



Building a Better New Zealand

Annual Review 2014



income

\$20.9m

expenditure

\$19.2m

funded research

\$8.8m

Building a Better New Zealand

Building a Better New Zealand is the overarching industry research strategy that seeks to guide building and construction innovation and research in New Zealand.

Launched in September 2013, this strategy emerged from industry-wide consultation and an extensive survey of industry needs. It was developed by BRANZ in conjunction with the Ministry of Business, Innovation and Employment (MBIE), the Construction Strategy Group and the Construction Industry Council.

In 2013/14, BRANZ delivered research in each of the nine research priorities identified in *Building a Better New Zealand*. This document highlights the outcomes from some of these key projects.

-  **BETTER BUILDINGS**
-  **MATERIALS PERFORMANCE**
-  **MAINTAINING AND IMPROVING THE PERFORMANCE OF EXISTING BUILDINGS**
-  **SUSTAINABILITY**
-  **AUTOMATION, INDUSTRIALISATION AND NEW TECHNOLOGIES**
-  **OPERATING ENVIRONMENT**
-  **PRODUCTIVITY**
-  **MEETING THE HOUSING NEEDS OF ALL NEW ZEALANDERS**
-  **BUILDING BETTER CITIES AND COMMUNITIES**



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Message from the Chair

New Zealand's building and construction industry has undergone great change in the last 12 months.



There are now almost 500 new businesses and 15,000 more employees in the industry than there were a year ago. Economic output grew accordingly, with the industry adding \$4.5 billion – or a full percentage point – to New Zealand's GDP.

At the same time, the industry faces some of its biggest challenges. It must meet demand for affordable housing in our largest city, rebuild Christchurch and develop new technologies and buildings that enhance the way we live.

World-class research

BRANZ plays a crucial role in the industry's response to these challenges. Our organisation ensures the industry has access to the research outcomes and practical guidance it needs to deliver quality innovations, knowledge and buildings that better meet the needs of New Zealanders.

In 2013/14, BRANZ collaborated on a long-term research strategy for the building and construction industry. The strategy aims to better identify and understand the industry's research needs, guide Building Research Levy investment and position BRANZ to provide the right research in the coming decades.

Strengthen capability

To support these changes, the BRANZ Board also took steps to strengthen its own capability. An independent review of the Board's structure and composition made a number of recommendations. These included adopting an open application process for directors, an annual Board performance review and increasing the Board up to eight directors. Of these eight directors, five will be elected by the Building Research Advisory Council (BRAC) (previously six) and up to three independent directors will be appointed by the Board.

The review also proposed to elevate BRAC representatives from Consumer New Zealand and the MBIE from co-opted members to full members of the electoral college. When approved later in the year, the changes will broaden the skills and experience available to the Board. They will also ensure that we are well placed to lead BRANZ as a premier industry research organisation.

Leadership

The skills, experience and dedication of BRANZ staff continued to be a source of considerable pride for the Board. This year, the Board was excited to welcome Chelydra Percy as our new Chief Executive, and we look forward to continuing to grow the organisation under her leadership.

Finally, I would like to thank Chris Preston for his work as Acting Chief Executive and for his service to the Board over the last six years, both as a Director and Chair.

With a strong team and a reinvigorated industry behind us, BRANZ is well placed to deliver leading industry-research expertise to produce accessible knowledge in the year ahead.

A handwritten signature in blue ink that reads "Helen Anderson". The signature is fluid and cursive, written on a white background.

Dr Helen Anderson
Chair

Message from the Chief Executive

The theme of this year's report is *Building a Better New Zealand*, which is the title of the new industry research strategy launched in September 2013.



BRANZ is proud to be part of this important collaboration between the Construction Strategy Group, the Construction Industry Council and MBIE. The strategy aims to better co-ordinate research funding across the industry and produce higher-quality innovation, knowledge and buildings that meet the needs of New Zealanders.

Choosing *Building a Better New Zealand* as the theme for this year's review shows BRANZ's commitment to the industry research strategy. In this report, we group the current funding commitments against each of the nine research themes set out in *Building a Better New Zealand*. Over time, you will see tighter alignment of funding from the Building Research Levy against the research themes set out in the industry research strategy.

Organisational performance

Higher than anticipated income from the Building Research Levy and reduced spending resulted in a \$1.6 million surplus in 2013/14. The surplus will help build reserves to fund *Building a Better New Zealand* research in the years to come. Despite the lower than expected expenditure, BRANZ maintained strong research and information programmes throughout the year.

To meet the needs of national and international clients, BRANZ initiated a \$1.75 million upgrade of its Fire Laboratory, the only one of its kind in the country. The investment replaces ageing diesel equipment with two gas-fuelled furnaces, significantly improving the accuracy and range of tests carried out in the lab. The upgrade also removes asbestos and modernises the facility. This work is due for completion in August 2014.

A comprehensive review of BRANZ's Appraisal service was also started in 2013/14. The first phase of the review identified quick-win process improvements that improve service delivery for our commercial clients. Further work will determine how BRANZ can best support the industry and stakeholders within the regulatory and product assurance frameworks overseen by MBIE.

The year ahead

2014/15 is shaping up to be an exciting year for BRANZ. In addition to our research and knowledge dissemination work, we will undertake a strategy refresh process that will set BRANZ's direction for the next 3 years. The process will ensure we focus on our core strengths, identify

new opportunities to support the industry and align with the research priorities defined by *Building a Better New Zealand*.

BRANZ will invest over \$1.5 million on external research and new scholarships in the coming year. To improve uptake of BRANZ's external Levy-funded research programme, we will launch a prospectus aimed at New Zealand research organisations. The prospectus will seek research proposals on urban design, housing affordability and improving existing buildings, which are all *Building a Better New Zealand* research priorities that require increased investment.

2014/15 will also see BRANZ actively engage with MBIE and the wider research sector to develop two National Science Challenges. The Challenges take a strategic approach to the government's science investment and aim to have major and enduring benefits for New Zealand. BRANZ will use its expertise in resilience within the built environment to participate in a consortium of research challenges on National Science Challenge 10 – Resilience to Nature's Challenges. BRANZ will also support the development of the National Science Challenge focused on better cities, towns and buildings. We look forward to seeing both these challenges move from the proposal to implementation stage in 2014/15.

Closing comments

Since taking up my role, I have been impressed by the range of activity at BRANZ and the dedication of our people to deliver insightful and timely information to the industry. I am proud of BRANZ's contribution to the industry this year. I believe we have a solid foundation from which to greatly extend that contribution in the years to come.

Thank you to all our staff for their outstanding contribution over the past year.

A handwritten signature in blue ink that reads "Chelydra Percy". The signature is fluid and cursive.

Chelydra Percy
Chief Executive

01 Better buildings

Buildings are fundamental to our way of life. They are the foundations of our economy and represent the majority of fixed assets in New Zealand.

Providing good-quality buildings, including housing, schools and workplaces, is the key focus of the *Better buildings* research priority. It covers research topics such as:

- resilient buildings
- indoor air quality and moisture control
- ventilation
- acoustic performance
- fire protection.

The following outcomes highlight some of BRANZ's research activities under the *Better buildings* priority in 2013/14.

Key outcome **Healthier homes**

Funded by **Levy + MBIE**

Term **2009–14**

Full report **SR289, SR299**

BRANZ's flagship Weathertightness, Air Quality and Ventilation Engineering (WAVE) programme aims to create a building stock that properly manages moisture and provides healthier indoor environments for New Zealanders.

