New Zealand Green Building Council

Submission on the Proposed Auckland Unitary Plan (HOMESTAR)

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Email info@nzgbc.org.nz
Phone +64 9 3793996
Web www.nzgbc.org.nz
Post PO Box 5286 /
Wellesley St / Auckland /
New Zealand

NZGBC NEW ZEALAND GREEN BUILDING COUNCIL

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1. Thank you for the opportunity to make a submission on the Proposed Auckland Unitary Plan.

2. As the fastest growing region in Australasia, Auckland's population is set to increase from 1.46 million people to 2.10 million people by 2040. To accommodate this growth it is anticipated that 330,000 new dwellings will be needed, in addition to a significant increase in commercial buildings and infrastructure. It is crucial that this growth occurs in the most sustainable way possible to safeguard the environment and contribute towards the vision of Auckland becoming the world's most liveable city.

INTRODUCTION

Introducing NZGBC

3. The New Zealand Green Building Council (NZGBC) is a not-for-profit industry organisation which leads green building initiatives in New Zealand. NZGBC was established in 2007 by the New Zealand building & construction and property sectors who sought to develop a group that recognised and rewarded (by way of rating tools) building best practice.

4. Our members include industry leaders committed to developing market based solutions that help deliver environmentally sustainable, innovative buildings for New Zealand. Our vision is that New Zealanders live, work and play in healthy, efficient, productive and sustainable buildings, today and into the future. To date the NZGBC has successfully introduced:
   - the suite of Green Star NZ rating tools for encouraging best practice in office, industrial, education and office fit out projects – with 100 certifications across New Zealand,
   - the Homestar residential rating tool with agreements in place for 700 certifications across New Zealand and 16,000 completed self-assessments online,
   - the BASE introductory level green building standard for the Christchurch rebuild,
   - the NABERSNZ energy performance rating tool for office buildings in collaboration with EECA Business.

5. NZGBC has also trained 991 people in Green Star (accredited professional and practitioner), 486 people in Homestar (practitioner and assessor and homecoach), and 89 people in the NABERSNZ rating tool (assessor and practitioner).

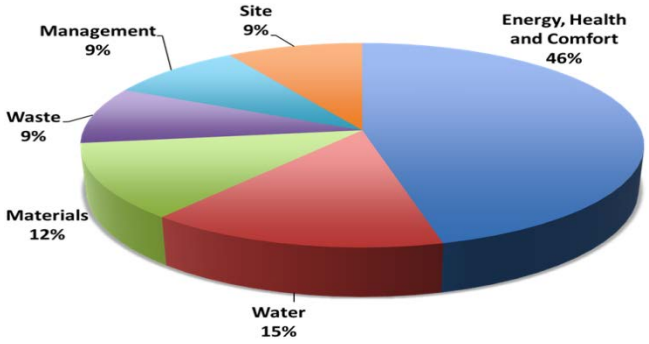
Introducing Homestar

6. Homestar is a comprehensive, national, voluntary residential rating tool that evaluates the environmental attributes of New Zealand's stand-alone homes in terms of energy, health and comfort, water, waste and more. Homestar is a joint venture between NZGBC and BRANZ. NZGBC has the management contract to maintain and administer Homestar. The overarching objective of the Homestar rating tool is to improve the performance and reduce the environmental impact of new and existing New Zealand homes, making them warm, healthy and comfortable places to live.

7. Homestar rates the sustainability of standalone homes, terraces and apartments on an equivalent basis and is therefore a good fit for the quality compact direction of the Unitary Plan. Homestar rates homes on a scale of one to ten.

8. The Homestar system assesses developments at the design stage, and also once constructed within a two year timeframe. The design rating considers the proposed plans and checks the proposed design against the Homestar rating being aimed for, then the Certified Rating confirms the home meets what the design rating set out to achieve once built.
   Homestar is also used to assess existing homes and influences the quality of homes as well as encouraging awareness of the value drivers contributing to house prices. Developers and builders have some flexibility to target the criteria which suit their project best.

