Up-Spec to go beyond minimum

What is the most cost-effective way to design a new home that performs better than the Building Code's basic dwelling? BRANZ's Up-Spec can help answer this question by providing regional-specific quantitative data.

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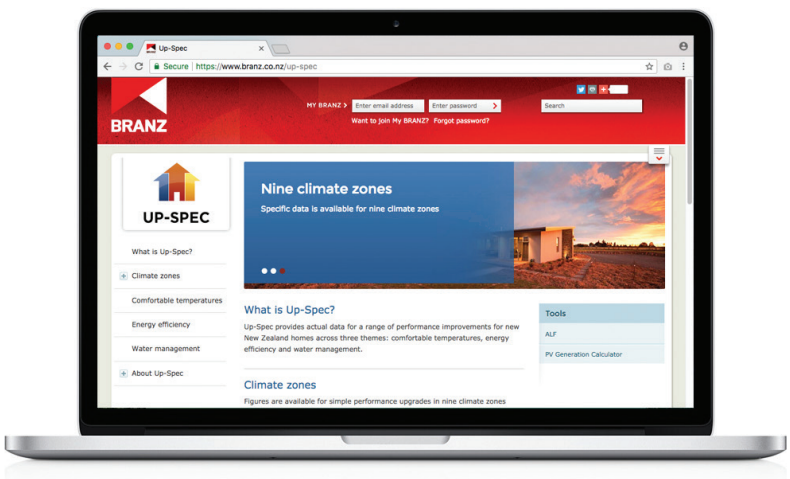
NEW ZEALAND homebuilders and designers are increasingly being challenged to achieve higher-performing homes in terms of utility, resource efficiency and indoor comfort.

Unfortunately, most current recommendations are limited to vague and generic advice with little quantitative supporting data. The lack of more specific, practical and cost-effective design solutions easily available from independent sources is likely to result in poor outcomes and wasted resources both upfront and over the long term.

Up-Spec recently updated

BRANZ has recently updated its Up-Spec online resource for those specifying and designing new dwellings. Up-Spec provides region-specific, quantitative information for a range of performance improvements for new detached homes typically built today.

Cost-effective measures are outlined to help prioritise how new dwellings can more easily meet higher-than-standard targets for indoor comfort, water and energy efficiency.



BRANZ Up-Spec was created in consultation with homebuilders and designers to ensure design solutions are practical and relevant to current challenges and areas of concern faced by spec-home builders and bespoke builds. The resource is currently only targeted at new, stand-alone homes, which are the majority of new construction.

Design solutions for nine climate regions

The project relied on a set of model residential buildings that reflect current building practices. These were taken from dozens of example buildings as they best reflected the house size, layout and other features of detached housing currently built in New Zealand cities.

Sophisticated computer simulations were carried out to examine many possible design changes. This provided a quantitative measure of the best approaches to improve the internal environment. Both passively provided thermal comfort and reliance on active space heating were investigated.

Only design solutions that worked across all the chosen model buildings and were cost-effective were selected. In all, nine climate regions were examined, encompassing over 90% of New Zealand's population.

In addition, water use and energy efficiency issues were examined, including photovoltaics, appliances and lighting. Water management upgrade options include appliances, tapware, toilets and rainwater collection.

All upgrades considered cost-benefit implications and practical issues to provide a useful tool for decision makers. The overarching goal was to provide useful design-related enhancements based on practical, prescriptive and solution-focused upgrades.

How to reduce lifetime running costs

Using Wellington as an example region, the following upgrades to a typical built-to-Code house were found to significantly reduce lifetime running costs while providing better utility:

- Orienting the plan so that living areas face north.
- Thermally broken aluminium windows.
- An insulated concrete slab.
- Using an efficient heat pump for space heating.
- CFL or LED-only lighting.
- 4 star or better WELS showerheads.

This latest BRANZ Up-Spec release updates the previous 2013 figures and covers Auckland, Tauranga, Hamilton, Napier, Wellington, Nelson, Christchurch, Dunedin and Invercargill.

For more The Up-Spec resource can be found at www.branz.co.nz/up-spec.