To achieve this, the project focused on four key building characteristics:

- Weathertightness
- Condensation within the building structure
- Indoor air quality
- Ventilation.

BRANZ researchers have conducted extensive tests using experimental structures and computer models to understand how buildings manage air, moisture and contaminants. Researchers also examined methods to remove air contaminants such as formaldehyde, mould spores, bacteria and viruses from the indoor environment.

The six year project has led to several practical solutions to problems in existing buildings and practical guidance to avoid future issues resulting from changes to materials, designs and construction methods.

In 2013/14, BRANZ investigated the use of rigid air barriers and underlays, to determine how they influence weathertightness and airtightness, and the movement of moisture across vented cavities. The results led BRANZ to develop new guidance for the correct use of

rigid sheathing in new timber-framed buildings. The outcome for building occupants is a drier, healthier and more comfortable indoor environment.

Researchers also used BRANZ's outdoor test facility to analyse the formation and control of moisture within large-cavity steel-framed roof spaces. The work revealed that the current practice of using a thermal break between the steel structure and the roof is not always sufficient to prevent the build-up of condensation. BRANZ will present these findings at the *Building a Better New Zealand* conference in September 2014.

Key outcome **Guidance for multi-storey timber structures**

Funded by **Levy**

Term **2013–15**

Full report **SR208**

Light timber framing is used widely for constructing structures in New Zealand. However, multi-storey multi-residential structures have tended to be constructed of reinforced concrete and structural steel, rather than timber.

Acceptable Solution E2/AS1 and NZS 3604:2011 *Timber-framed buildings* provides guidance for structures up to 2.5 storeys or 10 metres tall, but little is available for designing taller timber buildings.

BRANZ reviewed international research into the design and construction of multi-storey light timber-framed buildings. Significant work was available in North American and Scandinavian countries, but there was little that could be adapted for use in New Zealand.

Researchers derived a selection of construction details for multi-storey walls, floors and joint systems that would satisfy the requirements of the New Zealand Building Code. They verified the designs using pilot and full-scale laboratory tests, which assessed the combined effects of structural, acoustic and fire loads on each design and joint system.

Using the test data, BRANZ produced guidance on a range of wall-to-floor joint systems that would provide acceptable performance in multi-storey timber-framed structures.

This ongoing project makes multi-storey light timber-framed structures a much easier and more appealing prospect for New Zealand designers.

\$2,738,000

Total investment in 2013/14

Key outcome **Stronger slab foundations**

Funded by Levy

Term 2013–15

When thinking about slab foundations, designers and builders often focus on minimising the effects of drying shrinkage, especially the risk of cracking. Shrinkage control joints are frequently cut into a slab to prevent uncontrolled cracking as the concrete cures.

These joints work by deliberately reducing the strength of the slab along the line of the cut to control the shrinkage cracking. However, the cuts also reduce the structural integrity of the slab, that is its ability to resist damage due to seismic ground movement.

BRANZ launched a project to evaluate alternative methods to control the effects of drying shrinkage without compromising the strength of the foundation. The results are likely to be techniques to build concrete slab foundations that are stronger and more resilient to earthquakes and more cost effective to construct.

Research continuing in 2014/15

- Building moisture and indoor environmental quality
- Vapour controls in walls
- Subfloors and roofs – moisture management, corrosion prevention, thermal performance
- Probabilistic performance analysis of house roofs under wind load
- Specific design of light timber-framed buildings
- Acoustic performance of concrete
- Earthquake resilience of low-rise and residential buildings
- Cost-benefit analysis of increased seismic resilience
- Canterbury earthquake developments
- Analysis of uneven bracing stiffnesses in houses
- Stronger concrete floor slabs
- Fire risk in childcare centres
- Code of practice for suspended ceilings.

New research to begin in 2014/15

- Solving roof moisture problems
- Improving the resilience of non-structural building components
- Indoor moisture problems – understanding the role of occupant behaviour
- Supporting the use of alternative water sources in non-residential buildings.



02 Materials performance

Research into materials and their performance is an area that is consistently rated as an innovation priority by industry.

New products and systems are being developed that aim to be stronger, more economical and sustainable and able to respond and adapt to their environment.

The *Materials performance* research priority supports building professionals to innovate with existing and future materials.

The following outcomes highlight BRANZ's key research activities under the *Materials performance* research priority in 2013/14.

Key outcome **Productivity boost from acoustic insulation**

Funded by **MBIE**
Term **2013/14**

Getting to sleep in an apartment can be difficult with loud neighbours or high outdoor noise levels. Better acoustic insulation is an obvious answer, but is it worth the money?

A cost-benefit analysis revealed that the reduced noise level provided by acoustic insulation has significant benefits for apartment dwellers. Benefits include better sleep, higher productivity and fewer noise complaints to local authorities.

As a result, MBIE is considering increasing the acoustic requirements in New Zealand Building Code clause G6 *Airborne and impact sound*.

Key outcome **Reduced cost of fire compliance**

Funded by **MBIE + Levy**
Term **2013/14**
Full report [SR302](#)

Fire safety is always a critical part of building design and construction, but the cost of compliance can be significant. In 2012, changes to New Zealand Building Code clauses C1–C6 *Protection from fire* introduced additional testing requirements to demonstrate compliance of surface coatings and finishes.

The intention was to make fire tests more relevant and easier to understand, but the change also imposed a significant additional testing cost on manufacturers.

In response, BRANZ developed a series of prescriptive guidelines for testing the fire performance of surface coatings and other interior finishes. These methods provide simple solutions to demonstrate compliance with the New Zealand Building Code, reducing the requirements for repetitive testing and minimising compliance costs.

Key outcome **Updated corrosivity maps**

Funded by **Levy**
Term **2013/14**
Full report [SR288](#)

New Zealand's unique environment, with its extensive coastal and geothermal regions, can be demanding on building materials.

Designers typically refer to atmospheric corrosivity maps to select and specify building components with sufficient durability for the local site conditions. This information is particularly important for metallic components, such as claddings, flashings and fixings.

New Zealand standards NZS 3404 Parts 1 and 2: 1997 *Steel structures standard* and NZS 3604:2011 *Timber-framed buildings* contain corrosivity maps. However, they provide inconsistent guidance and are based on earlier BRANZ data that is over 25 years old.

In order to establish a unified and up-to-date corrosivity map, BRANZ carried out long-term atmospheric corrosion tests at 39 sites around the country.

While the results of some tests confirmed the older measurements, many sites showed significant changes in corrosivity levels. Most notable was the increase in corrosivity at Auckland Airport and the decrease in Greymouth, although researchers did not identify a nationwide trend in the data.

The findings will be used to update the standards and move the industry towards a single, accurate atmospheric corrosivity map based on an up-to-date and complete data set.

