

Concrete Comfort

A comfortable haven built in Chandler, Queensland demonstrates the ability of concrete to naturally control extreme temperatures. Built of concrete external walls and floors the house is cool in summer and warm in winter providing year round comfort. Thermally efficient, concrete naturally controls comfort levels and dramatically decreases energy demands.



As an earlier experiment, the owner built a guest house on the block of land as the first stage in his building program. Part of the guest house was built with concrete walls and the other part with a conventional frame, both parts were built to a six star energy rating. To the owners astonishment walking from one section to the other revealed a profoundly higher level of comfort in the concrete section in both summer and winter.

Following the success of the concrete walls in the guest house, the owner then embarked with his architect to design the main house utilising the comfort benefit of concrete walls. Matt Riley from Tonic Architecture chose an Insulated Concrete Formwork (ICF) method to design the walls. While this was Matt's first attempt, he found it was easy to design and detail as it was similar to using conventional block work construction.



The ICF formwork blocks are made of light polystyrene and are easy to assemble and build on site. The blocks are reinforced and then filled with premixed concrete to form a continuous loadbearing concrete wall pre-packaged with its own insulation. The concrete walls then provide an excellent connection and support structure for suspended concrete floors spanning between them. Using the combination of concrete wall and floor, Matt was able to effortlessly create the large free spans and room sizes required for the design in a manner that was difficult to achieve using conventional walling and flooring methods.



Additionally, the combination of concrete wall and floor created excellent sound insulation making a naturally quiet home and giving a sense of solidity and security which is unmatched by rival forms of construction.

The house was built by Terry Cook of Topcat Constructions and while Terry's an experienced builder this was his first ICF house. Terry found the ICF method of concrete wall construction easy to learn and fast to use. No specialised trade is required to assemble the polystyrene blocks and with three people he was able to finish one level in a week including setting up the blocks, installing reinforcement and pouring the concrete. The polystyrene blocks were easy to cut when needed simply by using a hot knife to slice through them.

Installation of the services of power and water are easily routed into the polystyrene. Last minute changes are easily accommodated making it a practical method for building construction. As a construction method that's simple, reliable and speedy it's a method that's a winner.

The combination of concrete walls and floors created a house that is naturally cool in summer and warm in winter. This means a comfortable haven with low energy bills – not only easy on the pocket but also easy on the environment. Together with a natural low transmission of sound and resistance to degradation concrete creates a naturally comfortable home that's there for keeps.

When it comes to comfort and permanence for a home: concrete is the answer.

House Location: Chandler, Brisbane, Queensland

Architect: Matt Riley, Tonic Architecture

Builder: Terry Cook, TopCat Constructions

Concrete Wall System: Ecoblock Insulated Concrete Formwork