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Cover

The University of Queensland's Global Change Institute (GCI), designed by HASSELL in collaboration with Bligh Tanner, Arup and Medland Metropolis, has become the first building in the world to utilise cement-free concrete for suspended construction.

Piloting various sustainable solutions in its bid to achieve 5 star Green Star Education Design and As-Built ratings, the building uses a geopolymer precast concrete that replaces cement with fly ash and powdered blast furnace slag in the mix.

Earth Friendly Concrete (EFC) is a Wagners brand name for their commercial form of geopolymer concrete, precast floor beams in the new GCI building are made from these.

Comprising sand, aggregate and a binder that contains ground granulated blast furnace slag, a waste product from steel production, and fly ash, a waste product from coal fired power generation, EFC contains no normal Portland cement. This allows it to have very low CO₂ emissions as compared to normal Portland cement-based concrete.

The precast panels with cast in hydronic pipes also play an integral part of the building's low energy and passive cooling modes.

Up until this point, geopolymer has only been used in trials for ground bearing pavements, masonry blocks and other low level structural applications.

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