\$762,000

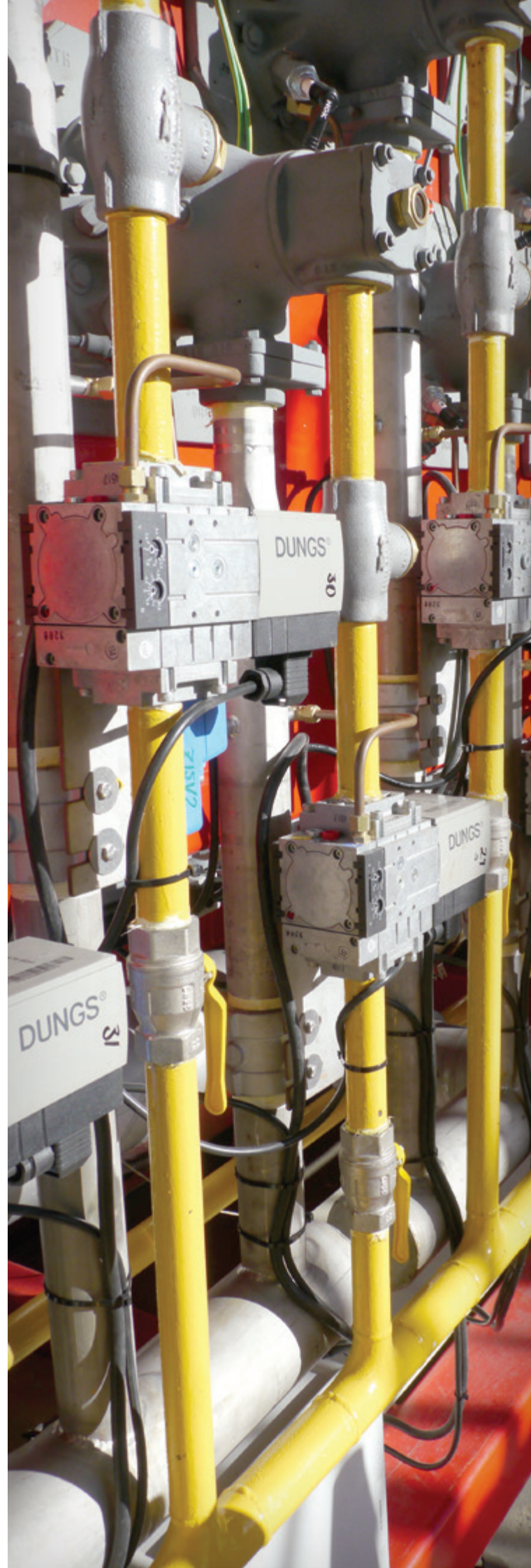
Total investment in 2013/14

Research continuing in 2014/15

- Maintenance and development of weathering sites located across New Zealand
- Developing a durability verification database
- Developing New Zealand's corrosivity map
- Improving resilience of materials and systems
- New testing methodologies for materials performance.
- Co-funding the CCANZ construction course.

New research to begin in 2014/15

- Cross-laminated timber in New Zealand
- Optimising insulation around the perimeters of floor slabs
- Material failure in geothermal environments
- Four BRANZ scholarships.



Performance of existing buildings

The performance of New Zealand's existing buildings is critical to the nation's future.

Eighty-five percent of our current building stock is likely to still be in use by 2025, yet the [2010 BRANZ House Condition Survey](#) revealed that:

- 59 percent were in moderate or poor condition
- 25 percent of houses had defects that were judged as needing attention within 3 months
- 70 percent of owner-occupiers believed their home is in good or excellent condition.

The *Maintaining and improving the performance of existing buildings* research priority focuses on assessing the current building stock and identifying innovations that will yield the greatest benefit for occupants. It covers research topics such as:

- retrofit solutions to improve performance and resilience
- techniques to evaluate and improve the condition of buildings.

The following outcomes highlight BRANZ's key research activities under the *Maintaining and improving the performance of existing buildings* research priority in 2013/14.

Key outcome **Clear repair priorities**

Funded by **MBIE + Levy**

Term **2013/14**

Full report [SR285](#)

The need for maintenance or repair may be obvious, but what should a building owner do first? How do the costs and benefits compare?

To answer these questions, BRANZ researchers examined a representative sample of residential buildings. They recorded the average condition of each property, its current maintenance requirements and the household income of the occupants.

Using this information, researchers ranked the importance of each maintenance activity based on the age of the building, type of construction, health and safety implications and the likelihood of accelerated physical deterioration. They also assessed the likely repair cost of each maintenance activity.

Researchers matched this list against household income to identify the maintenance activities that would provide the greatest benefit for each building and household.

Based on these findings, BRANZ published a series of recommended repair guides that homeowners and occupiers can use to prioritise their own maintenance and repair decisions.

Key outcome **Smart maintenance records**

Funded by **Levy**

Term **2013/14**

More info [Maintenance Schedule tool](#)

Every building has a unique set of maintenance requirements. The type of construction and materials, alternations and extensions, and earlier maintenance and upkeep all influence how a building should be maintained in the future. Yet an accurate and complete record of these building activities is often difficult to find.

BRANZ Maintenance Schedule is an innovative web-based tool that:

- records in one handy place all the materials used in a building
- gives homeowners a comprehensive maintenance guide
- provides a complete record of work done to the building.

Building professionals simply enter the materials used during the build, and the tool automatically generates a booklet that records the materials and finishes and identifies for the owner their maintenance requirements. Builders can print a copy to present to clients and retain one for their own records.

The schedule also saves time and money with warranty claims and provides a useful record for homeowners who are planning modifications to their home.



Mark Bassett is Principal Scientist with the BRANZ Building Performance Group. In 2013/14, Mark received honorary membership of the New Zealand Institute of Building Surveyors to acknowledge his work on leaky buildings. Mark's current work looks at the ventilation processes that remove water from construction cavities.

\$387,000

Total investment in 2013/14

Research continuing in 2014/15

- Publishing a designing for maintenance guide
- Development of a single rating tool for houses.

New research to begin in 2014/15

- 2015 House Condition Survey
- Effects of proprietary mechanised home ventilation systems on health
- Improving decision making about existing homes (renovate or retire) at the level of a neighbourhood development
- Improving the seismic performance of unreinforced masonry cavity walls
- New edition of Good Practice Guides.



Sustainability

Sustainable building technologies provide the means to significantly reduce resource intensity while retaining high-quality builds.

The building and construction industry is a significant source of economic growth and prosperity. However, achieving this places high demands on the environment.

The *Sustainability* research priority focuses on measuring how efficiently buildings use resources, such as water and energy, and on technologies that improve that efficiency.

The following outcomes highlight BRANZ's key research activities under the *Sustainability* research priority in 2013/14.

Key outcome **More efficient buildings**

Funded by **MBIE + EECA + Levy**

Term **2008–13**

Full reports [SR277/1](#), [SR277/3](#), [SR277/4](#), [SR277/5](#), [SR277/6](#), [SR277/7](#)

BRANZ's six year Building Energy End-use Study (BEES) provides designers, builders and occupants with resources to guide their construction, refurbishment and leasing decisions.

The project examined a large sample of New Zealand's commercial building stock, looking at energy and water use, temperatures, lighting, relative humidity and carbon dioxide levels.

BEES provides the industry with several immediate benefits, including:

- new knowledge and improved understanding of energy use in non-residential buildings
- better understanding of where to target energy-efficiency improvements so they have the greatest impact on energy use
- reliable evidence to inform policy, regulation and initiatives in relation to energy efficiency.

More knowledgeable policy makers, building professionals and industry stakeholders will lead to a range of long-term outcomes, including:

- improved policy
- better tools, guidance and information for industry and consumers
- reduced greenhouse gas emissions
- improved productivity and savings for business
- more energy-efficient non-residential buildings.

These outcomes benefit the building and construction industry, they contribute to the fundamental goal of New Zealand's Energy Strategy – to make the most of our energy potential.

