TYPE OF PAPER
Industry paper

ABSTRACT
A paper from the future - submitted to the Sustainable Buildings Conference 2020
New Zealand’s president calls it “one of the most extraordinary transformations in New Zealand’s history”. Now that New Zealand’s rating tool has been in operation for just over 10 years this study takes a retrospective look back to the success of the tool. The research provides compelling evidence of the increase in house price and resale value as a result of renovating existing homes and building new homes to higher standards.

The basics of the rating scheme are outlined – from the early beginnings in 2010 through to the present day, 10 years later, where the scheme is achieving real success in the marketplace and has been the catalyst for unprecedented change.

The research looks across the value chain in housing – showing the benefits that the rating tool has had for builders and designers, developers, the real estate industry, banks, consumers, and central and local government agencies. The impact that the rating scheme has had in relation to steadily improving our housing stock and up-scaling building regulations over the past ten years is outlined. This provides concrete evidence for the rating tool acting as a major catalyst for New Zealand’s world leader status, with one of the most progressive residential sectors globally and now a major exporter of sustainable construction technology.

KEYWORDS
Housing, Rating Tool, Retrofit, House Value

INTRODUCTION AND BACKGROUND

The history of the rating tool can be traced to as far back as 13 years ago when, in 2007, Beacon Pathway convened a workshop to bring together a range of stakeholders who had been identified as either an owner of a rating type tool or a potential user of such a tool. The outcome from this workshop was a broad agreement that NZ needed the following:

1. a single residential rating tool for both new and existing houses;
2. a simple yet robust system that would communicate the value of increased performance; and
3. to build off the expertise, knowledge and existing approaches that we had in NZ at that time.
In the years following that workshop a number of stakeholders gathered to examine the potential to develop such a tool in New Zealand. In November 2008 the New Zealand Business Council for Sustainable Development (NZBCSD) released a report “Better Performing Homes for New Zealanders: Making it Happen”. This report strongly advocated the development of a single residential rating tool and the NZBCSD and others lobbied industry, central government agencies and Ministers to garner support for the development of a New Zealand Rating Tool.

Then in 2009 a group of industry and government stakeholders worked collaboratively to develop a framework that would set the groundwork for the delivery of a single rating tool for New Zealand. Later in the same year a Joint Venture between The Building Research Association of New Zealand (BRANZ), the New Zealand Green Building Council (NZGBC) and Beacon Pathway was set up to deliver the tool. One of the central aims was to provide a rating system that would help to unlock private investment in renovating New Zealand’s poorly performing housing stock.

Now, in the year 2020, with a much-upgraded housing stock, it is easy to forget that back in 2009 our existing homes were in such a bad state. Over one million of our 1.6 million dwellings were underperforming with problems of mould, cold and damp. New Zealand homes were, on average, 6°C below World Health Organization recommended minimum temperatures in winter (McChesney et. al., 2006). Research from ShapeNZ surveys in 2008 indicated that more than 1 in 4 New Zealanders claimed that the home that they lived in contributed to their sickness; and as many as 50 people a day were being admitted to hospital because they lived in damp, cold homes (NZBCSD, 2008).

A rating tool could not, on its own accord, resolve these problems. However, it was felt that a star rating, coupled with a scheme that delivered credible independent advice about what needed to be done to a house to improve its rating, would assist homeowners in prioritising those interventions that improved the quality and performance of their homes. Once again, looking back it seems incredulous that consumers used to spend so much money investing in the aesthetics of their homes rather than concentrating on improving comfort and performance. Indeed, where consumers had sought to overcome problems of cold, mould and damp, they often opted to install complex ‘technology solutions’ such as unproven home ventilation systems before seeking to address the basic issues of thermal performance (Saville-Smith, 2008).

In 2009 at the initial stages of development of the tool, home-rating systems had been widely implemented in many overseas countries including the UK, USA, Canada and Australia. Rating systems were shown to provide an independent means of verification that a home performs to set standards. They directly link the value of a building renovation to improved performance and quality – providing information to a wide range of stakeholders across the housing value chain:

- The Home Owner who renovates is rewarded by lower utility bills and a higher perceived resale value – as well as being warmer, drier and healthier in their home.
- The renter of a renovated / higher performing home is informed to make the trade-off between a renovated warmer, more comfortable home with lower utility bills versus paying less rent for an un-renovated home.
- Industry is able to deliver new solutions that are underpinned by a tangible value and performance proposition (e.g. so that added insulation adds to the value of the house).
Information is widely available for Consumers and Industry on the potential performance of homes and solutions to improve them.

