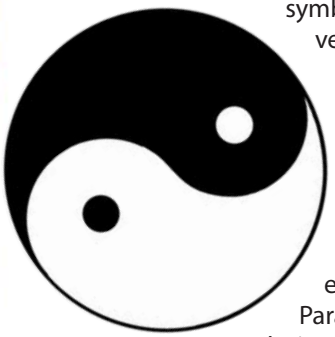
Architecture, Tao and Mapei

MCLAREN TECHNOLOGY CENTRE

McLaren Technology Centre
OFFICIAL PARTNER
MAPEI

Paragon, the new McLaren science and technology centre in Sussex, Great Britain, looks like a huge Tao symbol designed against a green background, when viewed from above.

This oriental symbol, now quite familiar to many in the West, features a circle with a winding curved line cutting it exactly in two. The black and white space forming the circle embrace each other and merge together. The symbols evokes the unity achieved by a balance of differences. For Chinese philosophy this is the eternal contrast between yin and yang, the male and female. This dualism underpins the world and operates inside us all and in everything surrounding us.



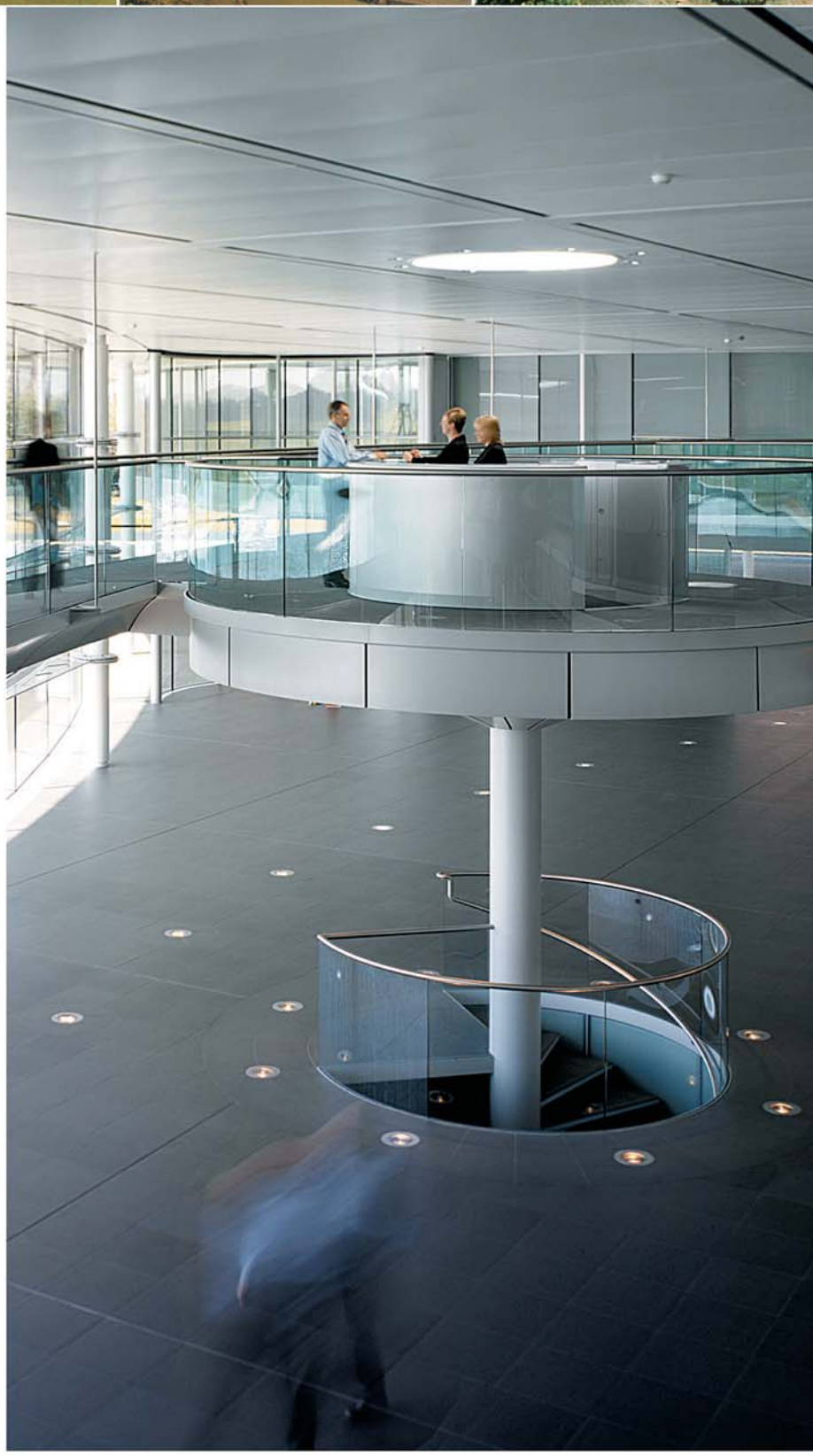
Paragon seems to have been designed with this Tao symbol in mind, bearing in mind the layout of its constituent elements. Half water, half ground. Set in greenery, it blends into nature taking full advantage of natural light and sunshine, focusing on making savings in energy resources. The five natural elements which, according to Chinese philosophy, form the world are fused together here: water, earth, wood, fire and metal.

