In Confidence

Office of the Minister of Housing and Urban Development

Chair, Cabinet Social Wellbeing Committee

Preferred Options for the Healthy Homes Standards

Proposal

1 This paper seeks Cabinet agreement on the healthy homes standards for residential rental homes as required under the *Healthy Homes Guarantee Act 2017*. The analysis on the proposed standards has been informed by a cost benefit analysis undertaken by the New Zealand Institute of Economic Research (NZIER), input into the cost benefit analysis by the University of Otago, and feedback from public consultation on a discussion document that detailed options for each standard.

Executive Summary

- 2 Nearly a third of households (592,300) rent in New Zealand and a significant proportion of these rental homes are cold and damp.^{1,2} Evidence shows that rental homes are more likely to be in poorer condition than owner-occupied homes with low indoor temperatures and a high incidence of mould.³ Renters may lack the means to make particular changes to make their rental homes warmer and drier.
- 3 I am concerned about the health and social impacts of poor rental housing quality. A cold, damp, mouldy home is associated with ill health, particularly cardiovascular and respiratory illnesses, and other negative social outcomes.
- 4 In December 2017, this Government passed the *Healthy Homes Guarantee Act 2017* (HHGA), which amended the *Residential Tenancies Act 1986*. The HHGA enables healthy homes standards to be set to make rental homes warmer and drier. The standards cover heating, insulation, ventilation, moisture ingress and drainage, and draught stopping.
- 5 In March 2018, Cabinet further agreed that ensuring everyone has a warm and dry home is a priority in order to improve the wellbeing of New Zealanders and their families [CPC-18-MIN-0001 refers].

¹ Statistics New Zealand estimate of number of households in private occupied dwellings, as at quarter ended September 2018 <u>https://www.stats.govt.nz/information-releases/dwelling-and-household-estimates-september-2018-quarter</u>

² White, V. Jones, M., (2017) Warm, dry, healthy? *Insights from the 2015 House Condition Survey on insulation, ventilation, heating and mould in New Zealand houses.* SR372. BRANZ Ltd.

³ White, V. Jones, M., (2017) Warm, dry, healthy? *Insights from the 2015 House Condition Survey on insulation, ventilation, heating and mould in New Zealand houses.* SR372. BRANZ Ltd.

- 6 A number of options for the standards were developed in a discussion document and summary information, released for public consultation from 4 September to 22 October 2018 [CAB-MIN-0401.01 refers]. The discussion document evaluated the options for the standards against the following criteria:
 - 6.1 able to achieve the objective (warm, dry rental homes)
 - 6.2 costs and benefits to landlords and industry (time and money)
 - 6.3 costs and benefits to tenants (time and money)
 - 6.4 costs and benefits to government (clear and enforceable standards, court administration)
 - 6.5 enduring, flexible, and enabling adoption of future innovation and building solutions.
- 7 Following the conclusion of the consultation, submissions were analysed from a range of stakeholders. Broadly, tenants and health advocates supported the higher standards, while landlords and property managers tended to prefer the status quo or minimal change.
- 8 The options for the standards were evaluated against the same criteria in the discussion document in that they aim to be pragmatic and enduring, without imposing an unreasonable burden on landlords or tenants or industry. Landlords and suppliers need time to build resources to successfully implement the standards. Equally, tenants and wider society need to experience the benefits at the earliest opportunity.
- 9 The standards proposed reflect the feedback received through public consultation, the cost benefit analysis, qualitative and quantitative research, and further conversations with building industry researchers and experts. As a result of feedback during consultation, some standards have been clarified or modified to ensure the wording better reflects the policy intent, they are easy to understand and implement, and they are enduring.
- 10 Under the HHGA, the standards will be implemented between 1 July 2019 and 30 June 2024. I seek the approval of Cabinet to the proposed healthy homes standards, to ensure the healthy homes standards can be made and be in force in time, and that the necessary education and information material to support the changes can be developed.

Improving the quality of New Zealand's rental housing stock

At-risk groups in particular will benefit from the healthy homes standards

11 Damp, cold and mouldy rental homes are associated with ill health and other negative social outcomes.⁴ Poor quality homes raise the likelihood of contracting respiratory infections, and increase the severity of existing conditions (e.g. asthma), contributing to

⁴ Telfar Barnard, L.F. (2010) Home truths and cool admissions: New Zealand housing attributes and excess winter hospitalisation (University of Otago); Hirvonen M.R., Huttunen K., & Roponen M. (2005) Bacterial strains from mouldy buildings are highly potent inducers of inflammatory and cytotoxic effects. Indoor Air 15(s9), 65-70; Ormandy D., Ezratty V. (2012) Health and thermal comfort: from WHO guidance to housing strategies, Energy Policy 49(2012);

higher medical costs, avoidable hospitalisations, and winter deaths. At-risk groups include tenants in low-income households, ^{5,6,7} the elderly,⁸ children,^{9,10} and disabled persons.¹¹ Māori and Pacific peoples have the highest rates of renting, so are more likely to be impacted by cold, damp homes.¹²

12 I expect improving the quality of rental homes will address the needs of identified at-risk groups, as well as benefitting tenants and wider society through improved health and wellbeing, reduced pressure on publicly funded health and social services, improved school and work attendance and productivity, and reduced atmospheric carbon emissions.