A rating tool was also seen to provide homeowners (and their mortgage lenders) a sound economic basis for additional investment in renovation. The intention, which was realised in the years following the launch of the tool, was to provide a single rating tool for NZ, which could be used by:

- Home owners to guide their renovation so they can achieve a comfortable well performing house
- Home sellers to upgrade their homes to achieve greater returns at point of sale
- Landlords marketing their property and prospective tenants when evaluating the houses on offer.
- Prospective home buyers / sellers who required information relating to the comfort and performance of their houses
- Builders/developers wishing to provide high performance homes to their customers.

It was thought that a single tool for the market was most appropriate, so as to avoid confusion and a plethora of non-comparable systems. When the tool was developed in 2009, New Zealand (and the rest of the world) was in the midst of a recession. The pursuit of the residential rating tool was one of a number of initiatives being promoted by NZ’s building & construction industry at the time to:

- Stimulate economic activity in the residential sector
- Maintain existing jobs and create new jobs
- Unlock further private investment in existing homes by establishing the value of quality and performance in housing, alongside the traditional values of location and aesthetics.

Data produced at the time by Beacon Pathway suggested that a standard 1940’s-1960’s home renovated for improved performance required an estimated 277 hours of labour split between a variety of sub trades. The data indicated that for every 1,000 houses retrofitted a total of 151 full-time equivalent jobs was required for delivery of on-site retrofitting services; and a total of 392 full-time equivalent jobs were required to provide the products and services involved in the renovation activity (Collins and Ryan, 2009).

The tool helped to support the value proposition for upgrading homes by providing the means to measure and creating a system that attributed economic value to renovation - unlocking significant private investment. Indeed, a recent Ministry of Economic Development (MED) report (2016) suggests that the rating tool and subsequent activity in the construction sector was in part responsible for lifting New Zealand out of the recession earlier than the progress made in other countries (for more information see New Zealand - The Tiger Economy of the Asia Pacific; MED; 2016).

THE RATING TOOL FRAMEWORK

The rating system was initially conceived as a 0 – 10 star scheme that was built up from researched criteria fundamental to improving the quality and performance of a home (as illustrated below in Figure 1).

The 0 -10 star rating, which has remained unchanged, provides the basis for:
- A user-friendly web based model which allowed homeowners to self assess their existing home at rudimentary levels and gives them advice to prioritise basic improvements to the home.
- A third party independent assessment that can be provided by a qualified and trained assessor.
- A detailed comprehensive rating of the quality and performance of new “green” homes or extensive renovation of existing homes.

**Figure 1: Residential Rating Tool Outline**

**KEY FEATURES OF THE RATING SCHEME**

The rating scheme itself has undergone an expected number of iterations since being implemented in 2010. These have included versioning and updating the scheme to include enhancements in building performance and to take account of the high levels of innovation that have occurred across industry since the launch of the tool.

However, the key features of the scheme remain largely intact and include the following:

- The rating scheme is applicable to new build and to existing houses who can upgrade to meet levels 1, 2, 3 or 4 (or higher levels through significant effort)
- The 0 – 4 Star rating is provided through a simple on line self assessment process that homeowners can complete themselves, or if unable to can receive assistance from others in the related residential sector (e.g. Real Estate agents, valuers, builders)
• The self assessed (0-4 star rating) is made up of scores focussed largely on the categories of energy/health/comfort and water (these also incorporate important issues relating to indoor environment quality such as moisture in the home and adequate temperatures).

• Official certified ratings up to the full 10 stars cover additional categories relating to the other important aspects of home performance in more detail (such as management, materials selection, waste and site and ecology).

• Higher ratings above 4 stars are possible through an independently verified third party evaluation of the home. This produces an ‘authenticated’ certificate which can be used with greater certainty at the time of sale or rental.

• The scheme delivers more sustainable and resilient homes capable of high performance and able to meet future challenges such as climate change and resource availability.

• In addition to providing a rating for the home, the simple online tool also outlines a prioritised plan of interventions / solutions to improve the performance of the home. This provides independent, credible advice to help homeowners ‘move up the stars’ as they improve the standard of their home.

**BENEFITS OF THE RESIDENTIAL RATING TOOL**

The recent *Residential Consumers And Construction Survey* (Hillary, 2019) identified the following benefits of the residential rating tool:

**Consumers**

• The rating tool has provided consumers with an independent and credible system to compare the performance and quality of a home at the point of purchase, upgrade or rental.

• The rating scheme is providing consumers with a prioritised plan of interventions and solutions to improve the performance of their home. 86.5% of consumers surveyed ‘highly valued’ the independent advice obtained from the online self assessment process and 72.8% of those who had received a plan acted upon at least three of the recommendations in the renovation plan for their dwelling.

• The rating system has assisted in communicating a deeper appreciation of the warmth, comfort and health of a home, along with indication of utility charges (electricity and water). This enables decisions to be made regarding the trade-offs between initial capital costs versus ongoing operational costs as well as indicating the capital costs required to achieve healthy and comfortable conditions.

