ULTIMATE EXPERIENCE

BISON MANUFACTURING’S PRE-STRESSED FLOORING FOR LONDON HEATHROW TERMINAL 2
London Heathrow’s new Terminal 2, The Queen’s Terminal, serves 20 million passengers a year and is Heathrow’s most sustainable terminal yet. Designed by Luis Vidal + Architects, and opened on 4 June 2014, it continues the “toast rack” principle employed in the construction of Terminal 5 and like Terminal 5 much of the building was constructed off-site, helping to overcome many of the logistical constraints of building in one of the world’s busiest international airports.

**THE CHALLENGE**

For the off-site construction of 40,000 square metres of flooring for the project, Bison Manufacturing developed a new product, which at 60mm deep are the thinnest pre-stressed flooring sections manufactured in Britain. The innovative product makes for structural sections with reduced deadweight at maximum structural efficiency and reduces the amount of in-situ concrete poured on site. The extruded process used to manufacture these pre-stressed flooring slabs requires a finely tuned concrete mix design that delivers good extrusion, speed of turnaround and a high quality finish.

**OUR SOLUTION**

At their manufacturing site in Uddingston, Bison Manufacturing use Lafarge Tarmac’s Ferrocrete high early strength bulk Portland cement, which is produced at our Dunbar cement plant, to make the pre-stressed flooring slabs used in the construction of Heathrow’s Terminal 2 flooring. The increased fineness and high specific surface area of Ferrocrete delivers the right amount of paste for a speedy and smooth extrusion process and a good surface finish of the precast concrete product. The high early strength gain of concrete made with Ferrocrete means that Bison Manufacturing are able to gather freshly extruded sections as early as the next day for a quick turnaround. The fact that Ferrocrete does not contain any MAC (minor additional constituents) allows Bison to use air entraining aids in their mix design which delivers the required workability to the concrete and improves the durability of the finished product.

**RESULTS AND BENEFITS**

Ferrocrete is Lafarge Tarmac’s high early strength bulk Portland cement, certified to the European Standard BS EN 197-1 and manufactured at our ISO 14001, 9001, 50001 and OSHAS 18001 accredited plant in Dunbar. Our reliable supply of this consistent, high quality and responsibly sourced product allowed Bison Manufacturing to innovate and develop a new product with Ferrocrete as its key constituent, which raised the bar in terms of the quality of pre-stressed flooring manufacture in Britain. The high quality finish of the sections achieved with the help of Ferrocrete also meant that the client chose not to paint the soffits, which resulted in an initial and ongoing maintenance cost saving.

“We rely on Ferrocrete for its high early strength properties and the quality of paste that its fineness delivers in our concrete production. It helps us to extrude the pre-stressed flooring sections better, speeds up our handling of the slabs and gives a better appearance to the finished product.”

Jim Harley,
Operations Manager, Bison Manufacturing Ltd, Uddingston.