The attention paid to these factors (of ecologic, technological and aesthetic nature), the peculiarity of the solutions chosen and the strong visual effect were definitely among the reasons that had MacLaren Technology Centre win the "Building of the Year" award. This successful event caused quite a stir in the British press: both The Guardian and The Times devoted articles to it, praising the McLaren Technology Centre's beauty and the innovative spirit behind it.

Mapei: Motivating Reasons

The new McLaren Technology Centre, designed by the famous architect Norman Foster, is composed of a centre for the experimental research laboratories, a wind tunnel capable of testing models up to 50% real size, manufacturing spaces, plus offices, conference rooms and various other operations that used to be carried out by the approximately 1000 members of staff in eighteen separate plants all over Great Britain.

Mapei helped design the McLaren Centre,



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because it immediately grasped the technological importance of the project and its background strategies. McLaren was looking for facilities of the highest standard to create a cutting-edge reception place and it wanted suppliers capable of providing proper assistance as well as products. It provided an exceptional testing ground for innovative solutions in a range of different fields: this cutting-edge commission features the most advanced technology and materials in a wonderful setting. The work method adopted inside Paragon is equally innovative, matching productivity and efficiency with staff well-being. Attention to the working environment has always been a strong point of several car manufacturers: Ferrari at Maranello (Italy) and the Volkswagen building in Dresden (Germany) are well-known examples of how staff job opportunities are privileged along with research and development.

Innovation, new technology, team work, eco-friendliness and high quality standards for the work place are the settings around which Mapei likes to manoeuvre. McLaren has copied its winning Formula 1 racing team work formula in this project. A close working relationship between designers, specialists and future users, in which the quest for a perfect synergy between the different players involved is the secret behind obtaining the best possible results.

This approach is geared to a careful preliminary choice of suppliers, who are co-opted based not only on the price of a given tender but also envisaging the kind of long-term partnership McLaren is looking for.

In Formula 1 racing, in which quality needs to be developed into excellence, the delicate phase of setting up what has to be a "winning" team is premised around the idea of the team constantly improving.

Compared, for instance, to the building industry, in which the construction of one single building does not require ongoing relations between different suppliers, this kind of business fidelity is what determines good results and increasing innovation in the car industry.

Team work also provided a good chance to strengthen and tighten relations not just with the client, McLaren, but also the architectural designers, Foster & Partners, and all the prestigious team members: including firms like Faram (internal partitions and furnishing), Targetti (lighting) and Scüco (façades).

The Winning Formula

Mapei, which has always worked closely with the world of sport and the pragmatism surrounding it, was once again seeking to strengthen these bonds, immediately realising its own affinities with this way of operating.

Photo 1.
In the wind tunnel the black porcelain tiles were laid on the floor using Granirapid. Tile joints were grouted with black Kerapoxy.

Photo 2.
Paragon by night: a suggestive combination of water, glass and steel.

Photo 3.
After first smoothing the substrates with Ultraplan, textile coverings were installed in the sitting rooms using either Mapefix (now replaced by Ultrabond Eco Fix) or Ultrabond Eco 185.

Photo 4.
Close-up of an utility area where Ultraplan, treated with Mapecoat I 24, was used for smoothing the substrates.

Photo 5.
Queen Elisabeth at the Paragon's grand opening ceremony. This photo was borrowed from the cover of "Racing Line", McLaren's house organ magazine, to whom we would like to express our thanks.

Photo 6.
Paragon's essence: a harmonious synthesis of lines, materials and natural elements.

Mapei has signed an agreement to work with Tag McLaren Holding Ltd. (this is the full name of this famous car manufacturer) to supply the materials required to build the centre. Thanks to this agreement, the designers could make full use of Mapei products: ranging from admixtures for concrete to waterproofers, adhesives for ceramics and lightweight floors. Lots of products have been used to build Paragon, which is constructed over two levels and is composed of a main building measuring 880 metres round the edge connected by a 150-metre-long tunnel to a complementary round-based building. On the inside there are corridors arranged like the fingers of a hand connected to the work spaces.

A spherical-shaped exhibition centre, connected by corridors to the central unit, is designed to host period cars and temporary displays. The centre is surrounded by a manmade basin used for conveying the waste water used in the manufacturing plant to be recycled inside the building by means of heat pumps.

