into this rebar to enable real time remote monitoring of structural integrity.

Engineers have now standardised the product and its applications, enabling the validation of their quality
Jetty Design

For only around 3% extra investment at CAPEX will pay dividends over the OPEX for the life of the project.

An appreciation of corrosion will provide an opportunity for the threat to be removed during the design stage of the project.
A show of some of the completed projects around Australia
RSL Revetment Wall – Murray Bridge Engineer Rob Frazer

Super Freeway Project – Smooth Dowels used between concrete slabs for the Department of Planning Transport and Infrastructure. Contractor – Bardavcol

Wallaroo – Jetty approach footing. Contractor Seacon

Various Boat Ramps around the State, Bianco Precast, MSP Precast

Electrical Chambers and Road Box Culverts, Cooke Precast

Victoria Bridge refurbishment, Savcore

West Lakes – Wall capping replacement around the lakes

Hornsdale Wind Farm – Concrete Slabs reinforced with V-Rod Contractor GE Hughes Engineer Walbridge & Gilbert

Port Lincoln – Piles for Jetty Kym Clark Constructions

Retaining wall – Designed & reinforced with V-Rod to support a lap pool near a lake

The Standard continues to be set in Australia when it comes to concrete structures subject to environments that demand durability and peace of mind that only V-Rod can provide.

Aztec Analysis specified V-Rod for the reinforcing of the concrete wave breaker panels at the Royal South Australian Yacht Squadron.

The Pre-caster found working with the V-Rod to be a breeze.
**One Steel** – Concrete walls close at the recycling electric ARC furnace for electromagnetic neutrality.

**Puckapunyal Australian Army** – Smooth V-Rod Dowels...Classified

**House Slab** – Thornbury Melbourne Builder Green Element Constructions

**Footing and Slabs** – reaction area for electromagnetic neutrality, City of Melville, Building Campeyn.

**Reactor Various Slabs** – UGL Power, for electromagnetic neutrality

**Port of Melbourne** – Heavy lift Concrete Crane Beam reinforced with V-Rod.

**Latrobe City Counci Airport** - Electromagnetic neutrality for a sundial

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**Port of Melbourne Crane Beam**

V-Rod reinforcing was specified for a Heavy Lift Concrete Crane Beam, for the Port of Melbourne.

Port Authorities understand more than any other, that the durability of their assets is crucial for future profits.
**New South Wales**

**Sydney Wharf Upgrade Program** – NSW Maritime – NSW Government, Milsons Point Wharf, Neutral Bay Wharf, Rose Bay, Balmain (Thames Street) Wharf, Huntley’s Point Wharf

**Australian Nuclear Science and Technology organisation** – Hansen Yuncken, V-rod has been used on two projects extensively for electromagnetic neutrality. 2010 and 2014 originally designed in stainless steel

**Sydney University** – Nano Science Building. Lend Lease, V-Rod has been used to replace the specified Stainless steel in the footing and slabs

**Sydney Fish Markets** – Action room floors now all reinforced with V-Rod, Boral De Martin Gasparini Contracting

**Ausgrid** – Various Slabs and footing around NSW. One Build

**Retaining wall** sleeper made of Solid Precast

**North West Rail Link** – Station Structure lift Walls, NSW Government Transport for NSW

**Concrete Tank** - 10m diameter, ACT Government, Contractor Bega Tanks

**Boat Ramp** – Tweed Shire

**Sea Wall Upgrade** – Concrete Precast panels designed with V-Rod by Taylor Thomson Whitting, Contractor – Extractor Drilling

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**Wharfs on Sydney Harbour**

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[Logos of various companies involved in the projects listed above]
Gold Coast Light Rail – Engineers McConnell Dowell in house. V-Rod was used to reinforce all the signalling detector loops for electromagnetic free operation. Contractor McConnell Dowell Stage 1 & Stage 2

Various Boat Ramps and Footing Works – Wagners

Australian Army – Classified

Cairns Council – V-Rod Dowells used in path around a pool

Pontoon – Concrete Tops

Tubruk Pool – Vinyl Ester Dowells used in the reinforcing around the pool

Lake Callemondah Fishway – Waffle pads

University of Southern QLD – Various research and study with GFRP

Boyd Street Drain – Stormwater Upgrade Gold Coast City Council
Anthon’s Landing Jetty Wyndham in the remote North West Western Australia won the 2012 Engineering Excellence Award. Designed by Aztec Solutions, Built by Maritime Constructions pre-cast in Darwin by all Cast NT

Denham Boat Ramp the concrete planks were reinforced with V-Rod reinforcement to prevent corrosion and the life time maintenance free concrete Department of Transport WA designed and constructed by Advanteering Civil Engineers

Majestic Close Board Walk Engineers Airy Taylor Consulting, Builder MMM Projects. V-Rod used in all the Pedestals footing and columns to support board walk.

Shark Bay Jetty Engineers Aztek Analysis, Builder Maritime Constructions. V-Rod used in the entire precast deck.

Monkey Mia Jetty Concrete panels are reinforced with V-Rod reinforcing constructed by Maritime Constructions