The healthy homes standards recognise the integrated nature of a home system

13 The proposed standards work together to have a cumulative effect of creating a warmer, drier rental home. Table 1 details the specific questions posed in the discussion document, released on 4 September 2018, to determine the proposed standards:

⁵ Witten K, Wall M, Carroll P, Telfar-Barnard TL, Asiasiga L, Graydon-Guy T, Huckle T & Scott K (2017), The New Zealand Rental Sector. Study Report ER22. BRANZ Ltd and Massey University SHORE and Whariki Research Centre

⁶ Howden-Chapman P., Viggers, H., Chapman, R., O'Sullivan, K., Barnard, L.T., & Lloyd, B. (2012). Tackling cold housing and fuel poverty in New Zealand: a review of policies, research and health impacts. Energy Policy, 49, p. 135-136.

⁷ Davie GS, Baker MG, Hales S & Carlin JB (2007), Trends and determinants of excess winter mortality in New Zealand: 1980-2000; BMC Public Health 2007,7.

⁸ Telfar Barnard L & Preval N (2018) *Healthy Homes Guarantee Standard Cost Benefit Input: Warm Up New Zealand evaluation rental sector sub-analysis: differences in health events and costs by existing insulation status;* Housing and Health Research Programme, University of Otago Medical School, Wellington May 2018.

⁹ Ministry of Health data as at 8 August 2018; "children" are counted as 'individual person' by the Ministry of Health and are aged under 15 years old in this dataset. "Hospitalisations" are counted as 'hospital events' by the Ministry of Health. A person can have more than one hospitalisation in a year. This figure has been relatively stable since 2014. To note, only the medical conditions of 'Pneumonia', 'Acute bronciolitis', 'Unspecified LRTI+Bronchitis', 'Bronchiectasis' and 'Asthma' are "potentially housing related" rather than all respiratory diseases in children.

¹⁰ Somerville M, Mackenzie I, Owen P & Miles D (2000) Housing and health: does installing heating in their homes improve health of children with asthma? Public Health, 114(6).

¹¹ Statistics New Zealand (2013) Disability and housing conditions: 2013: Wellington: Statistics New Zealand

¹² Statistics New Zealand Census data 2013; Europeans have the higher homeownership rate at 57% compared with Māori at 28% and Pacific peoples at 19% as at 2013

Standards	Options
Heating	 Location: where in the rental home should landlords be required to provide heating? Option One: in the living room only Option Two: in the living room and bedrooms Indoor temperature: what achievable indoor temperature should heating devices be sized for?
	 Option One: heaters that landlords provide must be capable of achieving an indoor temperature of at least 18°C in rooms applicable to the heating standard Option Two: heaters that landlords provide must be capable of achieving an indoor temperature of at least 20°C in rooms applicable to the heating standard
	Heating devices: should landlords only be required to provide heating devices where portable electric heaters are not capable of achieving the required indoor temperature? • Option One: landlords provide fixed heating devices only • Option Two: landlords provide fixed and portable heating devices
	Acceptable devices: should we not accept particular heating devices where we know they are inefficient, unaffordable, and unhealthy?
Insulation	 Minimum level installed: what minimum level of insulation should be required for a rental home? Option One: minimum level for existing insulation akin to the 1978 insulation standard/new insulation being installed to the 2008 Building Code (the status quo) Option Two: a higher minimum level of ceiling and underfloor insulation than the status quo, where the minimum level for existing insulation is akin to the 2001 Building Code/new insulation is akin to the 2001 Building Code/new insulation is akin to the 2008 Building Code Option Three: an even higher minimum level of ceiling and underfloor insulation is akin to the 2001 Building Code/new insulation is akin to the 2008 Building Code Option Three: an even higher minimum level of ceiling and underfloor insulation is akin to the 2008 Building Code Option Three: an even higher minimum level of ceiling and underfloor insulation, where the minimum level for both existing and new insulation is akin to the 2008 Building Code Degradation levels: what should be the appropriate level that insulation can degrade over time before it needs to be replaced? Option One: insulation can settle or degrade by about 30% before it is in an unreasonable condition Option Two: insulation can settle or degrade by up to and around 10% before it is in an unreasonable condition
Ventilation	 What is the appropriate method of ventilation? Option One: the status quo every bathroom has at least one window that directly opens to the outside air unless other adequate means of ventilation are provided to the satisfaction of the local authority each habitable room must be constructed with windows with an area amounting to not less than one twentieth part of the area of the floor can be opened for the admission of air every room which is not habitable shall be provided with a window or windows that the local authority considers necessary for adequate ventilation Option Two: openable windows in the living room, dining room, kitchen, and bedrooms, unless an exception applies, and appropriately sized and installed extractor fan(s) in rooms with a shower or bath Option Three: openable windows as for Option Two, and appropriate sized and installed extractor fan(s) in rooms with a shower, bath, or indoor cooktop