Key outcome **Better measures of sustainability**

Funded by **Levy**

Term **2013–19**

Most designers understand that incorporating sustainability and resilience features into a new building improves its performance. However, the financial and sustainability value that these improvements provide to developers, homeowners and occupants is not so well understood.

BRANZ research addresses this shortfall by providing methods to measure the performance and value of various 'better than Code' building improvements, including:

- insulation
- double glazing
- water conservation
- solar water heating
- air and water heat pumps
- heating
- efficient lighting
- site orientation.

The ongoing project helps builders, designers and specifiers to make more-informed choices around the costs and benefits of sustainability features for new and existing housing. In turn, this supports the inclusion of these features in new and retrofitted buildings.

\$1,317,000

Total investment in 2013/14

Research continuing in 2014/15

- Measuring sustainability progress
- Developing a framework to underpin environmental profiling
- Support for the Australasian environmental profiling scheme
- Ongoing development of the Level website.

New research to begin in 2014/15

- Thermal design of houses – updating the Annual Loss Factor (ALF) tool
- Materials and characteristics of new buildings
- Measuring sustainability and resilience features in housing
- Four BRANZ scholarships.



05 New technologies

Innovative technologies have the potential to significantly boost productivity.

The *Automation, industrialisation and new technologies* research priority focuses on how the power of innovative technologies can be applied to the building and construction industry.

This research supports the industry to become competent and confident with emerging technologies and advanced manufacturing, management and control processes. This, in turn, will boost productivity and raise the quality of buildings in New Zealand.

The following outcomes highlight BRANZ's key research activities under the *Automation, industrialisation and new technologies* research priority in 2013/14.

Key outcome **Advancing building information modelling**

Funded by **Levy**
Term **2013–15**

The 3D Details project updated BRANZ's complete set of weathertight solutions CAD drawings to be compatible with the latest building information modelling (BIM) standards.

Following a pilot release of the new details, a survey of 99 designers indicated:

- 76 percent would consider replacing 2D drawings with 3D or 4D BIM models in their construction documentation
- more than 50 percent already use 3D models as a more effective means of communicating complex construction and assembly details
- more than 90 percent would use 3D models if they were available.

BRANZ will develop and release several more free BIM models in the coming year.

Key outcome **Proven value of prefabricated construction**

Funded by **Levy**
Term **2013/14**
Full report **SR279**

BRANZ investigated the economic and environmental impact of prefabricated building systems in the New Zealand construction sector.

Researchers studied the construction of a 120 m² transportable home using four different construction approaches:

- Traditional on-site construction
- A complete transportable prefabricated home
- A home constructed with panellised prefabrication
- A hybrid home constructed from modules and panels.

The research found prefabricated construction offers opportunities to improve sustainability through reduced greenhouse gas emissions, better material control, waste reduction and reduced transport needs.

The research also found other factors that point to the value of prefabricated construction techniques.

- Building prefabricated systems is safer, with 75 percent fewer fatalities in factory-based construction than site-based processes.
- Prefabrication reduces the rate of human error due to better process controls. This reduces the number of defects in construction, enhancing productivity and efficiency.
- Prefabrication reduces waste and the likelihood of timber treatment chemicals leaching into the environment through more controlled waste management processes.

Key outcome **Disaster resilient-buildings**

Funded by **MBIE + Levy**
Term **2013–16**

BRANZ is part of a team working to develop a building resilience rating tool that can gauge a building's vulnerability to extreme natural events.

The rating derives from information such as the building's location, hazard patterns and the risk that an event will occur. The tool also provides guidance on improving the rating by using appropriate materials, building designs and community strategies to increase resilience.

The work is a collaboration between BRANZ, the Centre for Research Evaluation and Social Assessment, the National Institute of Water and Atmospheric Research and several overseas universities.

\$121,000

Total investment in 2013/14

Key outcome **Better prefabrication design choices**

Funded by **Levy**

Term **2013–14**

More info [PrefabNZ toolkit](#)

BRANZ developed a resource toolkit to guide building professionals considering using prefabricated construction technologies in their building projects.

The PrefabNZ toolkit introduces the benefits of prefabricated construction. It aids designers and specifiers who are trying to decide on the most appropriate prefabrication techniques for specific geographic locations, site parameters, materials and types of construction.

The PrefabNZ toolkit is available for download from the BRANZ website and is free for industry use.

Research continuing in 2014/15

- Developing BIM – 3D detail solutions (stages 1 and 2)
- Support for the national BIM initiative with the Productivity Partnership.

New research to begin in 2014/15

- Reducing heat loss from the façades of commercial buildings
- One BRANZ scholarship.



06 Operating environment

An effective operating environment is essential to the industry's prosperity.

The regulatory environment that governs small and medium-sized enterprises and how they operate plays an important role in an industry with a large number of small businesses. The underlying economic conditions and trade agreements that enable healthy and productive market participation also have a large impact.

The *Operating environment* research priority focuses on topics that improve the efficiency of the regulatory environment and promotes standardisation. It includes:

- export opportunities
- health and safety.

The following outcomes highlight BRANZ's key research activities under the *Operating environment* research priority in 2013/14.

Key outcome **One-stop shop for building information**

Funded by **Levy**
Term **2013–15**

Through its research activities and industry services, BRANZ gathers a great deal of information and knowledge about products, technical solutions and current issues affecting the industry.

While this information is openly available, it is often siloed and disseminated to the industry via several different channels and resources.

BRANZ has launched a project to gather this data and make it available via a single information portal. The portal will be a one-stop shop for key material relevant to the building and construction industry. Building professionals, homeowners and members of the public can use the portal to quickly and easily access relevant and meaningful building resources on a wide range of topics.

When launched, the portal will be constantly updated with the latest information and will cross reference data from several other industry organisations.

Key outcome **Understanding site contaminants**

Funded by **Levy**
Term **2013/14**
Full report **SR296**

Remediation work on leaky buildings often exposes workers to biocontaminants from the deteriorated building materials inside the walls.

BRANZ researchers studying biocontaminant exposure found that workers stripping cladding and removing mould-contaminated materials are exposed to a cloud of complex, allergenic, carcinogenic, pathogenic and toxic biocontaminants. Researchers also found biocontaminants on demolition debris, gloves and clothing, and dispersed around the construction site.

A survey of remediation sites found that workers often:

- didn't wear respirators, saying they were hot and uncomfortable
- continued to wear contaminated overalls during meal breaks
- took meal breaks inside contaminated properties.

BRANZ collaborated with industry groups to publish recommended health and safety procedures for dealing with sites where contamination has been detected or is expected.

Key outcome **Updated concrete standard**

Funded by **MBIE + Standards NZ + Levy**
Term **2013/14**
More info **www.standards.co.nz**

The New Zealand Building Code references NZS 4229 Concrete masonry buildings not requiring specific engineering design to set minimum standards for reinforced concrete masonry buildings.

However, the standard was released in 1999 and didn't reflect recent changes to the Code compliance documents, NZS 3604:2011 *Timber-framed buildings* and AS/NZS 1170 *Structural design actions* and other construction standards.

\$1,886,000

Total investment in 2013/14

Graeme Beattie, Principal Structural Engineer at BRANZ, chaired the technical committee responsible for revising the NZS 4229 standard. The update, which was released in 2013/14, includes changes derived from Graeme's experience as Lead Residential Advisor to MBIE following the Canterbury earthquakes.

Standards development is an important aspect of BRANZ's Operating Environment activity, and the organisation contributes to several technical committees every year.