Such an intricate structure in terms of the interior layout, arrangement of outside surfaces and alternating underground and overground areas was a real challenge as regards the ideal materials for its construction. A challenge Mapei was able to meet with great confidence thanks to its wide range of available solutions. For instance, MAPECEM*, a special fast setting hydraulic binder with controlled shrinkage, solved any problems with screeds; ULTRAPLAN*, ultra-fast hardening self-levelling smoothing compound for thicknesses from1 to 10 mm per coat, was considered ideal for smoothing the floors in all utilities areas and in the futuristic air-conditioning zone.

ULTRAPLAN* was treated with MAPECOAT I 24*, epoxy paint for acid-resistant non-toxic coating of concrete surfaces; KERACOLOR FF* and KERACOLOR GG*, high performance cementitious grouts for joints, mixed with FUGOLASTIC*, a liquid polymeric additive, were the ideal

solutions for grouting the joints; lots of Paragon's tiles were installed using GRANIRAPID*, a high performance, deformable, fast setting and hydration two-component cementitious adhesive for ceramic tiles and stone material, and grouted with KERAPOXY*, two-component acid-resistant epoxy grout, available in 26 colours, for joints of at least 3 mm. As regards raised settings and the bridge over the road, after first smoothing using ULTRAPLAN*, textile coverings were installed using either MAPEFIX* or ULTRABOND ECO 185*. Both products are adhesives in water dispersion. MAPEFIX*, featuring permanent tack and used for textile floors with self-installing squares, has now been replaced by ULTRABOND ECO FIX*, which combines the aforementioned properties with very low emission of volatile organic compounds. ULTRABOND ECO 185* has high initial tack, as well as very low emission of volatile organic compounds.

Large surfaces, glass sections, structures. Mapei played a key role in all these operations. But Paragon's real strong point is not so obvious: it is actually the 145-metre-long wind tunnel, built out of 400 tons of steel, a platform, which is 115 metres long and 30 metres wide, held up by columns to absorb vibrations. When it is operating, it requires up to 35 megawatts of electricity. The kind of powerful engine needed for Formula 1 motor racing. This extremely high-tech construction was the first to be completed, due to the importance of studying aerodynamics for Formula 1 motor racing. The McLaren team uses the tunnel to test the performance of its new cars. The wind tunnel's floor is made of black porcelain tiles installed using GRANIRAPID* and grouted using black KERAPOXY*. Mapei also contributed to the construction of Paragon's windy hub, thanks to solutions designed to withstand vibrations and strain in the tunnel itself, which, for obvious safety and secrecy reasons, is more hidden away from public view.

A heart, that just like Tao, is both dedicate and powerful.

Some of the photos published in this article were supplied by McLaren, others were borrowed from the "Racing Line" and "I Must della ceramica" magazines, to whom we would like to express our thanks.

TECHNICAL DATA

McLaren Technology Centre, Woking - Surrey (UK)
Work: installation of ceramic tile, stone material and textile floor and walll coverings
Customer: Tag McLaren, Surrey
Project: Foster & Partners
Contractor: Keir Build
Installation Company: Johns of Nottingham
Mapei Co-ordination: Mark Louch, Mapei UK

***Mapei Products:** *the products referred to in this article belong to the "Products for Ceramic Tiles and Stone Materials", "Building Speciality Line" and "Products for the Installation of Resilient, Textile and Wood Floor and Wall Coverings" ranges. The technical data are available on the "Mapei Global Infonet" CD/DVD and at the web site: www.mapei.com. Mapei adhesives and grouts conform to EN 12004 and EN 13888 standards.*

***Fugolastic:** liquid polymeric additive for Keracolor FF and Keracolor GG.*

***Granirapid (C2FT/S1):** high performance, deformable, fast setting and hydration two-component cementitious adhesive for ceramic tiles and stone material.*

***Keracolor FF (CG2):** high performance cementitious grout, polymer modified, water-repellent with Drop-Effect®, for joints up to 6 mm.*

***Keracolor GG (CG2):** high performance cementitious grout, polymer modified, for joints from 4 to 15 mm.*

***Keralastic (R2):** high-performance two-component polyurethane adhesive for ceramic tiles and stone material.*

***Kerapoxy (RG):** two-component acid-resistant epoxy grout, available in 26 colours, for joints of at least 3 mm. It can also be used as an adhesive.*

***Mapecem:** special fast setting hydraulic binder for the preparation of fast-drying screeds (24 h) with controlled shrinkage.*

***Mapecoat I 24:** epoxy paint for acid-resistant non-toxic coating of concrete surfaces.*

***Mapefix:** adhesive in water dispersion with permanent tack for textile floors composed of self-installing squares. The squares can be applied and then removed several times.*

***N.B.** this product is no longer available and has been replaced by **Ultrabond Eco Fix**, which combines the aforementioned properties with very low emission of volatile organic compounds (VOC).*

***Ultrabond Eco 185:** adhesive in water dispersion with high initial tack and very low emission of volatile organic compounds (VOC) for textile floor and wall coverings.*

***Ultraplan:** ultra-fast hardening self-levelling smoothing compound for thicknesses from 1 to 10 mm per coat.*