

# Envirocrete®

**The long term environmental benefits of building with concrete are well documented. The high thermal mass of concrete can be used to minimise heating and cooling in structures and the strength and durability of concrete provides a flexible, low maintenance construction material.**

**Boral Envirocrete incorporates recycled and waste raw materials enabling us to minimise the environmental impact of concrete during the manufacturing and construction phase. This makes concrete an even more attractive building material for the long term.**

## WHAT IS ENVIROCRETE?

Boral Envirocrete is a product that is carefully designed to use waste materials in the manufacture of concrete and thereby reduce the environmental impact.

### CEMENT

Portland cement can be replaced with industrial by-products that share a similar chemistry, but are non-reactive until placed in the presence of cement and water.

Replacement ratios of 20 to 40 per cent are readily achievable with up to 60 per cent replacement being achieved in some specific cases. The production of Portland cement releases greenhouse gases into the atmosphere so the direct replacement of cement with these by-products has an immediate benefit.

The greenhouse gas emission reductions by using Envirocrete can be significant. By simply using Envirocrete, you can do your bit for the environment.

### WATER

Boral has made a significant investment in water capture, harvest, storage and handling over the years to make our plants as water-efficient as possible.

All wash water\*, and the first 20mm of any rain to fall on Boral concrete plants is recycled and will likely leave the plant in the back of an agitator truck.

\* Excludes some water lost through evaporation.

### MANUFACTURED SAND

Boral can use manufactured sand as our Green Star recycled material in Envirocrete.

Manufactured sand is produced by processing a by-product of coarse aggregate. This manufactured sand is a direct replacement for natural sand and prevents the need to extract natural resources. It is produced from quarry dust and altered during the production process to achieve a grading and shape similar to natural sand.

### AGGREGATES

Boral can also use coarse and fine slag aggregates, a by-product of steel manufacture, further reducing our need for virgin crushed aggregates.

### CHEMICAL ADMIXTURES

Carefully selected admixtures are used to enhance the workability and early strength development of Boral Envirocrete.



## WHAT ARE THE LIMITATIONS?

As the proportion of replaced cement increases, the properties of the concrete will also vary. Envirocrete is designed to minimise these effects, mixes utilising higher proportions of replacement cementitious materials will behave differently to normal concrete.

Boral's technical team are experienced at providing Envirocrete mixes to suit the needs of most applications.

There are some general rules that must be considered in the design phase, when using Envirocrete.

The higher the proportion of replaced cement, the slower the setting time and strength gain. This means that some Envirocrete products may not always be suitable for applications requiring early strength such as post-tensioned slabs and precast concrete.

If you have concerns about the suitability of Envirocrete for your project, please contact our technical staff to discuss.

## WHERE CAN ENVIROCRETE BE USED?

Boral Envirocrete is available in a range of product variations that can be used for most construction applications. For example:

- House slabs
- Industrial slabs
- Commercial buildings\*
- High rise buildings\*
- Post-tensioned slabs\*
- Precast and tilt up panels\*
- Civil works
- Boralstone® polished concrete

\* Some limitations may exist surrounding pumpability and early strength gain.

## WHAT HAS ENVIROCRETE BEEN USED FOR?

Numerous high profile projects have been constructed using Envirocrete.

### **ECO-CHALLENGE ROSE BAY Rose Bay, Sydney**

Envirocrete was used for concrete slabs and swimming pools in this Australian Living sustainable eco-development. The four houses in the development were aiming for outstanding environmental performance. One house achieved eight stars under the Nationwide House Energy Rating Scheme for the potential thermal performance.



### **DARLING WALK PROJECT Darling Harbour, Sydney**

This outstanding urban landscape building used Envirocrete to comply with strict Green Star Environmental specifications. Envirocrete was used in all strength grades including post-tensioned concrete with low drying shrinkage requirements.



### **JUSTICE PRECINCT Parramatta, Sydney**

The Justice Office Building for the NSW Attorney General's Department employed an extensive range of environmental measures, including Envirocrete, to make this the first NSW Government building to achieve a 5-star Green Star environmental rating.



### **COUNCIL HOUSE 2 CH2 Little Collins Street, Melbourne**

The Melbourne City Council sets high standards in sustainability with low energy use and innovative materials.

Envirocrete was used in precast units and in situ concrete members.



## **BORAL WEBSITE:**

Visit the website for the full range of products:  
[www.boral.com.au](http://www.boral.com.au)

## **CONCRETE INFORMATION:**

For concrete news and information visit:  
[www.boral.com.au/concrete](http://www.boral.com.au/concrete)

## **CONTACT US:**

At Boral we are committed to excellence in service so for further information please contact:

[www.boral.com.au/contact](http://www.boral.com.au/contact)