Graeme Beattie, Principal Structural Engineer at BRANZ, leads MBIE's Residential Engineering Advisory Group, which provides guidance and training on residential building repairs following the Canterbury earthquakes. For his contribution, Graeme became a Fellow of the Institution of Professional Engineers New Zealand and received a Meritorious Service Award from Standards New Zealand in 2013/14.

Research continuing in 2014/15

- Industry Needs Survey
- Investment into development of the New Zealand Building Code and New Zealand standards
- Maintenance and development of the Building Industry Library
- Support for the ARCHENG initiative
- Provision of *Build* magazine to new apprentices
- Ongoing publication *Build* magazine, *Guideline*, *Bulletins* and *Builders Mate*
- Development and delivery of industry seminars on key topical issues
- Delivery of the 0800 technical helpline.

New research to begin in 2014/15

- Revising NZS 3603:1993 *Timber structures standard*
- Improving the one-stop shop for information
- One BRANZ scholarship.



Productivity

Boosting productivity in the building and construction industry is a national priority.

Productivity, or output per hour worked, has been falling when compared with construction industries in other countries and with most other sectors of the New Zealand economy.

In 2010, the Building and Construction Sector Productivity Partnership, a joint venture between industry and government, was established to improve construction industry productivity by 20 percent by 2020.

The *Productivity* research priority focuses on topics that underpin that goal. It includes:

- industry structure and processes
- skills
- technology
- client value
- operating environment
- Canterbury rebuild
- Auckland growth.

The following outcomes highlight BRANZ's key research activities under the *Productivity* research priority in 2013/14.

Key outcome **Better productivity measures**

Funded by **Levy**
Term **2013/14**
Full report **SR310**

Traditional measures of productivity, including labour, capital and multi-factor productivity suggest that there has been practically no growth in construction productivity in the last 20 years.

In order to improve this situation, the industry needs methods to better describe and measure productivity and how it relates to the factors that influence business performance.

BRANZ researchers identified a number of factors, including financial viability, worker retention, innovation and client satisfaction, that can be used to measure the performance of a business.

A business that uses these factors to monitor and adjust their activities to improve performance will also increase profitability, which, by definition, improves productivity across the industry.

Key outcome **Reliable six-year forecast**

Funded by **Productivity Partnership**
Term **2013/14**
Full report **www.branz.co.nz/construction_pipeline**

The industry is widely predicted to be on the verge of the largest construction boom in decades, yet reliable economic forecasts that quantify where and when it will take place are much harder to come by.

BRANZ collaborated on the *National Construction Pipeline* report. This brings together forward economic and workload data from the public and private sectors to forecast national construction demand for the next six years.

The report points to an unprecedented level of building and construction in New Zealand over the next five years. It shows at least 10 percent per annum growth for four years, peaking in 2016 when nearly \$32 billion of construction activity is predicted.

The report also forecasts an increase in construction right across the country in both residential and non-residential sectors. Construction hot spots are Auckland, followed by Canterbury and then Waikato/Bay of Plenty and Wellington.

The *National Construction Pipeline* provides the industry with a degree of certainty during a period of intense growth and activity. This allows construction businesses and building professionals to better plan and manage their resources as the boom approaches.

\$819,000

Total investment in 2013/14

Key outcome **Forecast workload demands**

Funded by Levy

Term 2013/14

Full report [SR283](#)

As construction volumes ramp up in Auckland and Christchurch, demand for skilled building professionals is rapidly increasing.

In 2013/14, BRANZ investigated the building and construction industry's workload and labour demand for the coming year. Researchers found that immediate demand is being driven by:

- low construction levels in the last three years
- the Christchurch rebuild
- leaky building repairs
- ageing housing stock requiring refurbishment
- earthquake strengthening.

The national building and construction workforce must increase by 15 percent – or 17,000 workers – in the next two years in order to meet this demand.

Researchers anticipate that the industry is unlikely to find these numbers in the timeframe required, leading to work being deferred. The most likely deferrals will be leaky home repairs and new dwelling work in Christchurch.

Research continuing in 2014/15

- Productivity in small to medium-sized enterprises
- New House Survey.

New research to begin in 2014/15

- Industry performance measures
- Three BRANZ scholarships.



08 Meeting our housing needs

As New Zealand's population grows and changes, so do our housing needs.

New Zealand's population is forecast to reach 4.8 million by 2021, but this growth is not expected to be distributed evenly amongst the regions, creating pressure as housing markets change. Some areas will face higher demand that could exacerbate affordability problems, while others may see the housing market decline as their population falls.

The *Meeting the housing needs of all New Zealanders* research priority focuses on:

- population change
- housing an ageing population
- housing a diverse population
- meeting the needs of vulnerable groups
- housing tenure
- housing affordability.

The following outcomes highlight BRANZ's key research activities under the *Meeting the housing needs of all New Zealanders* research priority in 2013/14.

Key outcome **New builds exempt from LVR limit**

Funded by **MBIE + Levy**

Term **2013/14**

Full report **SR303**

In early 2013, the Reserve Bank proposed to limit the loan-to-value ratio (LVR), which controls how much a bank can lend against a residential property compared to the value of that property.

The intent was to place a 'speed limit' on rising house prices, but there were concerns it could also reduce demand for new builds, limiting the supply of homes, and further drive up house prices.

BRANZ worked with Treasury, the Reserve Bank, MBIE and representatives from the construction industry to assess the effect the policy would have on the housing market.

It was found that the proposed policy, if applied to both new builds and existing houses, would likely result in a 10 percent reduction in the number of new houses built.

In October 2013, the Reserve Bank introduced its LVR policy. However, BRANZ's research contributed to its decision to apply the limit only to lending for existing houses. Lending for new buildings remains unrestricted.

Key outcome **Improved low-income rentals**

Funded by **Wellington City Council + Levy**

Term **2013/14**

The 2010 BRANZ House Condition Survey shows that many low-income tenants live in low-quality accommodation. These homes are cold, damp and unhealthy and can be a major contributor to illness and discomfort in winter months.

In addition, rental property owners sometimes fail to correctly identify the improvements that would bring about the greatest benefits for their tenants and investment.

BRANZ modelled a typical dwelling occupied by low-income tenants and examined its performance before and after retrofitting various building features. Researchers then prioritised the features that have the most positive effect on energy and thermal performance, capital and operating costs and occupant satisfaction.

The project provides valuable guidance for property owners who want to make the right investment decisions when improving a rental property for low-income tenants.

\$369,000

Total investment in 2013/14

Research continuing in 2014/15

- Good homes for low-income tenants
- Community resilience and good ageing
- Housing, downsizing and older people in a changing society.

New research to begin in 2014/15

- Demographic change, future housing demand and the implications for the residential property market
- Implication of regulation on housing affordability
- Meeting the housing needs of multi-generational households.



09 Better cities and communities

Thriving, sustainable cities are integral to New Zealand's long-term wealth and wellbeing.

Over the next 20 years, it is forecast that 75 percent of new construction will be in Auckland or Christchurch. It is therefore critical that the industry's understanding of high-performing urban environments reflects the importance of these habitats to our society and economy.

The *Building better cities and communities* research priority focuses on delivering affordable homes and liveable communities in increasingly dense urban environments.

The following outcomes highlight BRANZ's key research activities under the *Building better cities and communities* research priority in 2013/14.

Key outcome **Effects of Auckland intensification**

Funded by **Levy**
Term **2013/14**
Full report **SR295**

The Auckland Unitary Plan sets out the strategic direction for the future of Auckland. The latest revision includes new zones for various housing types, with an emphasis on intensification of housing mainly within the planned metropolitan urban limit.