Table 1: Healthy homes standards options for public consultation

Standards	Options
Moisture ingress and drainage	 How should landlords protect rental homes against moisture entering the home and inadequate drainage? Option One: the status quo every house shall, to the extent the local authority deems necessary, be provided with efficient drainage for the removal of storm water, surface water and ground water every house shall be provided with gutters, downpipes and drains for the removal of roof water to the satisfaction of the local authority timber floors shall have adequate space and vents to ensure proper ventilation to protect the floor from damp and decay Option Two: landlords must ensure efficient drainage and guttering, downpipes and drains at their rental home, and ensure the subfloor has a ground moisture barrier, unless there is already adequate subfloor ventilation
Draught stopping	 What appropriate measures should be taken to stop unnecessary draughts making the indoor temperature colder? Option One: the status quo the walls and ceiling of every habitable room, bathroom, kitchen, kitchenette, hall and stairway shall be sheathed, plastered, rendered or otherwise treated, and shall be maintained to the satisfaction of the local authority every floor shall be kept in a good state of repair, free form crevices, holes and depressions Option Two: landlords must block any unused fireplaces and chimneys and stop any unnecessary gaps or holes that cause noticeable draughts and a colder home, and are 3mm or greater in and around windows and doors, walls, ceilings, floors, and access hatches
Compliance timeframe	 When and how should the healthy homes standards be implemented? Option One: landlords must comply with the standards within 90 days of a new or renewed tenancy starting after a single compliance date, with all rental homes compliant by 30 June 2024 Option Two: a single compliance date Option Three: stagger compliance dates between 1 July 2019 and 30 June 2024, either by the standard or the location of the rental home

A variety of submissions were received during the public consultation process

- 14 The discussion document was released for public consultation from 4 September to 22 October 2018. 1,777 submissions were analysed from a range of stakeholders, of which 862 were written submissions or phone calls, and 915 were received through an online survey. A summary of the submissions is attached as Annex One, and will be proactively released in 2019.
- 15 The largest proportion of submissions received were from tenants (44%), followed by landlords (38%). Submissions were also received from a range of stakeholders, including social housing providers, equipment suppliers and installers, public health experts, researchers, engineers, building inspectors, and home performance advisors. Many of the submitters were also affiliated with Māori interests.

- 16 Broadly, tenants and health advocates were more likely to support higher standards, while landlords and property managers were more likely to support the status quo.
- 17 A few ideas were raised during consultation that fell outside the immediate scope of the healthy homes standards, however the ideas were still considered in the analysis. The consideration of these comments is detailed in Annex Two.

The Recommended Healthy Homes Standards

The current law for rental homes

- 18 Rental homes are primarily regulated under the *Housing Improvement Regulations* 1947 (the HI Regulations), the *Building Act 2004*, and the *Residential Tenancies Act 1986* (the RTA).
- 19 The HHGA amends the RTA to enable healthy homes standards to be made about indoor temperature, heating, insulation, ventilation, moisture ingress and drainage, and draught stopping, to improve the quality of rental homes.
- 20 In determining the proposed heathy homes standard, each option was considered against a number of objectives. The objectives seek to strike a balance between the costs and the benefits of these proposals to ensure the regulations reflect the outcome of the public consultation, and are enduring and fit-for-purpose:
 - 20.1 tenants experience the benefits from warmer, drier homes, and can understand landlords' obligations, to allow them to raise issues with the landlord or the Tenancy Tribunal
 - 20.2 landlords can clearly understand their obligations and have time to prepare to comply with their new responsibilities, and costs on landlords are reasonable
 - 20.3 suppliers have clear and certain requirements to build capacity to help implement the standards
 - 20.4 government sees the benefits from warmer, drier homes through less reliance on public services (such as the reduced use of publicly funded health services), and has clear requirements to ensure higher compliance and reduce administrative burden
 - 20.5 the standards are enduring, flexible, and enable adoption of future innovation and building solutions
- 21 In determining the proposed healthy homes standards, officials have analysed all submissions and considered the options against the above assessment criteria and the cost benefit analysis prepared by the New Zealand Institute of Economic Research (NZIER). In some cases, officials have also sought clarity on specific points from building and industry experts, such as the Building Research Association of New Zealand (BRANZ).

22 In all cases, the standards will also ensure the condition of devices, appliances and products are safe, well maintained, and consistent with other expectations in the RTA.

Heating standards

- 23 Many New Zealand rental homes' winter indoor temperatures are colder than recommended by World Health Organisation guidance.¹³ Cold homes are associated with poor health, higher rates of winter death, and negative social outcomes. Heating can reduce illness by maintaining a healthy air temperature, lowering relative humidity and dampness, and reducing the risk of mould and fungi.¹⁴
- 24 Feedback was sought on four areas under the heating standard:
 - 24.1 Location: should landlords be required to provide heating in the living room only, or the living room and bedrooms?
 - 24.2 Indoor temperature: should heating devices be capable of achieving an indoor temperature of 18°C or 20°C?
 - 24.3 Heating devices: should landlords be required to provide fixed heating devices only, or fixed and portable heating devices?
 - 24.4 Acceptable or unacceptable devices: should we not accept particular heating devices known to be inefficient, unaffordable, and unhealthy?
- 25 An online tool will be developed to assist landlords and tenants in determining the type and capacity of heating device needed to achieve the appropriate indoor temperature, based on such things as the level of insulation, the size and type of windows, and location (climate zone) of the house. The tool is intended to be user-friendly, downloadable and printable, and easily accessible for landlords and tenants.
- 26 I propose the overall heating standards be: landlords provide fixed heating devices that are capable of achieving an indoor temperature of 18°C, with a minimum capacity of no less than 1.5 kilowatts, with a thermostat for electric heaters, in the living room only (including open plan spaces). I also propose a list of heating devices that are considered to be not acceptable for the heating standard. The rationale for this is provided below.