• Results from the *Better Health Study* (Ministry of Health and Well Being (MoHWB), 2018) also confirm significant health benefits are associated with upgraded housing and economic analysis shows investment in housing has an excellent cost benefit.

**Property Owners**

• The rating system provides the incentive to invest in upgrading a home to achieve higher performance levels because it provides the mechanism for the market to assign a value to the upgrades undertaken.

• The rating system has helped to provide a ‘trustworthy’ mechanism to communicate the investment made in making the house warmer and more comfortable to the potential tenant.
Real estate industry

- Provides robust and independent ratings of the performance and quality of a home thereby creating a more efficient market with all ‘players’ having access to balanced and robust information. In line with research identified overseas, the Hillary (2019) survey indicates that environmentally certified homes sold for a premium of 2.3% more per star banding and provided their banding was higher than a reference home of similar type, stayed on the market for 24% less time than comparable unrated homes.

- Training and assistance set up around the delivery of the scheme has provided the real estate industry with specialised knowledge of ‘green building’ techniques and benefits. Real Estate agents are now better able to communicate the value and quality of higher performing houses.

Building Industry

- The rating system, and the information developed in support of it, has provided freely accessible insight as to the solutions to improve home performance, which has in turn encouraged innovation and market development.

- The rating scheme has also provided the homebuilding industry with a structured investment landscape – and greater certainty that the R&D required for higher performance products and building practices will pay off through greater valuation of homes.

- The single rating tool has become the repository for experts and industry to apply their efforts which has helped to avoid the inefficiency and confusion of developing competing tools.

Central Government

- The residential rating tool and the dialogue generated through it has provided a strong market mechanism to improve the quality and performance of NZ homes and thereby reduce the demand on precious energy and water resources. This has been critical for the resilience of NZ homes following the 2015 Oil Shock and during the Great New Zealand Drought of 2018.

- The rating tool has provided government with the means to signal to industry early, the likely standards which have since become mandatory in past reviews of Building Code. In this way the tool has helped to trial improvements to the Building Code well before they become a regulatory minimum – thus ensuring unintended consequences resulting from drafting of untested regulations could be avoided. With support from Government this has effectively provided a mechanism for consultation and decision-making under one scheme; as well as making the process both robust and transparent.

- The rating tool has helped to provide the framework to deliver government targets such as minimum energy performance standards (MEPS) for housing, New Zealand carbon zero emissions targets and the relatively new 100% renewable energy targets (as set out in the 2018 energy strategy).
LEVELS OF UPTAKE
Since the launch of the rating scheme in 2010 the tool has achieved a steady increase in the levels of uptake. This is shown in the graphs below for both the simple online system and the fully certified scheme.

Figure 2: Houses with a Self-Assessed Star Rating

Figure 2 above outlines the steady increase in the number of houses with a self-assessed rating. A clear jump in numbers is evident in 2016 when a mandatory level of 3 stars or above was required for all rental stock in New Zealand.

Figure 3 below indicates the numbers of houses with a fully certified rating. Uptake of certified ratings was slower at the beginning of the scheme but by 2015 the majority of all new houses being built in any one year were certified using the 0 – 10 star scheme.

Figure 3: Houses with a Fully Certified Rating
As Figure 2 and Figure 3 indicate, total numbers of assessments stand at this point (July 2020) at over 900,000 self assessed houses and over 180,000 fully certified dwellings. This represents well in excess of 60% of the New Zealand Housing stock and is indicative of the wide level of up-take of the scheme.

SHIFTING THE PERFORMANCE OF THE HOUSING STOCK
The following chart shown in Figure 4 indicates the shift that has occurred in new housing stock toward higher performing houses. As can be seen the overall performance of dwellings in relation to their star rating has shifted from a 1 to 2 star home when the scheme launched in 2010 through to far greater numbers of 7,8 and 9 star homes being built in 2020.

Figure 4: Star Rating of New Houses

CONCLUSION
The past ten years has indicated just how important the residential rating tool has proved to be for New Zealand. At the most recent 2019 Asia Pacific Economic Union meeting, New Zealand’s president took the opportunity to raise the profile of the rating tool and to speak about the approach toward sustainable high performance housing taken in New Zealand. The President provided an overview of housing and construction in New Zealand and described the effect of the rating tool and the associated approach as “one of the most extraordinary transformations in New Zealand’s history” (APEU proceedings, 2019).

Both industry and consumer surveys report high levels of satisfaction with the scheme. The high levels of take up suggest that the tool is achieving real success in the marketplace and has been the catalyst for unprecedented change. The rating system has also contributed to a range of other highly positive outcomes including better health for New Zealanders, wide scale job creation, economic / R&D stimulus, and of course, warmer, drier and more comfortable homes throughout the country. Thus the rating tool and the widespread industry support of higher performance building technologies and techniques has led to New Zealand now being seen as one of the most progressive residential sectors in the world - and a major exporter of sustainable construction technology.
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