BRANZ investigated the implications these changes will have on housing demand, affordability, urban density and traditional construction practices.

Researchers forecast Auckland will build 84,000 new homes in the next eight years. Of these, 44 percent or 37,000 homes, will be attached, multi-unit dwellings.

BRANZ also predicts that dwelling-related building work is likely to increase by 56 percent in that time. However, multi-unit construction will become a significant part of future work, and building professionals may need to adapt to larger projects and a decreasing proportion of detached new builds.

Key outcome **Fire protection compromised by earthquakes**

Funded by **Levy**
Term **2013/14**
Full report **SR304**

How well do fire protection systems, such as fire-rated walls and fire doors, perform after an earthquake?

The study surveyed systems in Christchurch that ranged from moderate damage, where some fire resistance remains, to extensive damage where no protection remains.

BRANZ researchers found that these systems may be damaged in an otherwise structurally safe building, and they must be restored to specification to remain effective.

The researchers also found that, by isolating passive fire protection systems from the main structure, designers can ensure passive systems continue to provide protection after an earthquake.

\$358,000

Total investment in 2013/14

Research continuing in 2014/15

- Delivering successful urban intensification in Auckland.

New research to begin in 2014/15

- Seismic devices and design techniques to avoid damage in high-density urban housing
- Better acoustically performing structural connections
- Supporting Stronger Christchurch Infrastructure Rebuild Team (SCIRT) innovation in the Christchurch rebuild.



Informing the industry

BRANZ converts research into practical guidance that industry professionals find easy to use.

BRANZ guidance and knowledge is delivered to New Zealand through multiple channels, including paper-based books and magazines, seminars and web-hosted videos, online tools, Epubs and social media.

The following outcomes highlight some of BRANZ's knowledge dissemination activities that enhanced New Zealand buildings in 2013/14.

Key outcome **Relevant technical guidance and industry news**

Funded by **Levy**

Term **Continuing**

More info www.buildmagazine.org.nz

Build is the building and construction industry's premier source of information and insight.

The print publication remained strong in 2013/14, with an audited circulation of 16,314 as at 31 December 2013. The recent redesign of the magazine also bedded down well, and over 730,000 *Build* articles were downloaded in 2013/14.

A readership survey received responses from 485 people. Results indicate that:

- 83 percent considered *Build* essential or very useful
- 87 percent took 30 minutes or longer to read each issue
- 74 percent who had read *Build* for at least 12 months had saved articles for future reference
- 67 percent discussed a *Build* article with other people
- 39 percent used a technique or product they had seen in *Build*.

Key outcome **Best-practice repair guidance**

Funded by **Levy**

Term **2013–15**

More info [Good Repair Guides](#)

BRANZ published a series of guides to assist builders in the correct repair and maintenance of residential buildings.

Targeted at younger building professionals, the 10 titles in the BRANZ Good Repair Guide series are available in print or can be purchased from the BRANZ website in Epub format.

The following titles were released this year:

- *Aluminium Windows*
- *Damp Subfloors*
- *Dealing with Mould*
- *External Gutters*
- *Horizontal Timber Weatherboards*
- *Improving Internal Ventilation*
- *Interior Painting*
- *Profiled Metal Roofing*
- *Repainting Textured Finishes*
- *Timber Windows*.

BRANZ will expand the Good Repair Guide series in the coming year.

Key outcome **Effective technical seminars**

Funded by **Levy**

Term **Continuing**

More info www.branz.co.nz/seminars

BRANZ scientists delivered the *Getting the Best Out of Your Building* technical seminar to building professionals in 22 centres across the country.

The seminar covered ventilation drying in weathertight structures, air infiltration, thermal bridging, the Healthy Housing Index, energy performance and a range of new technologies.

Nearly 1,500 building professionals attended the seminars. Over 96 percent of those attendees rated the seminar as meeting or exceeding their expectations.

Other seminars in 2013/14 included:

- *Building Seismic Resilience*
- *Fire Zone Modelling*
- *Passive Design*
- *Prefabrication*.

Overall, BRANZ reached 3,905 building professionals with its 2013/14 seminar series. BRANZ's seminars are a key way of promoting innovations to building professionals.



Commercial services

BRANZ provides independent research, testing, product assurance and consulting services.

BRANZ provides technical services to commercial clients in the New Zealand building and construction industry as well as the international construction community. BRANZ specialises in the following fields:

- Economics
- Energy and environment
- Fire safety engineering
- Fire testing
- Materials durability
- Materials performance
- Structural performance
- Thermal performance
- Ventilation efficiency.

The BRANZ Appraisal service provides independent assessment of building products, materials and methods of design and construction. An Appraisal can be used to determine if a product or method is fit for purpose and complies with the requirements of the New Zealand Building Code.

The following outcomes highlight some of BRANZ's commercial activities that enhanced New Zealand buildings in 2013/14.

Key outcome **New assessment services**

Funded by **BRANZ**

More information www.branz.co.nz/type_tests_and_technical_opinions

BRANZ released two new forms of building product assessment in 2013/14 – Technical Opinions and Type Tests.

BRANZ Technical Opinions are intended for relatively low-risk products that are expected to have a long history of use in service and, therefore, a good track record of performance. Technical Opinions will normally be against a single clause in the New Zealand Building Code.

BRANZ Type Tests are intended for low to medium-risk products and systems. Tests are carried out against published criteria, such as a referenced standard or other robust criteria, and will be available against a single New Zealand Building Code performance requirement.

The new services enable low-risk building products that don't require the rigour of a BRANZ Appraisal to demonstrate compliance with the New Zealand Building Code.

Key outcome **Cost savings for large property holders**
Client **Ministry of Education + Housing New Zealand**
Term **2013/14**
Full report [ST0961](#), [ST1004](#)

How existing buildings will perform in an earthquake is a major concern for organisations with large property holdings.

In 2013/14, BRANZ tested the earthquake resilience of two representative types of classroom block for the Ministry of Education and one type of accommodation block for Housing New Zealand.

In each case, desktop analysis indicated the buildings were earthquake prone.

Researchers tested the timber-framed buildings by connecting steel cables to the structure and simulated an earthquake using house removal trucks.

The buildings proved to be surprisingly resilient. The classrooms performed 2.5–7 times better, and the accommodation block performed 2–4 times better than the desktop analyses had predicted.

The Ministry of Education estimates the finding saved about \$800 million in strengthening work that was no longer necessary.



Governance

BRANZ is comprised of two separate organisations – BRANZ Incorporated and BRANZ Limited.

BRANZ Incorporated is a significant investor in industry-good research and knowledge dissemination to the wider building and construction industry. It receives almost all its income from the Building Research Levy. The Levy is invested to benefit owners and occupiers of buildings by improving the knowledge base of the New Zealand building and construction sector.

BRANZ Limited is an independent research, testing, consulting and information company that provides services to the New Zealand building and construction industry.

BRANZ Board

BRANZ is governed by a Board with significant building and construction, science and business expertise. The BRANZ Board currently has five directors.



Dr Helen Anderson (Chair) is an independent director of several public sector organisations and former Chief Executive of the Ministry of Research, Science and Technology. She joined the BRANZ Board in 2011.



Kevin Stanley (Deputy Chair) has more than 25 years' experience in the construction industry and is currently Managing Director of the Stanley Group. He joined the BRANZ Board in 2012.



