

Grand design for small house

An ultra-compact home tucked into a tiny laneway in Sydney's inner city offers a glimpse of an urban living future driven by practicality and design.

The aptly named 'Small House' boldly reconciles some of the challenges of inner city living – such as soaring property prices, lack of privacy and lack of space – with its many lifestyle benefits, including proximity to work, shops and restaurants.

In a tiny, garage-sized 7m x 6m site in Sydney's Surry Hills, surrounded by large commercial buildings, the 'Small House' is zoned vertically, rather than horizontally.

"We used a number of design devices to make micro spaces more liveable," explains owner and architect Domenic Alvaro, design principal of Sydney firm, Woods Bagot. "The design eliminates rooms, assigns multiple uses to single spaces, has no corridors or doors and diversifies the use of each floor. It also offers the flexibility of adding spaces in the future."

Vertical zones begin at the ground with utility/store/bicycle/parking, moving up to sleeping/bathing, followed with a living area, then an eating/food preparation/entertainment zone. The structure is topped with a working roof garden.

Zones are connected via a stair void which relays light throughout and acts as a thermal stack, drawing air out through each level via the roof-top glazing, maximising cross-ventilation. Large sliding windows flood the interior with daylight and frame city views. A services riser connecting each level enables the reticulation of all services and additional storage.

Critical to the success of the project was the collaboration between the architect and builder, Baseline Constructions, and the extensive use of precast concrete, which was supplied by Hanson Precast.

The precast option offered not only the solidity to ensure privacy in this built-out neighbourhood, but a high quality, exemplar finish that eliminated the need for paint and other decorative finishes. It also enabled the most challenging part of the project – its miniscule site – to be overcome.

"The builder brought an innovative approach to such a difficult site by thoroughly pre-planning all the necessary details for off-site production and minimising disturbance to the surrounding neighbourhood by delivering on a speedy timeline," says Domenic Alvaro.

The precast components comprised 318m² of 175mm thick load-bearing wall panels in Class 2 off-form and 138m² of 150 thick hollowcore floor planks, which were erected in just four days.

"The real issue with the construction was craneage," says Chris Parsons, Manager of Hanson Precast. "Essentially, until we could determine the logistics, there was no guarantee the job could go ahead. Not only did we have to accommodate the site size, narrow streets and existing buildings, there were real concerns that the position of a light pole on the street would block our only access."

In the end, a 55 tonne, all terrain mobile crane was used, with the crane jib position and slew of the counterweight plotted to the millimetre to miss the neighbouring buildings.

"With most projects, a visual inspection and someone pacing out some dimensions is all that is required. But the decision in this case was made on the basis of an extraordinarily small 50mm tolerance: the ultimate tight site" explains Chris Parsons.

The access problem was ultimately resolved with a practical solution: placing one crane outrigger through the garage opening in the wall panel on the ground floor – a solution that enabled the swift and successful erection of the precast elements.

'Small House' and the story of its design and construction is featured in the Australian version of the popular architectural television series, 'Grand Designs'.

Architect: Domenic Alvaro

Builder: Baseline Constructions

Precast manufacturer: Hanson Precast