Location: where in the rental home should landlords be required to provide heating?

27 Currently, the *Housing Improvement Regulations 1947* require every 'living room' to be fitted with a fireplace and chimney or other approved form of heating.¹⁵ The BRANZ 2015

¹³ World Health Organisation (1087) Health Impacts of Low Indoor Temperature: Report on a WHO meeting, Copenhagen 11-14 November 1985, Copenhagen: WHO

¹⁴ WHO Regional Office for Europe. 2009. Guidelines for Indoor Air Quality; Dampness and Mould. Copenhagen: WHO

¹⁵ Regulation 6 of the Housing Improvement Regulations 1947

House Condition Survey found that 22 percent of New Zealand rental homes have no fixed heating, compared to 7 per cent of owner occupied properties with no fixed heating.¹⁶

- 28 Two options were put forward in the discussion document:
 - Option One: in the living room only (including kitchen and dining room if open plan rental home)
 - Option Two: in the living room and bedrooms.
- 29 The majority of respondents (mostly tenants) considered that landlords should be required to provide heating in living room(s) and bedrooms, citing factors such as the risk of illness and overcrowding. The majority of landlords and property managers supported the option to heat the living room only due primarily to cost factors. Both landlords and tenants commented on the possibility that fixed heating may be a large cost imposition on landlords if not used where cannot afford the running costs.
- 30 Table 2 summarises the analysis of the two options considered for the location of the heating device. The summary incorporates the information from the cost benefit analysis, other quantitative and qualitative research, and the high level comments from public consultation.

¹⁶ White, Jones M (2017) *Warm, dry, healthy? Insights from the 2015 House Condition Survey on insulation, ventilation, heating and mould in New Zealand houses.* SR372. BRANZ Ltd

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Options	Advantages ¹⁷	Disadvantages
Option One recommended Landlords provide a heating device in the living room only (includes kitchen and dining room if open plan rental home)	 Estimate of 179,000 (18°C) to 285,200 (20°C)¹⁸ homes would receive new heaters in living rooms, or use their existing living room heating more¹⁹ Benefits per affected household of \$3,741(18°C)-\$2,681(20°C). Cost benefit ratio of 1.34(18°C)-1.28 (20°C). Net present value (NPV) of \$168 million if heated to 20°C. Some benefits could not be quantified²⁰ Tenants that use heating may gain health benefits Landlords will have a clear, modern standard to comply with Government / taxpayers likely to benefit from less demand on publicly funded services (such as health) and reductions in carbon emissions from more efficient heating devices Tenants who are currently using heating may see a reduction in energy costs Portable electric heaters will be sufficient for most bedrooms (average purchase cost is \$30-50 including GST), and tenants can provide these themselves 	 Landlords incur cost for new heating if not already provided. The average installed cost for a medium-sized heat pump of 5-7 kilowatts is about \$3,000-3,500 including GST²¹ Tenants who are not currently using heating may see an increase in energy costs At risk groups - children and the elderly - may continue to live in rental homes that are not able to achieve the necessary temperature in bedrooms for their particular needs Relative to option two, there may be an increased risk that people will (functionally) crowd into one heated room to live and sleep increasing the risk of infectious disease transmission Tenants continue to experience higher energy costs if they need to heat larger bedrooms with less effective and more costly to operate, portable heating devices In some rental homes, portable heaters will be insufficient to heat certain bedrooms, so tenants will not be able to heat these bedrooms to the appropriate temperature unless the landlord voluntarily provides adequate fixed heating

Table 2: Summary of options for location of heating device

¹⁷ Estimates and costings based on NZIER (2018) cost benefit analysis of proposed healthy homes standards.

¹⁸ This figure relates to the assumption that the home will be heated to 18°C. If the home is heated to 20, the number will be 285,200 houses

¹⁹ Modelling assumes 50% of households pursue target temperature.

²⁰ The cost benefit analysis does not include unquantifiable benefits such as subjective wellbeing, effects on mental health and reductions in school absences and property maintenance.

²¹ As a present value, discounted over 15 years at 4% this cost including maintenance would be \$2,800 GST exclusive per affected household.