   Homestar awards 100 credits across seven performance categories:



9. 6 Homestar rating represents a level of good practice that is both pragmatic and affordable. There are already a number of group home builders who are building homes to a 6 Homestar level and above, proving that the market has already started to recognise the advantages. Design and Certified Rating are carried out by Homestar Assessors who have been trained by NZGBC. The ratings are then audited by NZGBC.

STATUTORY AND POLICY FRAMEWORK

This section of the report briefly sets out the statutory framework applicable to the NZGBC submission.

The Resource Management Act 1991

10. The Auckland Unitary Plan seeks to manage Auckland's resources in a way that preserves them for future generations. It also seeks to create a quality, compact city and mitigate the effects of climate change. NZGBC believes that Homestar, by targeting significant reductions in the environmental impact of homes, will assist in meeting these goals. The Auckland Plan
11. Strategic priority 11 of the Auckland Plan, aims to house all Aucklanders in secure, healthy homes they can afford. The goal to improve the quality of existing and new housing is one which NZGBC supports, and one which Homestar can practically help with. The Auckland Plan states:

    Well-designed and well-constructed housing - sited to capture sun, and incorporating high-efficiency/low-emitting heating methods and solar water heating, high insulation standards, and efficient use of space – has definite benefits for households, such as better health and lower running costs. Sustainable design also has wider benefits, including improved air quality and greater energy efficiency, which in turn reduce greenhouse gas emissions.

12. Homestar has been designed to encourage the principles in paragarph 11 above in residential design and construction and we believe that more energy efficient, healthy and sustainable housing will be critical for the future of Auckland

The Unitary Plan

13. The Unitary Plan implements and gives effect to the Auckland Plan which contains the city's vision and goals, which include housing objectives.NZGBC would like to acknowledge that we specifically support the following proposed Objectives and Policies of the Proposed Unitary Plan (RPS and Auckland-wide);

B 2 Enabling quality urban growth	Objective 2.2A	Policy 11
C 7 General 7.7 (sustainable design)	Objective 1	Policies 1 & 3

14. NZGBC believe a quality built environment, with minimised environmental impacts achieved through best practice sustainable design is the only way forward for Auckland. Buildings can easily be designed to minimise adverse environmental effects, maximise efficiency and provide healthy and comfortable indoor environments.

15. Comment has been made as follows regarding the following proposed Rules

H.6.4 Sustainable Development 2.1 Dwellings	Rule 1 & 2

General Feedback

16. We recognise the critical role the Unitary Plan plays in ensuring Auckland's resources are managed in a way that sustains and preserves them for future generations.

17. We strongly support the principle of a quality compact city which enables growth around centres and business areas which offer good access to high-frequency public transport, community facilities and

open space. We also support the approach within the Unitary Plan to address climate change through both mitigation and adaptation.

18. We support the eight issues of regional significance for resource management in Auckland identified in the Unitary Plan. We believe that the sustainability of the built environment is an inherent component of each of these issues:
    - enabling quality urban growth
    - enabling economic well-being
    - protecting our historic heritage, historic character and natural heritage
    - addressing issues of significance to Mana Whenua
    - sustainably managing our natural resources
    - sustainably managing our coastal environment
    - sustainably managing our rural environment
    - responding to climate change

19. NZGBC supports the whole-of-Council approach that strives for higher quality residential and commercial building in a sustainable built environment. This submission focuses on residential buildings. A separate submission concerning commercial buildings has also been lodged.

NZGBC Specific Feedback on Part 3, Chapter H 6.4.2

20. This rule proposes to ensure all new residential developments containing five or more dwellings within a site operate efficiently to minimise the use of energy and water resources and contribute to minimising environmental impacts by reducing emissions, and create healthy and comfortable living environments.

21. Specifically the proposed rule states:

    In new developments containing five or more dwellings, each dwelling must be designed and constructed to achieve:
    a. minimum 6-star level from the New Zealand Green Building Council Homestar Tool (2013), or
    b. certification under the Living Building challenge (2013)

On the basis of the considerations detailed below we comment on this proposed rule and issues pertaining to it.

