

Award-winning paper in 2020

Papers published in *Magazine of Concrete Research* are eligible for awards from the Institution of Civil Engineers. Papers from any of the ICE journals can be nominated for several awards. In addition, each journal has awards dedicated to their specific subject area.

On Friday 15 October 2021, ICE president Rachel Skinner presented an award to the following paper published in *Magazine of Concrete Research* in 2020. The editorial panel nominated their best papers and an awards committee chaired by Tim Broyd allocated the awards.

Magazine of Concrete Research Prize

The Magazine of Concrete Research Prize, presented for the best paper published in *Magazine of Concrete Research*, was awarded to Dong *et al.* (2020).

Abstract

Geopolymers are recognised for their environmental benefits and excellent chloride and sulfate resistance. However, information on the material characteristics and bond behaviour of geopolymers based on fly ash (FA) and slag is still relatively scarce. This paper presents a comprehensive study on the integration of two modern construction materials – geopolymer

concrete (GPC) based on FA and ground granulated blast-furnace slag and glass-fibre-reinforced polymer (GFRP) bars. The aim of the study was to assist concrete structural design by identifying the key preparation parameters such as hardening and bond behaviour. It was found that the hardening of the GPC was much faster than that of ordinary Portland cement (OPC) concrete at an early age and the stress–strain curves, elastic moduli and splitting tensile strengths of the GPC were accurately predicted by existing models developed for OPC concrete. The GFRP bars in the GPC outperformed those in the OPC concrete in terms of normalised bond strength. The GPC reinforced with both GFRP and steel rebars exhibited similar bond–slip curves to the OPC concrete. Overall, the behaviour of the GFRP-reinforced GPC was found to be analogous to that of the OPC concrete while providing adequate compressive, tensile and bond strength for the construction of foundations of low-rise buildings.

REFERENCE

Dong M, Feng W, Elchalakani M *et al.* (2020) Material and glass-fibre-reinforced polymer bond properties of geopolymer concrete. *Magazine of Concrete Research* **72(10)**: 509–525, <https://doi.org/10.1680/jmacr.18.00273>.