



Front entrance to Collie Beag.

# Collie Beag, Whittlesford

*James Cattle of Snell David looks at a bespoke family home in Cambridgeshire, the construction of which used a range of building materials and the use of concrete in particular has allowed greater freedom of creation.*

**C**ollie Beag is a new-build, four-bedroom detached property, within a small area of natural woodland in the heart of a south Cambridgeshire village.

The owners have subdivided their existing substantial plot to create a smaller, more manageable site hosting a low-maintenance and easily accessible house more suitable for their retirement and to accommodate their large family when they come to stay. They approached Snell David Architects with the task of designing a high-quality contemporary and sustainable new dwelling to meet the following criteria:

- A unique building that responds to the existing character of the woodland site. It must fit comfortably within the landscape and integrate with existing trees and to enhance the character of its natural setting.

- A contemporary building designed with open-plan living spaces and abundant physical and visual connection to the surrounding landscape, all year round.
- Good accessibility to enhance mobility around the house; in particular to include a master bedroom suite on the ground floor.
- High-quality and low-maintenance building materials that visually enhance and sit comfortably within the natural setting.

The initial concept for the building was for a 'pavilion-like', low-lying form that would flow through the site – characterised by an informal arrangement of existing and proposed trees and shrubs. The 'wings' of the ground floor extend out from the central core, negotiating a path between existing trees to achieve optimal views out, while



Internal hallway showing contrast of exposed concrete to interior doors.



Close up on external profiled concrete to timber cladding.

“ Visually, the concrete shares a similar vertical ribbed texture to the timber cladding... which helps to balance the very horizontal proportions of the structures through the site. ”

creating courtyard-like external spaces that capture the natural sunlight. In this sense, the abstracted ground-floor plan has been organically generated by the existing site structures and comprises a complex arrangement of large glazed openings, cantilevered canopies and irregular, disjointed structural lines.

The ground-floor structures are entirely formed of cast-in-situ concrete, exposed as an outer shell featuring a vertical ribbed board-marked texture. Internally, a highly insulated, non-structural timber frame lines the concrete shell, while some elements of the concrete structures are left as exposed interior features. The compact first-floor structure comprises a lightweight timber frame structure, clad in vertical blackened larch slats – a contemporary take on local traditional blackened timber frame buildings found in the village context.

### Maximum freedom

On a practical level, the use of concrete has allowed for maximum freedom in the creation of abstract forms, huge glazed openings and seemingly impossible cantilevers that would not otherwise be practically or economically possible by other more conventional domestic construction methods. The architect worked closely with structural engineer Andrew Firebrace

Partnership to realise the ambitious structural gymnastics. In basic terms, the continuous 800mm-deep concrete parapet that runs around the perimeter of the flat-roofed ground-floor elements, performs as huge structural beams allowing the remarkably graceful floating forms of solid mass.

### Use of concrete

From a more conceptual starting point, the use of concrete evolved from a desire to express a kind of permanence and belonging to the site. Concrete possesses an elemental, stone-like presence and when cast in-situ it is formed and perceived as a single object, as opposed to comprising building blocks such as traditional brick or stone structures. In this sense, the poured concrete appears to flow through the site, just as the shape of the building had been conceived to flow between the existing trees and landmarks.

Visually, the concrete shares a similar vertical ribbed texture to the timber cladding on the first floor, which helps to balance the very horizontal proportions of the structures through the site. Moreover, the vertical ribbed pattern conjures the idea that the stone-like structures have risen up from the ground itself, visually rooting the house to the site, as if the surrounding trees have grown up around the building over time, not the other way around.



Concrete placement for rear wall to garden using 360° telehandler and concrete skip.



Preparation to garage wall, profiled both sides.

### Forming the ribs

The success of this highly detailed and experimental scheme fell to the hands of the main contractor Seamans Building and specialist concrete works subcontractor Konform UK.

The construction process was not without teething problems. The ribs were to be formed of individual larch battens, of varying depths, up to 40mm, alternated with 10mm-thick planks. The battens were designed to be planed with a chamfered profile to enable them to release from the concrete when struck and the alternating planks were wire-brushed by hand to expose the deep grain texture that would transfer to the concrete finish.

The batten and planks were meticulously nailed to vinyl-backed ply sheet formwork, every joint sealed with silicone and the surfaces sprayed with release agent.

The first attempt at a full-height 3 × 3m section of wall, failed. Upon striking the formwork, large sections of the concrete surface had gripped into the timber ribbed profile and pulled away from the wall along with the formwork. This wall had to be demolished and further small-scale experimentation proceeded. In the end, a slight reduction in the depth of the timber batten profiles made all the difference and works proceeded.

The time, continuous care and persistence of the workforce have paid-off to outstanding effect. The finishes are a beautiful testament to the meticulous formwork joinery, as the concrete expresses every grain of timber and joint in its permanent stone-like presence. The concrete allows this alien object of a building to root itself expressly to the natural site as a powerful, permanent and yet very elegant mass. ■



Open-plan hallway.

#### Collie Beag, Whittlesford

Architect	Snell David Architects
Structural engineer	Andrew Firebrace Partnership
Main contractor	Seamans Building
Specialist concrete contractor	Konform UK
Formwork design	CJ O'Shea