ENVISIA®
TECHNICAL DATA

LOWER CARBON
HIGH EARLY STRENGTH
LOWER SHRINKAGE
SUPERIOR DURABILITY
ARCHITECTURAL PRESENCE

Punchbowl Mosque, Sydney
Why ENVISIA®?

LOWER CARBON

- ENVISIA® is ideal for Green Star projects due to its reduced portland cement content. Yet it can still be used for post-tensioned slabs or when early stripping is required.

- ENVISIA® is an AS 1379 compliant concrete that offers significant reductions in embodied carbon whilst maintaining high early-age strength.

- ENVISIA® can be placed, pumped and finished like conventional concrete.

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EMBODIED CARBON CONTENT (kg CO₂-e/m³)

- **ENVISIA®**
- Geopolymer 100% fly ash*
- 75% OPC 25% fly ash*
- Ordinary portland cement (OPC)*

**Portland Cement Content**

- Green Star Mat-4 Baseline: 440 kg/m³
- ENVISIA® (53% reduction): 205 kg/m³

*AS 1379 compliant concrete source: Typical constituents for commercially available 40MPa concrete.


Punchbowl Mosque, Sydney
**STRENGTH PROPERTIES**

- ENVISIA® will achieve early-age strength equivalent to conventional concrete (post-tensioned and precast) despite 50 per cent cement replacement.
- ENVISIA® has 30 per cent greater flexural strength compared to that of the equivalent grade of conventional concrete.
- ENVISIA® is beneficial for industrial slabs, roads and car parks because of its high flexural strength, low shrinkage and high durability.

**EARLY-AGE STRENGTH CHARACTERISTICS: 40MPa CONCRETE**

![Graph showing early-age strength characteristics](image)

Source: Field data (early-age strength will vary depending on the ambient temperature). Based on all mixes containing 50% recycled water and 25% manufactured sand.
LOWER SHRINKAGE

- ENVISIA® achieves up to 50 per cent reduction in shrinkage when compared to conventional concrete.
- ENVISIA’s® low shrinkage allows for the design of larger slabs with fewer joints.

### SHRINKAGE CHARACTERISTICS: 40MPa CONCRETE

<table>
<thead>
<tr>
<th></th>
<th>Drying shrinkage (microstrain)</th>
<th>Source: Field data. Based on all mixes containing 50% recycled water and 25% manufactured sand.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional concrete – 38% OPC reduction (2 points)</td>
<td>700</td>
<td></td>
</tr>
<tr>
<td>Conventional post-tensioned concrete – 26% OPC reduction (1 point)</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>ENVISIA® – 50% OPC reduction (3 points)</td>
<td>500</td>
<td></td>
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</tbody>
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21 Days | 56 Days
SUPERIOR DURABILITY

• ENVISIA® provides greater protection for reinforcing against steel chloride-induced corrosion.

• ENVISIA’s® ability to resist chloride ingress is superior to conventional marine-grade concrete.

• ENVISIA® has improved sulphate and acid resistance properties.

• ENVISIA® mitigates the potential expansion due to alkali aggregate reactivity.
ARCHITECTURAL PRESENCE

• ENVISIA® can achieve a range of architectural benefits because of its off-form finish and lighter colour.

• ENVISIA’s® lighter colour will enhance the use of colour oxides.
To view our technical papers and find out more visit:
www.boral.com.au/envisia

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