Options	Advantages ²²	Disadvantages
Option Two	 Living rooms: option one above states benefits of heating living rooms 	 Landlords incur cost for new heating if not already provided.
Landlords provide a heating device in the living room(s) and the bedrooms	 Bedrooms: an estimate of 71,300 (18°C) -125,900 (20°C) homes¹⁷ would receive new heaters in bedrooms or use existing bedroom heating more. Benefits per affected household from bedroom heaters are \$58 (18°C) -\$194 (20°C) with a benefit cost ratio of 0.26 (18°C) – 0.8 (20°C)²³ 	 Larger living rooms will require fixed heating (e.g. heat pump) at about \$3,000-3,500 including GST Tenants who are not currently using heating may see an increase in energy costs
	 Combined living/bedroom: cost benefit ratio of 1.30 (18°C) – 1.26 (20°C). Some benefits could not be quantified²⁴ 	
	 Tenants that use heating in bedrooms may gain health benefits 	
	 Government / taxpayers likely to benefit from less demand on publicly funded services, reductions in carbon emissions due to more efficient devices being used 	

- 31 I propose the specific standard be Option One: in the living room only (including open plan areas). Most living rooms are of a size that would require fixed heaters of a higher capacity than portable heaters, which tenants cannot provide or are not permitted and unlikely to install themselves, and living rooms are the most heated rooms in a rental home, with bedrooms less commonly heated. Tenants would be able to heat their living room to a healthy temperature and therefore are likely to experience a warmer home and a consequential reduction in ill health.
- 32 General public health advice is that people benefit from heating in bedrooms, particularly in winter months. With this proposed standard, tenants can continue to provide their own portable heating devices for their bedrooms, and government assistance is available where necessary. Tenants should also experience an improvement in the quality of their overall living environment from the standards working together to create a warm and dry rental home.

Indoor temperature: what indoor temperature should heating devices be sized for in a rental home?

33 The World Health Organisation (WHO) recently released new housing and health guidelines that recommend and minimum indoor temperature of 18°C for the general population, noting indoor temperatures higher than 18°C may be necessary for vulnerable

²² Estimates and costings based on NZIER (2018) cost benefit analysis of proposed healthy homes standards.

²³ See Table 8, p. 21 of NZIER (2018) cost benefit analysis for the heating standard. The total benefits (\$4,155m) have been divided by the properties affected (71,373) = \$58.

²⁴ Cost benefit analysis does not include some benefits that were unquantifiable such as subjective wellbeing, effects on mental health and reductions in property maintenance.

groups, including older people, children and those with chronic illnesses, particularly cardiorespiratory disease.²⁵

- 34 Data from a BRANZ study indicates that, during the winter months, mean living room temperatures in New Zealand fall below the recommended range.²⁶ During the day, living room and bedroom mean temperatures are typically 15.8°C and 14.2°C respectively, and fall to 13.5°C and 12.6°C respectively overnight.
- 35 Two options were put forward in the discussion document. Note Option 2 was formulated using previous WHO guidance, which recommended indoor temperatures of at least 20°C for vulnerable groups.²⁷
 - Option One: heaters that landlords provide must be capable of achieving an indoor temperature of **at least 18°C** in the rooms applicable to the heating standard
 - Option Two: heaters that landlords provide must be capable of achieving an indoor temperature of **at least 20°C** in the rooms applicable to the heating standard
- 36 The majority of tenants chose 20°C, noting a higher temperature would be particularly important for children and the elderly who are more susceptible to illness related to a cold home. Those that supported 18°C as an achievable indoor temperature considered this to be a temperature that is realistic, adequate and achievable, and applicable to the general population. The 18°C temperature was supported by the majority of landlords.
- 37 The creation of an online tool was widely favoured as a proactive and simple way to guide landlords to understand and meet the necessary requirements. The formula within the online tool, and within the guidance information, expects the required indoor temperature can be reached within a reasonable time, and compensates for particular characteristics of the house and the average outside temperature.
- 38 Table 3 summarises the analysis of the two options considered for the indoor temperature. The summary incorporates the information from the cost benefit analysis, other quantitative and qualitative research, and the high level comments from public consultation.

²⁵ WHO Housing and health guidelines. Geneva: World Health Organization; 2018. Licence: CC BY-NC-SA 3.0 IGO.

²⁶ BRANZ (2010) Energy Use in New Zealand Households: Final Report on the Household Energy Enduse Project, BRANZ Study Report SR221: the Household Energy End-use Report

²⁷ WHO (1987) Health Impact of Low Indoor Temperatures: Report on a WHO meeting, Copenhagen 11-14 November 1955, Copenhagen WHO

Options	Advantages ²⁸	Disadvantages
Option One (recommended) Heaters that landlords provide must be capable of achieving an indoor temperature of at least 18°C in the rooms applicable to the heating standards	 Estimate of 179,000 homes would receive new living room heaters or use their existing heating more²⁹. Benefits per affected household of \$3,741.³⁰ Cost benefit ratio of 1.34. Some benefits could not be quantified³¹ Bedrooms: Estimate of 71,300 homes would receive new heaters in bedrooms or use their existing heating more. Benefits per affected household \$58 with a benefit cost ratio of 0.26 Combined living room/bedroom: cost benefit ratio of 1.30. Some benefits could not be quantified³² Homes where heating is upgraded will be capable of meeting a healthy temperature under this option Tenants are likely to benefit from improved health and lower energy bills Fewer landlords are likely to need to incur costs compared to option two. Landlords will have a clear and modern standard to comply with Government/taxpayers likely to benefit from less demand on publicly funded services, reductions in carbon emissions Heaters that have capacity to reach 18°C even during very cold weather are capable of reaching higher temperatures most days of the year 	 At risk groups - children and the elderly - may continue to live in rental homes that are not able to achieve the necessary temperature for their particular needs

Table 3: Summary of options for a minimum indoor temperature of 18°C or 20°C

²⁸ Estimates and costings based on NZIER (2018) cost benefit analysis of proposed healthy homes standards.

