

# Warmer, drier, healthier homes

BRANZ's *Warmer, drier and healthier buildings* programme has combined with a programme researching how minimum building standards can be exceeded to focus on a holistic approach to housing quality and performance.

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**UNHEALTHY HOMES** diminish the health of the people who live in them. The *Warmer, drier and healthier buildings* programme was established to understand and solve issues that prevent our homes from being warm, dry and healthy.

It was one of four BRANZ research programmes implemented to find and develop end-to-end solutions addressing issues facing the industry and help provide better buildings for New Zealanders.

Some of the ongoing issues identified were with the performance of both the new and existing building stock and the impacts on the people living, working and learning in these buildings.

### **Improving New Zealanders' lives**

In previous articles (see *Build 169, Warmer, drier, healthier buildings* and *Build 156, Healthy homes, healthy people*), we highlighted how some of the findings from the programme have helped improve New Zealanders' lives. These include playing a significant role in



shaping new tenancy law, providing impartial evidence to help MBIE and the Ministry of Housing and Urban Development.

Findings from the programme have also influenced changes to the Residential Tenancies Act and the healthy homes

standards for heating, insulation, ventilation, drainage and moisture ingress. The research has also been integral in developing a national tier 1 statistic for housing quality - designed to help improve our overall understanding of housing in New Zealand. ➤

### Holistic focus on housing needs

Over the last year, a review of all the BRANZ research programmes has resulted in the *Warmer, drier and healthier buildings* programme being combined with the *Exceeding the minimum* research programme to focus more on housing research needs and impact.

The revised *Warmer, drier, healthier homes* (WDHH) programme will continue to address the ongoing concerns over the condition of New Zealand's housing stock and increasing evidence globally on the effects of indoor air quality (IAQ) on occupant health. By focusing more on the housing research needs, we have the opportunity to align with and look at synergies with other similar housing initiatives involving the industry, government and other research providers.

In supporting both the MBIE *Building for climate change* programme and the BRANZ *Transition to a zero-carbon built environment* research programme, the WDHH programme aims to make differences that have a lasting impact. Collaboration with other organisations and strengthening working relationships remain a core focus within all BRANZ programmes.

The recent review also identified some knowledge gaps and areas of research focus for the next few years that will complement our current research. To meet the challenges of climate change, all buildings need to be improved and solutions for this need to be developed and assessed in a holistic manner.

### Better new buildings and improved retrofits

The objectives of the WDHH programme provide for this holistic approach. It aims to develop the technical solutions for both new buildings and a move towards higher-performing construction types, as well as deeper retrofits to existing buildings.

The revised goal of the WDHH programme now aims to help enable all New Zealand homes to provide warm, dry and healthy

environments by 2030. The proposed research will accelerate research to achieve the programme goals through four key objectives:

- Addressing indoor environment issues.
- Improving building envelope performance.
- Developing performance and quality measures.
- Improving knowledge and understanding of the benefits.

#### Addressing indoor environment issues

Addressing indoor environment issues and optimising indoor climates remains a key focus to ongoing performance improvements within our homes. Projects include the current Household Energy End-use Project (HEEP2) to provide an up-to-date picture of how, where, when and why energy is used in New Zealand homes. Other projects are looking at gaining a better understanding and improvements around indoor air quality.

Over recent years, our research has shown our houses and apartments are becoming increasingly airtight, and we have recently recommended a shift to mechanical ventilation as the default option for all housing typologies (see Build 180, *Airtightness of apartments*).

We aim to develop and deliver new energy-efficient smart ventilation methods supporting health and comfort in our homes and the role ventilation can play in the context of climate change and changing heating habits.

It is anticipated that overheating will become more prevalent as temperatures increase and houses are upgraded, so further work is planned to provide recommendations on the role ventilative cooling can play in combating overheating.

#### Improving the building envelope performance

This is another key area of research that will continue for the foreseeable future with a series of projects aimed at acquiring a better understanding of the retrofit insulation issues and providing solutions and guidance.

Other building envelope research will also look at ways to facilitate the adoption of more thermally efficient building envelopes.

This will include projects looking at different housing constructions as well as research into developing warm roof solutions in partnership with industry. Potential acceptable solutions will be assessed in terms of how they can reduce moisture failures and facilitate increased energy efficiency of ventilation equipment.

#### Developing performance and quality measures

Within this objective, we are looking at how we can help develop accepted residential building performance measurement methodologies that are used more widely by the industry. The aim is that New Zealanders have a better understanding of the performance and quality of their homes throughout their lifetime and can make more-informed decisions.

As well as technical solutions, we will explore comfort as a performance metric, extending research to consider how occupant comfort is affected by changes to the indoor environment and building envelope.

How the occupant feels in their home not only impacts physical and mental wellbeing but how they behave. This is a shift in emphasis for the programme, which has often looked at the raw performance of the building as opposed to its impact on occupant wellbeing and will closely align with a new BRANZ project *Building for wellbeing*.

#### Improving knowledge and understanding of the benefits

This objective brings together the research findings to help deliver key messages to specific audiences in a way that they can understand and use. The output from this programme of research aims to enable lasting change and complement those from the *Transition to a zero-carbon built environment* programme.

We aim to provide drivers and solutions to ensure our housing stock is delivering healthy and comfortable homes for all and homes resilient to the impacts of climate change. ◀

**For more** ▶ See [www.branz.co.nz/healthy-homes-research](http://www.branz.co.nz/healthy-homes-research).