Section 32 Analysis

22. The Section 32 evaluation for the Proposed Auckland Unitary Plan contains analysis of the residential sustainability commitments in the Unitary Plan (section 2.8). The Homestar residential rating tool has been included in this analysis as have alternative compliance options.

23. Section I refers to the aims of the proposed Unitary Plan:

    1. The quality of the homes and commercial building being developed in Auckland.
    Poorly designed and constructed homes are inefficient to operate, create unhealthy living and working environments and therefore can negatively impact on the amenity of development and its surrounds. By improving the sustainability of new homes and commercial development, such buildings will be more comfortable and healthier to live in. Running costs are reduced therefore improving affordability and economic performance.

2. Minimising the environmental impact of new homes and commercial buildings, with particular regard to energy and water use. New development can create adverse environmental effects and contribute to the causes of climate change. By designing building to incorporate best practice sustainable design, such as the use of water efficiency devices or thermal insulation, the effects on the environment can be minimised. In particular, efficiencies in energy use can assist in reducing greenhouse gas emissions.

24. The Homestar rating system is technically able to support the implementation of these aims in regard to residential dwellings in a transparent and auditable manner. Specific aspects of this support are covered throughout our submission.

25. The NZGBC agrees with the conclusions reached by the Council in the s32 analysis specifically covering the costs, benefits, and alternatives.
26. NZGBC is happy to work with Council and other relevant stakeholders to discuss the pros and cons of the various approaches, and consider ideas and suggestions to achieve a sustainable built environment.

NZGBC'S POSITION

27. The New Zealand Green Building Council (NZGBC) supports Auckland Council in its aspirations to encourage more sustainable and efficient homes. We recognise the role the Unitary Plan will play in ensuring we manage Auckland's resources in a way that sustains and preserves them for future generations. Assessment tools developed by the NZGBC (Green Star for office and industrial buildings and Homestar for housing) have been proposed for inclusion in the proposed Unitary Plan, as well as alternative compliance options.

28. Homestar is a comprehensive, residential environmental sustainability rating tool that rewards the outcome achieved rather than prescribing the solution. The tool allows the designer to respond to the site and context, functionality requirements and the homeowners' needs.

29. In principle, NZGBC supports Auckland Council taking a leadership role in the efficient delivery of homes of a higher sustainability standard with respect to protecting affordability options. We support the vision of a more sustainable built environment across Auckland.

30. NZGBC provides market-based mechanisms that encourage the adoption of new and sustainable design, construction and operational practices of both commercial and residential buildings. We believe that the practicalities of actual implementation of Council's proposals in relation to our market-based mechanisms needs more refinement. The following submission has therefore been written in response to the mention and inclusion of the NZGBC Homestar rating tool in the Unitary Plan.

HOMESTAR UNDERLYING PRINCIPLES

Building Code Shortcomings

31. Homes that are designed and built to meet the Building Code standard typically rate either 3 or 4 on the Homestar rating scale and are significantly below international standards in other countries.

32. A home built to comply with the Building Code alone does not require basic energy saving features such as passive heating through solar orientation. The level of insulation required for roof spaces in the

building code is lower than that specified in the government subsidised Warm-Up New Zealand scheme (recommended by EECA [1]).

33. The Building Code does not require the provision of efficient lighting, Energy Star rated appliances nor WELS rated tap ware, all of which contribute significantly to reduction in energy and water demand. 6 Homestar requires these and other basic efficiency features.

How does Homestar relate to the New Zealand Building Code?

Typical new homes built to minimum Building Code standard will achieve 3 – 4 Homestar. A 6 Homestar home will use significantly less energy and water, and will have less moisture or condensation issues, making it healthier to live in and more affordable to run.

Feature	Building code or common practice	6 Homestar recommendations
Ceiling insulation	R 2.9 (NI), R 3.3 (SI)	R 3.6
Wall insulation	R 1.9 (NI), R 2.0 (SI)	R 2.8
Concrete slab	Raft / pod style, R 1.3	Raft / pod with slab edge insulation, R 2.2
Windows	Standard double glazing, R 0.26	Thermally broken double glazing, R 0.31
Ventilation	Total opening window area of 5% of floor area	Dedication extraction in kitchen and bathrooms
Water efficiency	Not required	WELS 3 star shower WELS 4 star toilets WELS 4 star taps
Construction waste management	Not required	REBRI waste management plan in place to achieve less than 20 kg waste per m² floor area

By achieving 6 Homestar, a house design will exceed the minimum requirements of Clause H1 (Energy Efficiency), of the Building Code. The Homestar Certified Tool can be used to check compliance by automatically calculating the Building Performance Index (BPI).

