



# Cem-FIL® GRC Tunnel Lining

## Heathrow Express Station

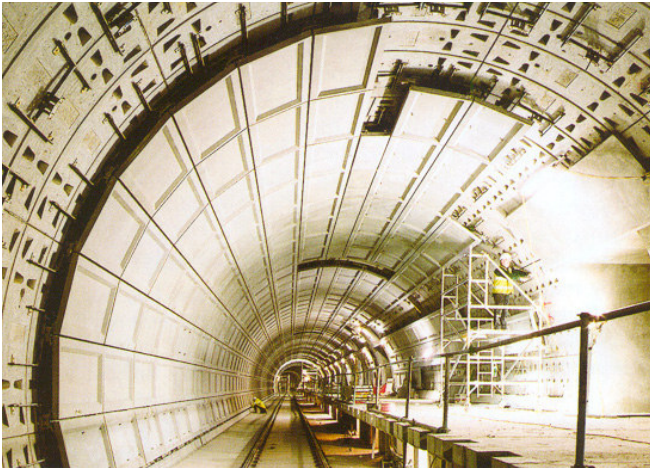
### INTRODUCTION:

The Heathrow Express is a £440 million British Airports Authority initiative which provides a high-speed train every 15 minutes, from London's Paddington Station to Heathrow Airport, and carries approx. 15,000 passengers each day. The journey time to Heathrow Airport is just 15 minutes.

In 1998 Cem-FIL® GRC cladding specialist Techrete Ltd completed a £4.2 million contract for the joint venture company constructing the Heathrow Express.

### FACTS:

- 14,000m<sup>2</sup> of GRC panels with architectural finishes (acid-etched or sand-blasted)
- GRC chosen for durability, appearance and light weight
- 15,000 passengers per day using the stations



GRC Panels lining the public areas in stations



GRC Panels being installed

### THE USE OF GRC:

The steel-lined support structure of the tunnel had to be clad at stations and in public areas. 14,000m<sup>2</sup> of coffered GRC panels were installed as an architectural lining for the platforms, concourses, elevator and lift lobby areas. Techrete also supplied specialist acoustic elements and enamelled glass signage, both employed as inserts to the GRC panels.

The majority of the panels were produced to a 1.8 x 0.9 metre module featuring a 50 mm deep coffer on the front face. Overall thickness is 70 mm and stainless steel brackets are cast into the edges to facilitate blind fixing. Techrete's highly skilled installation teams mounted the panels on a specially fabricated, multi-adjustable stainless steel support frame which is bolted back to the structural tunnel lining. The panels are clipped into position with the joint being fire-stopped and lined with purpose-made gaskets.

In order to achieve the quality of finish required for the high profile location, the GRC panels were cast in glass reinforced plastic moulds using granite and mica aggregates and a blend of white and grey cement, reinforced with Cem-FIL® alkali resistant glass fibres. The surface of panels in the vicinity of the platforms and in public areas has been acid-etched, while those mounted alongside the track feature a light sand-blasted finish.

At platform and public areas the lower three panels are infilled with toughened glass panels to give extra protection. A row of glass-filled panels at higher levels is used for back-up signage. Special curved panels were made by Techrete to accommodate the complex armature of the structure around escalators and curved walls.

[www.cem-fil.com](http://www.cem-fil.com)

DELIVERING SOLUTIONS – TRANSFORMING MARKETS – ENHANCING LIVES

**NORTH AMERICA**  
**James PATTERSON**  
TEL: +1 623.566.0260  
FAX: +1 208.730.4581

[Cem-fil@owenscorning.com](mailto:Cem-fil@owenscorning.com)

**EUROPE**  
**Holger ZORN**  
TEL: +32.2.674.8318  
FAX: +32.2.674.8245

[Cem-fil@owenscorning.com](mailto:Cem-fil@owenscorning.com)

**ASIA PACIFIC MIDDLE EAST AND AFRICA**  
**Peter RIDD**  
TEL: +44 1275 390 968  
FAX: +44 117 370 1075

[Cem-fil@owenscorning.com](mailto:Cem-fil@owenscorning.com)



**OCV™ Reinforcements**

**OWENS CORNING**  
**COMPOSITE MATERIALS, LLC**  
ONE OWENS CORNING PARKWAY  
TOLEDO, OHIO 43659  
1.800.GET.PINK™

[www.owenscorning.com](http://www.owenscorning.com)  
[www.ocvreinforcements.com](http://www.ocvreinforcements.com)

**EUROPEAN OWENS CORNING**  
**FIBERGLAS, SPRL.**  
166, CHAUSSEE DE LA HULPE  
B-1170 BRUSSELS -BELGIUM  
+32.2.674.82.11

**OWENS CORNING – OCV ASIA PACIFIC**  
SHANGHAI REGIONAL HEADQUARTERS.  
2F OLIVE LVO. MANSION  
620 HUA SHAN ROAD  
SHANGHAI 200040  
CHINA  
+86.21.62489922

This information and data contained herein is offered solely as a guide in the selection of a reinforcement. The information contained in this publication is based on actual laboratory data and field test experience. We believe this information to be reliable, but do not guarantee its applicability to the user's process or assume any responsibility or liability arising out of its use or performance. The user agrees to be responsible for thoroughly testing any application to determine its suitability before committing to production. It is important for the user to determine the properties of its own commercial compounds when using this or any other reinforcement. Because of numerous factors affecting results, we make no warranty of any kind, express or implied, including those of merchantability and fitness for a particular purpose. Statements in this publication shall not be construed as representations or warranties or as inducements to infringe any patent or violate any law safety code or insurance regulation.

Pub. No. 10012228. Owens Corning reserves the right to modify this document without prior notice. ©2010 Owens Corning

Case Study\_Heathrow Express\_ww\_11-2008\_Rev1