Ken Stanton is Principal of architectural and engineering practice Stephenson & Turner. He joined the BRANZ Board in 2012.



Richard Merrifield joined the BRANZ Board in 2011. He is former Chair of Certified Builders Association of New Zealand and former Chair of the Building Research Advisory Council.



Richard Carver has a background in business management and governance and is co-owner of Jennian Homes and Construction Marketing Services. He joined the BRANZ Board in 2013.

Building Research Advisory Council

The Building Research Advisory Council (BRAC) meets twice a year to elect the BRANZ Board, advise on industry issues and provide input into research strategy.

The membership comprises nominees of a wide range of industry organisations who advise on information needs and strategic directions for BRANZ. National bodies of builders, contractors, subcontractors, property owners, territorial authorities, engineers, architects and manufacturers all participate.

The current members of BRAC and their nominating bodies are:

- Victoria Troake (Chair) – New Zealand Specialist Trade Contractors Federation Incorporated
- Anthony Leighs (Deputy Chair) – Registered Master Builders Association
- Dan Ashby – Property Council of New Zealand
- Paul Bennett – Housing New Zealand Corporation
- Derek Bilby – New Zealand Contractors' Federation
- Dave Brown – Certified Builders Association of New Zealand
- Lou Cadman – Business New Zealand
- Barry Dacombe – New Zealand Institute of Architects
- Scott Fuller – Business New Zealand
- Ashley Hartley – Registered Master Builders Association
- John Melhuish – New Zealand Institute of Architects
- Grant Price – New Zealand Specialist Trade Contractors Federation Incorporated
- Adrian Regnault (co-opted) – Ministry of Business, Innovation and Employment
- David Rolfe – Local Government New Zealand
- David Russell (co-opted) – Consumer New Zealand
- Debbie Scott – Institution of Professional Engineers New Zealand
- Richard Sharpe – Institution of Professional Engineers New Zealand
- Stephen Walker – Building Industry Federation.



The Building Research Levy

Income from the Building Research Levy funds research across the industry.

In its capacity as steward of the Building Research Levy, the BRANZ Board invests in relevant research and services that align with the priorities identified in *Building a Better New Zealand*.

The Building Research Levy Act 1969 provides guidelines to ensure the Board follows a transparent and accountable process when investing the Levy in research activities. Two bodies also advise the Board on this Levy investment process.

The Research Agenda Guidance Committee is an independent advisory body with representation from the Building Research Advisory Council, industry, government and BRANZ that helps ensure that the BRANZ Board is aware of the industry's research priorities.

The Levy Allocation Guidance Committee is an advisory body with representatives from the Building Research Advisory Council and other industry expert groups. The committee receives, evaluates and ranks internal research proposals to ensure they are relevant, timely and deliver useful outcomes to the industry.

Based on these criteria, the committee recommends where the BRANZ Board should invest the Levy.

BRANZ publishes the Levy allocation for the coming year in the *Building Research Levy in Action* booklet. The current 2014/15 booklet can be downloaded from www.branz.co.nz/research.

Levy audit

An independent audit ensures the outcomes from BRANZ's Levy-funded research and information programmes are effective and provide value to the building and construction industry.

In 2013/14, two independent experts reviewed a selection of BRANZ research and reported to the BRANZ Board and BRAC.

Financial performance

The BRANZ Group derives its total income from a combination of Building Research Levy investment, government science funding and commercial services.

Total income for 2013/14 was \$20.93 million. This was made up of \$12.48 million from the Building Research Levy to fund industry research and knowledge transfer, \$7.46 million from commercial services and \$0.99 million of other income.

Prudent management of expenses resulted in spending of \$19.66 million in 2013/14. This was used to operate the business, directly deliver research outcomes, inform the industry, and invest with other research providers.

A breakdown of the Group financial results can be viewed on subsequent pages.

Cash Reserves

The BRANZ Group had cash reserves of \$14.6 million as at 31 March 2014. These funds are held in accordance with our investment policy and are used to:

- fund investment in property, plant and equipment including essential upgrades on the BRANZ campus
- respond to critical issues affecting the industry
- smooth fluctuations in Levy income
- keep the business running in the event of an emergency.

In 2013/14, BRANZ commissioned an independent review of our approach to reserves. The review looked at how BRANZ maintains its reserves and compared our level of reserves with a range of organisations, including Crown Research Institutes and independent research organisations. The review noted that BRANZ's approach to reserves is appropriate.

Long-term Levy utilisation

Each year, income from the Building Research Levy fluctuates according to the number and value of building consents issued. For some time, BRANZ has employed a 10-year Levy utilisation model as a means to smooth the boom-bust cycle, to which the building and construction industry is particularly prone.

The model enables BRANZ to put funds aside in years with high Levy receipts to be used in years with low Levy income. This ensures that key skills are retained and research and knowledge transfer programmes continue.

In 2013/14, BRANZ began work on a Levy utilisation policy to further develop and formalise this model. The policy will:

- clearly articulate the purpose of managing the Levy for long-term utilisation
- optimise the level of operating reserves
- identify key investment categories
- set a baseline amount of Levy to be invested internally and externally each year
- define how BRANZ applies and reviews the policy.

This policy, combined with existing Levy allocation processes, are part of BRANZ's commitment to being accountable for, and transparent with, investment of the Levy.

Financial statements

Building Research Association of New Zealand Inc

Summary statement of comprehensive income for the year ended 31 March 2014

	Group		Parent	
	2014	2013	2014	2013
	\$	\$	\$	\$
Operating income				
Building Research Levy Act levies	12,476,366	10,457,899	12,476,366	10,457,899
Commercial work fees	7,457,689	8,113,632	0	0
Government grants	421,556	1,000,108	0	0
Charges to BRANZ Limited	0	0	1,291,100	1,100,000
	20,355,611	19,571,639	13,767,466	11,557,899
Other income				
Interest received	525,067	482,203	483,456	438,823
Other income	703	923	703	923
	525,770	483,126	484,159	439,746
Total income	20,881,381	20,054,765	14,251,625	11,997,645
Expenditure				
Personnel costs	9,872,442	10,013,325	704,380	545,457
Contracts – BRANZ Limited	0	0	7,549,186	7,363,940
Other operating costs	9,785,053	9,240,331	4,778,592	3,977,695
Total expenditure	19,657,495	19,253,656	13,032,158	11,887,092
Operating surplus/(deficit) for the year	1,223,886	801,109	1,219,467	110,553
Share of surplus/(deficit) of equity accounted investment	49,507	18,369	0	0
Share of (deficit) before income tax	0	0	0	0
Surplus/(deficit) before income tax	1,273,393	819,478	1,219,467	110,553
Income tax (expense)/benefit	0	0	0	0
Surplus/(deficit) for the period	1,273,393	819,478	1,219,467	110,553
Other comprehensive income	0	0	0	0
Total comprehensive income/(expense) for the period	1,273,393	819,478	1,219,467	110,553

Building Research Association of New Zealand Inc

Summary statement of changes in equity for the year ended 31 March 2014

	Group		Parent	
	Retained earnings	Total equity	Retained earnings	Total equity
	\$	\$	\$	\$
Balance at 1 April 2012	26,550,028	26,550,028	25,582,812	25,582,812
Total comprehensive income/(expense) for the period	819,478	819,478	110,553	110,553
Balance at 31 March 2013	27,369,506	27,369,506	25,693,365	25,693,365
Balance at 1 April 2013	27,369,506	27,369,506	25,693,365	25,693,365
Total comprehensive income/(expense) for the period	1,273,393	1,273,393	1,219,467	1,219,467
Balance at 31 March 2014	28,642,899	28,642,899	26,912,832	26,912,832