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35. The 6 Homestar rating level has been shown to be a level of good practice in New Zealand that is both pragmatic and affordable. This is evidenced by the commitment to Homestar rating made by several major group builders and developers leading to a national Homestar rating pipeline of some 1,000 dwellings.

Thermal Performance

36. The Building Code is not always effective at ensuring adequate levels of performance because the calculation method allows for substitution between building components, essentially allowing for an averaging of the insulation properties around the structure of the house. This means designs can potentially use very poor performing materials such as single glazing or low insulated walls and ‘compensate’ by adding more ceiling insulation. This is not in line with real world principles of

thermodynamics which dictate that heat will find the path of least resistance and thus it is the weakest thermal element that should always be the primary concern.

37. Homestar takes advantage of the relatively simple input of the ALF calculator, but also considers minimum R values around the entire thermal envelope as well as the whole thermal balance.

Difference between what's designed and what's built

38. A 2010 investigation into the quality of insulation in new residential homes[2], commissioned by EECA showed that when 58 new properties were audited not a single house actually met the current required standard (NZS 4246:2006) for insulation. This means that even the insulation that is specified in most cases, is not actually installed properly. Given that even small gaps in insulation have significant impacts on the overall effectiveness, this is of serious concern and is another demonstration why the current Building Code is a bare minimum and also why the Code itself is an ineffective tool for ensuring adequate health, performance or even consumer rights. The Homestar system assists in this regard by pre-rating the design and also providing a Certified Assessment following the completion of the build.

The Housing Accord Timing Opportunity

39. Under the Housing Accord with Government Auckland Council intends to consent 39,000 dwelling in the period to September 2016. There are currently no proposed revisions to the Building Code that would address the lack of energy performance and sustainability criteria mentioned above and no timetable to introduce such measures.

Costs and Affordability

Defining Affordability

40. The capital construction cost of a new home is usually the starting point for defining affordability. In general affordability is interpreted consistently with the definition in Part 4 of Proposed Unitary Plan as

    "Housing that is offered for sale or rent on the open market without any form of subsidy or direct public assistance and which is affordable to households with moderate incomes, because it is below median house prices due to its location, size and/or design."

41. However true affordability of housing must also logically take into account the running costs of a home and hence the owners' or renters' ability to service a mortgage or meet rent and still meet their basic needs on a sustainable basis.

42. We support the Auckland Unitary Plan targets to improve housing quality (ref Part 1, Chapter B: Regional Policy Statement, 2.4).

Construction Cost

43. It is often claimed that building sustainable homes conflicts with the desire to build more affordable homes. The Homestar Cost-Scoring Appraisal carried out by Jasmax (architects) assisted by Rawlinsons (quantity surveyors) in 2012 showed that the cost of improving a typical Auckland three bedroom detached home to 6 Homestar from building code would be approximately 2.2% above the cost of a standard build. For a $550,000 base cost this represents approximately an additional $6,500.

44. However different strategies to gain Homestar credits could result in even lower overall costs. A parallel study also by Jasmax for a hypothetical example in Christchurch delivered an on-cost of only about $3,600. These figures are probably within the margin of error anticipated in building cost estimates.

45. Additionally the Homestar system rewards economical design. In the Auckland example studied by Jasmax, if the hypothetical home were 176 square metres in size instead of 180 the additional cost would be effectively zero.