²⁹ Modelling assumes 50% of households pursue target temperature.

³⁰ The total benefit is calculated using NZIER (2018) cost benefit analysis for the heating standard. Total benefit (669,950 divided by 179,071) equals \$3,741.

³¹ Cost benefit analysis does not include some benefits that were unquantifiable such as subjective wellbeing, effects on mental health and reductions in property maintenance.

Options	Advantages ²⁸	Disadvantages
Option Two Heaters that landlords provide must be capable of achieving an indoor temperature of at least 20°C in the rooms applicable to the heating standards	 Living rooms: Estimate of 285,200 homes would receive new heaters in living rooms, or use their existing living room heating more. Benefits per affected household of \$2,681. Cost benefit ratio of 1.28. Some benefits could not be quantified³³ 	 Landlords would be upgrading their homes to a higher standard, regardless of the needs of the tenant The higher temperature will be more than what is required by most of the general population to avoid ill health
	 Bedrooms: Estimate of 125,900 homes would receive new heaters in bedrooms or use their existing heating more. Benefits per affected household \$194 with a benefit cost ratio of 0.80 	
	 Combined living room/bedroom: cost benefit ratio of 1.26. Some benefits could not be quantified²⁸ 	
	 Tenants, including at-risk groups, will have heating capable of achieving the necessary temperature for their particular needs at all times of the year 	
	 Landlords will have clear, modern standards to comply with 	

- 39 I propose the specific standard be Option One: heaters that landlords provide must be capable of achieving an indoor temperature of at least 18 °C (in the living room). Heating devices capable of achieving 18°C will be capable of achieving 20°C the majority of the time, except on a few exceptionally cold days during the year where they may not be able to operate as efficiently.
- 40 This is also consistent with the new WHO guidelines (released November 2018), which only refer to the 18°C option, and no longer refer to the 20°C option.

Heating devices: what heating devices should landlords provide in rental homes?

- 41 In order to achieve the required indoor room temperatures, a fixed heating devices may be necessary. An online tool and information material will be developed to assist landlords and tenants to determine the adequate device(s) required, depending on the characteristics of the home (such as room size, existing insulation levels, window type and size of glazing, and so on).
- 42 Two options were put forward in the discussion document:
 - Option One: landlords provide fixed heating devices only, in the room(s) covered by the heating standard
 - Option Two: landlords provide fixed and portable heating devices in the room(s) covered by the heating standard
- 43 The majority of respondents considered that fixed heating devices were most appropriate given they were most likely to be efficient, healthy and affordable. The majority of landlords and some tenant advocacy groups were of the view that portable heating devices that are not easily secured could be stolen or taken in error, those portable devices are relatively

³³ The cost benefit analysis does not include unquantifiable benefits such as subjective wellbeing, effects on mental health and reductions in school absences and property maintenance.

cheap for tenants to purchase, and that tenants had personal preferences on the types of portable heating.

44 Table 4 summarises the analysis of the two options considered for whether landlords should provide fixed, or fixed and portable, heating devices.

Options	Advantages ³⁴	Disadvantages
Option One Landlords only provide fixed heating devices in cases where portable electric heaters are insufficient to heat the required rooms	 Landlords would incur only the cost of providing and maintaining a fixed heating device(s) Tenants have the choice and discretion on the design and type of portable electric heating they use Landlords would avoid investing in the types of heaters that tenants already own and can easily provide themselves Portable electric heaters are present in about half of all rentals³⁵ 	 Landlords would incur new cost for heating if not already provided, e.g. average installed cost for a medium sized heat pump of 5-7 kilowatts is about \$3,000-3,500 incl GST, with annual maintenance costs of \$20- 100 Less likely to meet the objective of a warm, dry home where tenants are unable to provide their own portable heater (estimated cost of \$30-\$50) Tenants may need to seek financial assistance to purchase portable heaters if required
Option Two Landlords must provide fixed and portable heating devices to heat the required rooms	 This option is more likely to meet the objective of warm and dry home where tenants are unable to afford their own portable heater All tenants, including those who cannot afford to buy a portable heater, can still heat a room to the appropriate indoor temperature, and so are more likely to experience health benefits 	 Landlords incur higher capital costs for this option to provide both fixed and portable heating devices. E.g. average installed cost for a medium sized heat pump of 5-7 kilowatts is about \$3,000-3,500 incl GST, and average cost per portable heater is about \$30-50, with maintenance costs of \$20-100 per year for heat pumps
Modified Option Two Landlords must provide fixed heating devices of a minimum capacity of no less than 1.5 kilowatts, with thermostat for electric heaters	 This option is more likely to meet the objective of warm and dry home where tenants are unable to afford their own portable heater All tenants, including those who cannot afford to buy a portable heater, can still heat a room to the appropriate indoor temperature, and so are more likely to experience health benefits The standard is clearly understood and easy to enforce 	 Landlords incur higher capital costs for this option to provide small and large fixed heating devices. E.g. average installed cost for a medium sized heat pump of 5-7 kilowatts is about \$3,000-3,500 incl GST, and average cost per fixed small heater is about \$110 installed, with maintenance costs of \$20-100 per year for heat pumps An additional 120,000 homes (estimated) will require a new fixed heating device where portable were previously used There may not be additional health benefits where portable devices were previously used

Table 4: Summary of options for fixed, or fixed and portable heating devices

³⁴ Estimates and costings based on NZIER (2018) cost benefit analysis of proposed healthy homes standards.

