



Concrete Creation

There have been a handful of self-builds which have embraced concrete wholeheartedly — one such architectural gem is this award-winning, individual home designed by Adrian James Architects. The self-builders behind this project wanted a material which would form both the external envelope and interior finish; they also needed a construction method which would maximise potential on this tight urban plot. The solution was precast concrete; more precisely a cross wall system which was crafted off site by Cornish Concrete Products, with the panels slotted into place on site within days. Even the precast staircase (BELOW) was craned into place.

Blowholes were filled with grout and the concrete was sealed in Keim, which enhances waterproofing externally, while also protecting the concrete from CO₂ which, over time, can lead to concrete decay.

One particular design challenge, however, was where to place service runs — the ingenious solution was for a central service duct which spans the height of all three floors, together with dropped ceilings.

Full-height glazing on the rear south-facing façade (LEFT) means the concrete acts as a thermal store, regulating internal temperatures.

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WORKTOPS

Worktops are one area of the home where concrete is really taking off too. Again, worktops can be precast (there's usually a good deal of heavy lifting involved in installing though), but are usually cast in-situ. Jamie Telford, director of Roundhouse, explains the process behind their in-situ worktops: "Our bespoke concrete worktops are cast in-situ, mixed and poured on site, and then left to set prior to polishing, with the process taking around 28 days. Each worktop is unique — the patina is achieved as a result of the process and can't be 'manufactured'. Casting in-situ means that it just flows into place, so work surfaces are in a single seamless piece without joins.

"While it's tough, it needs to be carefully looked after, although any wear and tear adds to its character, with age improving the patina," adds Jamie Telford. "Acid spills can stain and limescale-based cleaners can dull the surface; so they're best avoided," adds Jonathan Reid, who

also states that stains can be 'diffused' out of the surface with careful polishing with a diamond pad.

SUSTAINABILITY

"There's been a massive sea change in people's perception of concrete," says Jonathan Reid. Concrete's capacity to act as a thermal store is a particular benefit to the sustainable home. A solid concrete wall or floor can be designed in so as to capture solar gain (the sun's warmth entering the house); the material absorbs this heat (which also has a cooling effect in hot weather) and slowly releases it when temperatures drop, helping to regulate internal temperatures. In this application, concrete can lower the heat demand of a home.

The lifecycle of concrete — the energy and greenhouse gases produced during the manufacture, transportation, installation, use, maintenance and disposal or recycling of a building material — is a key consideration too. While manufacturing is an energy-intensive process



(although the industry has worked hard to reduce CO₂ emissions here), transportation, compared to other building materials, isn't. "On average, there's a ready-mix concrete supplier around 10 miles from any site in the UK," says Jonathan Reid. Increasing use of recycled aggregate and ground-granulated blastfurnace slag (GGBS) is also helping on side. For more information try: sustainableconcrete.org.uk; thisisconcrete.co.uk; and concretecentre.com. ■



For an in-depth guide to polished concrete flooring, visit homebuilding.co.uk/polishedflooring