Building Research Association of New Zealand Inc

Summary statement of financial position

as at 31 March 2014

	Group		Parent	
	2014	2013	2014	2013
	\$	\$	\$	\$
Assets				
Current assets				
Term deposits	11,958,911	10,791,411	11,358,911	10,191,411
Other current assets	5,390,158	4,841,338	2,052,178	1,636,733
Total income	17,349,069	15,632,749	13,411,089	11,828,144
Non-current assets				
Property, plant and equipment	13,719,335	13,932,573	13,719,335	13,932,573
Investment in subsidiaries	0	0	1,000,000	1,000,000
Other non-current assets	466,487	445,008	206,274	234,302
Total non-current assets	14,185,822	14,377,581	14,925,609	15,166,875
Total assets	31,534,891	30,010,330	28,336,698	26,995,019
Liabilities				
Current liabilities				
Trade and other payables	1,770,888	1,433,827	1,414,941	1,296,400
Other current liabilities	969,370	1,056,420	8,735	5,165
Total current liabilities	2,740,258	2,490,247	1,423,676	1,301,565
Non-current liabilities				
Non-current liabilities	151,734	150,577	190	89
Total non-current liabilities	151,734	150,577	190	89
Total liabilities	2,891,992	2,640,824	1,423,866	1,301,654
Equity				
Retained earnings	28,642,899	27,369,506	26,912,832	25,693,365
Total equity	28,642,899	27,369,506	26,912,832	25,693,365
Total equity and liabilities	31,534,891	30,010,330	28,336,698	26,995,019

Building Research Association of New Zealand Inc

Summary statement of cash flows

for the year ended 31 March 2014

	Group		Parent	
	2014	2013	2014	2013
	\$	\$	\$	\$
Net cash from/(used in) operating activities	2,618,633	1,157,923	2,537,947	607,757
Net cash from/(used in) investing activities	(2,016,943)	(1,031,488)	(2,065,618)	(1,085,296)
Net cash from/(used in) financing activities	0	0	0	0
Increase/(decrease) in cash and cash equivalents	601,690	126,435	(472,329)	(477,539)
Cash and cash equivalents at 1 April	2,044,368	1,917,933	1,024,627	1,502,166
Cash and cash equivalents at 31 March	2,646,058	2,044,368	1,496,956	1,024,627

Notes to accounts

Notes to the Building Research Association of New Zealand Inc summary financial statements for the year ended 31 March 2014.

1. Reporting entity

Building Research Association of New Zealand Inc (“the Parent” or “Building Research Association”) is an incorporated society registered under the Incorporated Societies Act 1908. The address of the Parent’s registered office is 1222 Moonshine Road, Judgeford, Porirua.

Financial statements for the Parent and consolidated financial statements are presented. The consolidated financial statements of Building Research Association as at and for the year ended 31 March 2014 comprise the Parent, its subsidiaries (together referred to as the “Group”) and the Group’s interest in associates and jointly controlled entities.

Building Research Association’s primary purpose is promoting scientific or industrial research for the building and construction industry.

These summary financial statements and the full financial statements were authorised for issue by the Board of Directors on 26 June 2014.

2. Basis of preparation

Statement of compliance

The full financial statements have been prepared in accordance with New Zealand Generally Accepted Accounting Practice (NZ GAAP). They comply with the New Zealand equivalents to International Financial Reporting Standards (NZ IFRS). The full financial statements have been audited, and the auditor has issued an unqualified audit report.

These summary financial statements are prepared in accordance with Financial Reporting Standard No. 43 ‘*Summary Financial Statements*’. Their purpose is to provide an overview and as such do not provide an understanding as complete as the full financial statements. The disclosures included in these summary financial statements have been extracted from the full financial statements. The full financial statements are available on our website at www.branz.co.nz.

Basis of measurement

The financial statements are prepared on the historical costs basis. The accounts are prepared on a going concern basis.

Presentation currency

These financial statements are presented in New Zealand dollars (\$), which is the functional currency of the Parent and BRANZ Limited. BRANZ Pty Limited’s functional currency is Australian dollars. Certain comparatives have been amended to match current period presentation.

3. Contingencies

The Group had no contingent liabilities as 31 March 2014.

4. Related parties

Group entities	Country of incorporation	Ownership interest	
		2014	2013
BRANZ Ltd	New Zealand	100%	100%
BRANZ Pty Ltd	Australia	100%	100%

Building Research Association charges rent to BRANZ Limited for the use of property, plant and equipment as well as for its share of the Group CEO remuneration costs (from November 2013).

BRANZ Limited charges consulting fees for research work and administration services carried out on behalf of Building Research Association. BRANZ Limited also charges Building Research Association for its share of the Group Executive Management Team costs (including CEO up to November 2013), provision of accounting and IT services and its share of insurance and marketing costs.

In addition, BRANZ Limited charges its subsidiary BRANZ Pty Limited consulting fees for the technical services that it provides.

5. Subsequent events

No significant subsequent events have occurred after balance date.

These summary financial statements are approved for and on behalf of the Board of Directors by:

Dr Helen Anderson
Board Chair

26 June 2014

Kevin Stanley
Board Deputy Chair

26 June 2014



Independent auditor's report on the summary financial statements

To the members of Building Research Association of New Zealand Inc

The accompanying summary financial statements on pages 30 to 32, which comprise the summary statement of financial position as at 31 March 2014, the summary statements of comprehensive income, changes in equity and cash flows for the year then ended and notes, for both the company and the Group, are derived from the audited financial statements of Building Research Association of New Zealand Inc ("the incorporated society") and the Group, comprising the incorporated society and its subsidiaries, for the year ended 31 March 2014. We expressed an unmodified audit opinion on those financial statements in our report dated 26 June 2014.

The summary financial statements do not contain all the disclosures required for full financial statements under generally accepted accounting practice in New Zealand. Reading the summary financial statements, therefore, is not a substitute for reading the audited financial statements of Building Research Association of New Zealand Inc and the Group.

Directors' responsibility for the incorporated society and group financial statements

The directors are responsible for the preparation of a summary of the audited financial statements, in accordance with FRS 43 *Summary Financial Statements*.

Auditor's responsibility

Our responsibility is to express an opinion on the summary incorporated society and Group financial statements based on our procedures, which were conducted in accordance with International Standards on Auditing (New Zealand) (ISA (NZ)) 810 and International Standards on Auditing (ISA) 810 *Engagements to Report on Summary Financial Statements*.

Other than in our capacity as auditor, we have no relationship with, or interests in, the incorporated society and Group.

Opinion

In our opinion, the summary financial statements have been correctly extracted from the audited financial statements of Building Research Association of New Zealand Inc and the consolidated financial statements of the Group for the year ended 31 March 2014, and the information reported in the summary financial statements is consistent, in all material respects, with the audited financial statements, in accordance with FRS 43 *Summary Financial Statements*.

A handwritten signature in blue ink that reads 'KPMG'.

26 June 2014
Wellington

Acknowledgements

Photograph page 5 courtesy of Stanley Group.

Photograph page 13 courtesy of Nelson Marlborough Institute of Technology.

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BRANZ Building a Better New Zealand
Annual Review 2014