

## Francis Flower GGBS boosts carbon credentials at new McLaren chassis plant

More than 2,500 tonnes of Francis Flower GGBS is being used in the construction of a new McLaren assembly plant in Sheffield.

The project, which is part of a pioneering partnership between McLaren and the University of Sheffield Advanced Manufacturing Research Centre, is due to be completed in 2018.

The GGBS used in the project was supplied through National Mini Mix, and is sourced regionally from the Francis Flower GGBS plant in Scunthorpe.

GGBS was specified for this project by Sheffield-based building contractors, Finnegan, and was selected for its resistance to sulphate attack as well as its sustainability, durability and strength credentials. Naturally occurring sulphates can attack concrete in the ground- causing cracks and disintegration. The inclusion of GGBS in a concrete mix increases the resistance to sulphate attack.

GGBS is able to replace more than 70% of the Portland Cement content in a concrete mix without compromising on quality, and in lots of cases it actually enhances quality. For this project, GGBS was used at a 70% replacement rate for the building foundations (DC4), and at a 30% replacement rate for outside areas (PAV2). The use of GGBS has helped to significantly reduce the carbon footprint of this project, with every tonne of GGBS used in a concrete mix reducing the embodied CO<sub>2</sub> levels by around 900kg, compared to the use of one tonne of traditional Portland Cement.



## Francis Flower GGBS

Ground granulated blastfurnace slag (GGBS) is made from a by-product of iron manufacturing and is **a high quality, environmentally friendly, low CO<sub>2</sub> material** used primarily in the production of ready-mix and pre-cast concrete, cement-based formulations and soil stabilisation.

When a blast-furnace converts iron ore to iron, the remaining materials from the process form a molten slag which is drawn off from the furnace and quenched in water. This cooling process turns the slag into a sand-like product which when ground has **excellent cementitious properties**. The manufacture of GGBS requires **less than 20% of the energy** and produces less than **10% of the CO<sub>2</sub>** emissions compared to Portland Cement production.

Francis Flower is a family-owned business and the UK's leading independent manufacturer of GGBS. The GGBS division of the company is located on the site of the British Steel production facility in Scunthorpe, where the plant produces more than 600,000 tonnes of GGBS per annum for use across the UK and beyond.

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