³⁵ White V, Jones M (2017) op cit

- 45 I believe fixed, modern, affordable heating devices will make the biggest step change to achieving the outcome of warmer, drier homes. I propose the specific standard be **Modified Option Two: landlords should be required to provide fixed heating devices of a minimum capacity of no less than 1.5 kilowatts with a thermostat for electric heaters** (that is capable of achieving an indoor temperature of at least 18°C in the living room only).
- 46 A minimum capacity of no less than 1.5 kilowatts will mean most rental homes will have a modern, affordable fixed heating device in the living room, and that the living room is able to achieve the indoor temperature of 18°C reasonably quickly. Electric heaters will have thermostats to enable tenants to operate these efficiently to help manage their running costs.
- 47 The calculation within the online tool will set a threshold that will require a fixed heating device able to achieve the minimum indoor temperature on the coldest days of the year. This will mean most homes will likely require a fixed heating device, with some exceptions which are detailed later in this paper.

Should we accept some heating devices and not others?

- 48 A large proportion of New Zealand rental homes have no heating device(s), or have inadequate, costly to operate or unhealthy heating available for tenants to reach a required indoor temperature.³⁶
- 49 Some rental properties may have existing heating devices that have sufficient capacity to meet the minimum temperature, but could be less cost-effective to run than modern appliances, meaning tenants may be unlikely to use them and therefore miss out on the health benefits of a warmer home. Existing heating devices may also generate moisture and toxic combustion gases, resulting in mould and indoor air pollution and contributing to poor health outcomes.
- 50 The discussion document sought feedback on whether the heating standard should be set so that unhealthy, inefficient, or unaffordable devices would not meet the standard.
- 51 Submitters were broadly in support of the need to ensure the heating devices in rental homes are efficient, healthy and affordable for tenants.
- 52 The discussion document also asked if particular forms of heating devices should be considered 'not acceptable' in the heating standard, as these devices are particularly inefficient, unaffordable, and unhealthy to run. The heating standard could be set so that these heating devices would not meet the standard.
- 53 I consider the following heating devices would not be acceptable to meet the heating standard:
 - **unflued combustion heaters**, including gas and kerosene heaters, as these release moisture and toxic gases in the air and are one of the most expensive heating options
 - **open fires**, as these generally operate between 5 to 15 per cent efficiency, with the majority of heat escaping through the chimney, and they significantly contribute to indoor and outdoor air pollution

³⁶ White, V. Jones, M (2017) op cit

- all electric heaters (except heat pumps) with a heating capacity of greater than
 2.4 kilowatts because they are expensive to run and reduce the likelihood of tenants using them
- **multiple portable electric heaters in one room** with a combined capacity greater than 2.4 kilowatts, because they could overload electrical wiring, cause fire hazards, and are expensive to run and thus reduce the likelihood of tenants using them
- 54 The advantages of not accepting certain heating devices include:
 - 54.1 landlords do not incur capital costs on inefficient, unaffordable or unhealthy heating devices
 - 54.2 tenants are not exposed to noxious gases or particular emissions
 - 54.3 tenants see a reduction in energy costs on their primary heating if replaced by devices that are more affordable and efficient to operate
 - 54.4 government and the public benefit from acceptable heating devices through a reduction in carbon emissions, and from improved heating behaviours through less demand on publicly funded health and social services
- 55 There was a high level of agreement from respondents that these forms of heating devices should be considered as 'not acceptable' in the heating standard, particularly unflued heaters.
- 56 Heating devices must also meet the emission and efficiency requirements set in the National Environmental Standards for Air Quality.
- 57 I propose the standard include a list of heating devices that are considered unacceptable to satisfy the heating standard because they are inefficient, unaffordable to operate, and unhealthy to run.