46. There are further examples showing that sustainable homes are not necessarily less affordable. Beacon Pathway pilot construction projects have shown it is possible for a dwelling to use less energy and water, to have a healthy indoor environment, to cost less to run, to use environmentally sustainable products and materials, and still be affordable. Two examples of homes built by Beacon Pathway are:
    - The NOW home in Auckland cost $259,000 to build and would achieve 6 Homestar, according to Homestar qualified Assessors contracted to Beacon[3].
    - The New Zealand Housing Foundation's HomeSmart home introduced energy efficiency, passive solar design, good thermal envelope and energy generation to a standard NZHF design. The results produced a low energy and very affordable home for the family of six living in the house. Beacon estimate it would surpass the 6 Homestar standard[4].

47. The building industry in cities elsewhere in the world is able to deliver homes with above local Building Code levels of sustainability to market without an affordability issue. Examples include:

United Kingdom

48. The London Housing Design Guide promotes higher environmental standards, better accessibility and more beautiful design in new publicly funded housing developments. Through the replacement London Plan, and the Housing Supplementary Planning Guide (published Nov 2012), higher standards have been rolled out to both new affordable and market homes [5].

49. In Leeds eight new low carbon family homes for social rent, enable families to lead sustainable lifestyles and benefit from reduced bills, whilst providing a body of research on the design of sustainable, affordable housing. The project exceeds Level 5 of the Code for Sustainable Homes, with a Code Level 6 being achieved on one house [6].

Australia:

50. In South Australia the Ecocents Living project is the result of collaboration between the Department for Families & Communities, Hindmarsh and the University of South Australia. This research program identified a suite of built forms for housing that are both affordable and sustainable. The project arose out of the observation that affordability and sustainability are rarely considered in the same context despite the importance of both to housing policy makers and the construction industry [7].

51. In Paramatta a 2008 research project by the University of Western Sydney concluded: " Despite the popular perception that sustainability is expensive, recent evidence suggests that many of those cost penalties have reduced. Developing a sustainable development will significantly reduce the on-going costs for residents [8].

Running Costs

52. The affordability of housing is related to factors other than construction cost – in particular the whole of life and running costs of a home.

53. A home designed and built to a 6 Homestar rating rewards orientation and aspect to the sun as a critical part of thermal performance. Homes not built oriented to the sun will not be able to benefit from significant passive heating for the duration of their in-use period.

54. eCubed undertook a cost benefit case study in 2012 for the hypothetical house example appraised by Jasmax in the construction cost study (refer to Appendix 2). This study found that a 6 Homestar rated house would save the occupants $595 in energy costs and $131 in water and waste water costs per annum. In effect this saving of $726 means that the 2.2% additional cost of construction would be paid back in approximately seven years at Net Present Value, which is the average 'dwell time' for a new home buyer.

55. The additional cost of construction if added to a 25 year mortgage would typically cost $42 a month in interest at 6.00% over a 25 year period[9]. This means that the home owner would be a net $200 a year better off through energy and water savings alone. Banks and other lenders now take account of such factors when assessing homebuyer's mortgage applications in relation to their ability to service loans.

56. The lower running costs of a 6 Homestar rated home would also assist low income groups who rent such homes from private or public sector providers. A well-insulated home with efficient heating is recognised as key means to address fuel poverty. An accepted definition of fuel poverty was first proposed in NZ by Dr Bob Lloyd, Director Energy Management, Otago University and referenced by the Ministry of Social Development in 2006:

    "A household is in fuel poverty if it would need to spend more than 10% of the total household income on all household fuels to achieve a satisfactory indoor environment. A satisfactory indoor environment is defined as being at temperatures of at least 21°C in the living areas and 18°C in other parts of the house.[10]"

Life time costs

57. The costs and savings discussed in 4.2.1 and 4.2.2 above arise from decisions made during design and construction. The value of these decisions will last for the lifetime of the home, accruing economic, social and environmental benefits over the whole-of-life of the home.

Affordability for the City

Infrastructure and Transport

58. Lower demand on potable and storm water provision is rewarded within the Homestar rating system. 15 percent of the points available relate to measures such as restricted flow tapware, rain water harvesting and reticulation of greywater. A three bedroom home built to Building Code would typically use 400 litres of water a day for all purposes, according to the Plumbing Engineering Services Design Guide.[11] Rainwater harvesting for non-potable uses stored in a 4,000l tank would reduce each homes annual non-potable requirement by 61%[12]. This is a major economic benefit for Auckland; each 6 Homestar rated home saving 63.93 m^3 of potable water and 25.63 m^3 of waste water per year.

