

Renovation of Tower leads to product innovation

Flexcrete Renovation of Portsmouth Landmark Leads to Development of the World's First Metallic Anti-Carbonation Coating

The exterior of the iconic 170-metre Emirates Spinnaker Tower in Portsmouth has been repainted using protective anti-carbonation coatings manufactured by Flexcrete Technologies Limited, one of which is the world's first metallic anti-carbonation coating.

The renovation was carried out as part of a major £3.5 million five-year naming rights partnership between Portsmouth City Council and Dubai-based Emirates Airline. The structure was named the Emirates Spinnaker Tower in time for the Louis Vuitton America's Cup World Series sailing event which took place in Portsmouth last summer. It is the first time that the Tower has been sponsored since the structure was first opened in 2005.

The Emirates Spinnaker Tower is a visitor and educational attraction which soars 170 metres above Portsmouth Harbour, taller than the London Eye and visible from 23 miles away. Originally a Millennium Project, the Tower was built as the centrepiece of the Renaissance of Portsmouth Harbour Project. Designed by HGP Architects, engineering consultants Scott Wilson and built by Mowlem, the Emirates Spinnaker Tower has a distinctive sail design reflecting Portsmouth's maritime heritage. There are three viewing decks offering 350° panoramic views across the city, harbour, sea and coastline.

The Tower was painted in Flexcrete's Monodex Smooth coating in blue and white for the Louis Vuitton America's Cup World Series. Monodex Smooth is a water-based, high build, elastomeric, decorative coating which was specified due to its protective properties, fast curing nature and ease of application by brush, roller or airless spray. This was crucial as the coating was applied by specialist access contractors The Abseilers Limited, so they were able to rapidly apply the coating by brush and roller to the concrete legs of the structure whilst using roped access equipment and techniques.

The bottom 50 metres of the concrete legs were painted in a special Portsmouth blue colour, and white above. It was then decided to enhance the appearance even further by requesting supply of Emirates' individual corporate metallic gold colour to cover a large

central section of the Tower. This led to Flexcrete developing Monodex Metallic, the world's first metallic anti-carbonation coating which is applied as a lustrous feature finish over an existing Monodex Smooth base coat. Monodex Metallic is equally suited for internal surfaces to produce a unique, sparkling architectural statement.

Monodex Metallic and Monodex Smooth are both single component, water-based coatings so are user-friendly and cure without the release of strong odour or hazardous solvents. They are ultra-fast drying, enabling two coat applications on the same day and can be applied all year round. Throughout their lifetime, they have excellent colour retention and strong UV resistance. Both standard and special colours can be created.

Monodex Smooth has an excellent track record of use worldwide in some of the world's most hostile conditions. With durability of up to 15 years before first maintenance, it provides excellent protection against carbonation, chloride penetration and water ingress, yet allows damp substrates to breathe. Its chloride protection makes it ideal for use in marine environments and it is able to provide exceptional weatherproof protection even in typhoon conditions, incorporating an active biocide which prevents the growth of mould and fungi on its surface. Due to its elastomeric properties, it is able to withstand thermal and structural movement without cracking or flaking, an important factor for this project as the Tower can flex by up to 150mm in high winds.

Since the Emirates Spinnaker Tower was first opened in 2005, it has received over 3 million visitors. With a highly complex structure and design, the Tower is founded on 84 reinforced concrete piles, the longest of which runs 50m into the sea bed. What engineers described as a concrete 'cake tin' was then built on top and more concrete was pumped into this to form its solid base above the water level. The foundations support the weight of the Tower and provide a buffer against any accidental impact from vessels.

The Tower's legs were built using a 'slip forming' method which involved pouring 11,000 cubic metres of concrete in a continuously moving form. 75 metres were completed in just 4 weeks with the entire height of the legs taking 3 months. It is believed that the



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Spinnaker Tower construction was the first time such a method had been used on hexagonal legs not at right angles to the base. The total weight of the Tower exceeds 30,000 tonnes; the 27m spire weighs 14 tonnes and was lifted into place by crane and 1,200 tonnes of structural steel was used to form the Tower's distinctive bows.

Flexcrete Technologies Limited is the UK's leading independent manufacturer of technical mortars and high performance coatings. With origins dating back to 1983, the company manufactures a wide range of concrete repair mortars, fairing coats, waterproof cementitious coatings and decorative protective coatings. With its head office and manufacturing complex based in Leyland, North West England, Flexcrete products are available from stockholding distributors all around the UK. The company

also has a global presence through international agents and distributors in 65 countries worldwide with export sales accounting for over 50% of its business.

Web: www.flexcrete.com