Exceptions in the heating standard

- 58 Some homes may not require a fixed heating device, due to the nature of their design, or, in some instances, it may not be possible to install a fixed heating device.
- 59 I propose a number of simple exceptions be included in this standard that would exempt certain rental properties from requiring a fixed heating device. These exceptions would include:
 - 59.1 certified passive houses, which are usually designed to maintain an indoor temperature of 20°C, and so a fixed heating device is not required to maintain a comfortable indoor temperature throughout the year
 - 59.2 rental properties that are part of a Body Corporate under the *Unit Titles Act*, where the body corporate rules do not allow a heating device above 2.4 kilowatt to be installed;
 - 59.3 s 9(2)(f)(iv)
 - 59.4 the landlord intends to demolish or substantially rebuild the home within 12 months and applied for any necessary resource consent or building consent s 9(2)(f)(iv)

59.5 for 12 months from the date the tenancy commences, if the tenant is the former owner of the home, e.g. compulsorily acquired properties by the New Zealand Transport Agency in areas designated for roading projects

Insulation standard

- 60 Many rental homes do not have adequate insulation to retain heat. Therefore, they are more likely to be cold, damp and mouldy. Insulation in the ceiling and underfloor of a home helps to retain heat, keeps a home warm during cooler periods, and reduces heat gain in warmer months.
- 61 Ceiling and underfloor insulation can be fairly easily retrofitted where rental homes have accessible roof and/or subfloor spaces. In contrast, retrofitting wall insulation and double glazing is more costly and often involves considerable building work. For this reason, current insulation requirements and the options proposed in the discussion document were limited to requirements for ceiling and underfloor insulation retrofitting.
- 62 Feedback was sought on two areas under the insulation standard:
 - Minimum level installed: what should be the minimum level of ceiling and underfloor insulation installed in rental homes:
 - Option One: (status quo) minimum level for existing ceiling and underfloor insulation akin to the 1978 insulation standard, and new insulation being installed to the 2008 building code
 - Option Two: a higher minimum level of ceiling and underfloor insulation than the status quo, where the minimum level for **existing** insulation is akin to the **2001** Building Code, and **new** insulation is akin to the **2008** Building Code
 - Option Three: an even higher minimum level of ceiling and underfloor insulation, where the minimum level for both existing and new insulation is akin to the 2008 Building Code
 - Reasonable condition: what should be the appropriate level that insulation can degrade over time before it needs to be replaced:
 - Option One: insulation can settle or degrade by about 30% before it is in unreasonable condition
 - $_{\odot}$ Option Two: insulation can settle or degrade by up to and around 10% before it is in unreasonable condition
- 63 I recommend the insulation standards be modified to combine the minimum level of insulation installed (Option Three) and the reasonable condition (Option One), so that the standard for ceiling and underfloor insulation would be **based on the 2008 Building Code OR, for ceiling insulation, a minimum thickness of insulation of 120mm.** The rationale for this is provided below.
- 64 For the minimum level of insulation installed, the majority of submitters, driven by tenant respondents, supported the minimum level installed described in Option Three. They noted that it made sense to use the current Building Code requirements for best outcomes. Landlords and property managers were more likely to support Option One for the minimum level installed. For this group of respondents, the existing standards were sufficient and

many had already upgraded their insulation to comply with existing requirements. Only a few landlords and property managers supported Option Two.

- 65 For the level of reasonable condition, a majority of submitters, driven by tenant respondents, supported the degradation level detailed in Option Two, with the main themes being that there would be health benefits for tenants and lower heating costs. Those in support of Option One considered the current rules easy to understand and apply. The majority of submitters also expressed the view that the current exceptions should continue (such as accessibility into the roof cavity).
- 66 Tables 5 and 6 summarise the analysis of the two options considered for the minimum level of insulation installed and for reasonable condition. The summary incorporates the information from the cost benefit analysis, other quantitative and qualitative research, and the high level comments from public consultation.

Options Adv	vantages ³⁷ Dis	sadvantages
Minimum level	installed	
Option One (status quo) Akin to 1978 Building Code for existing, and 2008 Building Code for new	 Landlords incur less capital costs and do not need to understand new obligations Most tenants will at least have some level of ceiling and underfloor insulation in their rental home, and be experiencing health benefits and some energy savings (compared to those without insulation) Government may incur less cost compared to the other options to communicate the requirements Government may benefit from less demand on publicly funded services 	 Tenants in rental homes with some, but not optimal, levels of insulation are not targeted under this option so may miss out on the benefits from insulation improvements to their home. This could lead to negative health outcomes and higher heating costs than the other options If a more stringent level of 'reasonable condition' for insulation was applied, an estimated additional 40,000 rental homes would require ceiling insulation top up
Option Two Akin to 2001 Building Code for existing and 2008 Building Code for new	 A higher number of rental homes (10,000-70,000), depending on how 'reasonable condition' is assessed will benefit from an insulated rental home than Option One so it is likely that more rental homes will be warmer and drier Benefits per affected household of about \$2,056. Cost benefit ratio of 1.54 Tenants potentially experience reduced costs from improved health and lower energy bills Government and taxpayers benefit from homes being able to be heated more efficiently, leading to a reduction in carbon emissions, and less demand on publicly funded services in health and social support 	 More landlords will incur capital costs to purchase and install ceiling insulation top ups (estimated average of \$1,665 including GST)³⁸. An estimate of 10,000-70,000 homes would require ceiling insulation top up, depending on how 'reasonable condition' is assessed Government will likely incur greater costs to develop and deliver an information and education campaign and assist with enforcement

Table 5: Summary of options for minimum level of insulation installed

³⁷ Estimates and costings based on NZIER (2018) cost benefit analysis of proposed healthy homes standards.

³⁸ Energy, Efficiency and Conservation Authority, *Warm Up New Zealand Programme* 2017 average cost of ceiling top up including GST