

## Project Profile - Civil Engineering & Infrastructure



### PROJECT

The Shard, London Bridge Quarter

### SUMMARY

Construction of slipformed core

### PRODUCTS

**Monomix HD, Monomix, Cemprotec 2000-S**

### CLIENT

Sellar Property Group on behalf of LBQ Ltd

### DEVELOPMENT MANAGER

Sellar Development Services

### ARCHITECT

Renzo Piano Building Workshop

### STRUCTURAL ENGINEER

WSP

### CONTRACTOR

Mace (Main Contractor)  
Byrne Brothers (Concrete Sub-Contractor)

### BACKGROUND ►

The Shard, at 310 metres high, is Europe's first vertical town. Its 72 floors comprise a 26-floor office complex, three world-class restaurants, a 19-floor five-star Shangri-La Hotel, 13 floors of exclusive residential apartments and the UK's highest viewing galleries. It has become one of London's most sought after events venues and a top visitor attraction.

Architect Renzo Piano designed the Shard as a spire-like sculpture emerging from the River Thames. To deliver this unique project a number of challenging technical and practical innovations had to be developed, heralding new levels of expertise in concrete construction. These innovations included a 259m-high slipformed core and a single basement concrete pour of 5,500m<sup>3</sup>. The building was designed with a three-level concrete basement and structural core combined with a steel-framed structure to Level 40, topped with 30 floors of in-situ concrete frame.

### THE SOLUTION ►

The slipform construction of the core was a huge project in itself, containing almost 2,000 tonnes of reinforcement bar and 12,000m<sup>3</sup> of concrete materials. **Flexcrete Monomix HD**, an advanced class R4 structural mortar, was specified and contributed to rapid construction of the high quality slipformed core. Incorporating the latest proven cement chemistry, microsilica, fibre and styrene acrylic copolymer technology, **Monomix HD** is pre-packaged, only requiring the addition of clean water on-site, to give an easily trowellable mortar with application thicknesses up to 80mm. It develops exceptional bond strength, excellent tensile and abrasion resistance, high diffusion resistance to acid gases and chloride ions and low permeability to water, even at 10 bar pressure. **Monomix HD** is CE marked in accordance with BS EN 1504 Part 3. In addition, **Monomix** waterproof mortar and **Cemprotec 2000-S** waterproof reinforced tape were used on the concourse providing a solid base for the finished granite pavers.



FM 41091  
EMS 597350  
OHS 597351

Quality  
Environmental  
Health & Safety

**Flexcrete Technologies Limited**  
Tomlinson Road • Leyland  
Lancashire • United Kingdom  
PR25 2DY

**Tel:** +44 (0) 845 260 7005 • **Fax:** +44 (0) 845 260 7006  
**Email:** [web@flexcrete.com](mailto:web@flexcrete.com) • **Web:** [www.flexcrete.com](http://www.flexcrete.com)

