

High performance homes healthier

Kelly Deeks

High performance home builder Third Little Pig Construction builds better homes which are cheap to run, need very little heating, and more importantly, are warm, dry, and healthy.

New Zealand has one of the world's highest rates of childhood asthma and other respiratory conditions, and a lot of that comes down to the houses we live in.

Third Little Pig Construction founder and director Simon Wansbrough says while our government thinks the building code is fine, it's only the minimum standard.

"If you're building a building code house, all you're doing is building the worst possible house you're allowed to build."

To build a better home, the Third Little Pig team have identified a number of interrelated elements which all need to be included to create a healthy, high performance home.

The main components are insulation, airtightness, ventilation, and window placement.

Third Little Pig uses more insulation, some of which is in the service cavity. This cavity ensures services don't interrupt the airtight layer or create gaps in the insulation.

Once the frames are up, homes are traditionally wrapped around the outside to make it watertight. Third Little Pig adds a wrap on the inside of the frames as well, which is not only airtight but vapour retardant.

"Warm air indoors is at a higher pressure than the cold air outdoors, and it's wet because you've been breathing, cooking, and showering inside. In order to equalise, the warm air gets pushed out through the wall," says Simon.

"It gets stopped by the conventional building wrap on the outside of the frames, and that's where it condensates, causing unhealthy mould."

While Third Little Pig's internal wrap eliminates this problem, the warm wet air still needs somewhere to get out.

"A normal house will ventilate through leaks around the windows and walls, but the problem with this is that you also lose the heat out of your house. An airtight house like ours needs a mechanical ventilation system with a heat exchanger. The advantage of mechanically ventilating is with 90% efficiency, you get a constant flow of fresh air and retain the heat in your home."

The last piece of the puzzle is the external windows and doors.

"Aluminium attracts heat and sucks all the warmth outside. That then becomes your dew point and your aluminium framed windows will run with condensation."

While thermally broken joinery will help to stop that, the main problem lies in the way we traditionally install windows in New Zealand.

"The thermal break sits outside the line of insulation, in the cavity between the cladding and the house."

"People spend thousands of dollars on thermally broken systems but they're having very little effect because they're in the wrong place."

Third Little Pig has gone with thermally broken PVC tilt and turn windows, which are much more airtight than aluminium windows and they don't lose heat through the frame.

The company then recesses the window into the



To build a better home Third Little Pig Construction focuses on insulation, airtightness, ventilation and window placement..

wall to align the thermal break with the insulation where it can actually have an effect.

All Third Little Pig Homes are computer modelled prior to building, so the home owner can see how the home is going to perform on thermal efficiency, how much heating it will require, and if it is going to need shade.

"The results are different for every single site and every single home."

After the home is built, Third Little Pig tests all the systems are working properly, and thermal images the home to see if there are any leaks that need fixing before the wall linings go on.

Simon urges new home builders to think not just of what their new home will cost them to build, but what it will cost them to heat.

Third little Pig
Building Better Homes

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