59. Homestar also awards points for adjacent amenities such as local shops, schools, reserves and public transport. This aspect supports the Auckland Plan goal of promoting central living and suburban hub development rather than over expansion of the Rural Urban Boundary (RUB) as well as supporting the development of improved public transport services.

Waste reduction during building

60. Auckland's landfill waste is projected to increase from 1.5 million tonnes of waste to 3 million tonnes over the next ten years based on current population trends and without increased intervention [13]

61. Construction waste is a major contributor to this; the average residential construction project generates 3–3.5 tonnes of waste. The Ministry for the Environment has found that construction and demolition waste may represent up to 50% of all waste generated in New Zealand; 20% of all waste going to landfill and 80% of all waste going to clean-fill [14].

62. As required in the 6 Homestar standard for waste reduction a study commissioned by Wasteminz found a 19% saving in disposal costs from source separation at a construction site in Auckland [15].

Reduction of landfill and costs

63. Improvements in household waste reduction and separation will assist Auckland cope with future waste services for dwellings particularly in multi-unit developments as outlined in the Waste Management & Minimisation Plan. Homestar rewards the reduction and separation of both construction and household waste.

64. Increased on-property waste sorting and composting provides multiple benefits to homeowners and the community[16] including:
    - Lower household expenditure for rubbish collection
    - Reduction in greenhouse gas emissions by not sending green waste and food scraps to landfill
    - Increased recycling saves energy and results in less "virgin" natural resources required
    - Less Council spending on land-fill and on the cost of collection and the transport of waste.

65. In addition less transportation of waste results in fewer carbon emissions from transporting waste and release of the embodied energy in materials[17].

Affordability for New Zealand

Energy and Carbon

66. A report by BRANZ[18] states that the construction, use and demolition of New Zealand's buildings are responsible for:
    - 40% of New Zealand's energy consumption
    - 40% of the waste generated in New Zealand
    - 35% of carbon dioxide (CO2) emissions in New Zealand, and
    - 40% of raw materials used in New Zealand.

67. A typical 6 Homestar rated home would consume approximately 2100 kWh per annum less than a home built solely to Building Code standards[19].

68. The Auckland Housing Accord targets for building consents between September 2013 and September 2015 implies that over a 10 year period some 20,000 homes will be built to 6 Homestar standards. This would result in an energy saving of approximately 42,000,000 kWh per year.

69. A 2009 report prepared for Beacon Pathway considered the energy-water relationships of reticulated water infrastructure systems [20]; whilst Auckland (Waitakere) was the best performer by kW/capita in this study, the 6 Homestar requirement offers further direct savings to Auckland, and associated

decreases in emissions, by encouraging water efficient design. This in turn will reduce the increase in demand on infrastructure provision, the costs of which are passed ultimately to the homeowner.

70. The New Zealand residential sector accounts for approximately 2% of carbon emissions (616 kt CO_2-e)[21]. However in Auckland the stationary residential sector accounts for 7.8% of greenhouse gas emissions[22]. For the 6 Homestar certified home, the 2012 study by eCubed estimated the reduction in carbon emissions accompanying the identified reduction in energy consumption of a typical home would be 288kg per annum. If the Housing Accord commitments for new builds are met this would represent a reduction of over 6,000 tonnes of CO_2 per year.

71. Residential sector greenhouse gas emissions have decreased 20% since 1990, despite increasing household numbers; this results from a change from primarily carbon producing energy sources (e.g. gas or coal), to electricity (e.g. heat pumps) which does not produce as much greenhouse gas emissions."[23] New Zealand, and specifically Auckland, now faces a challenge in dealing with naturally increasing summer temperatures and not using those heat pumps all year, thus increasing energy generation demand and possible related increases in greenhouse gas emissions.

72. The Auckland Plan projects stationary residential emissions on a naïve business as usual basis to be equivalent to approximately 1,000 ktCO_2e by 2031. The 2031 mitigation target is approximately 100 ktCO_2e. The requirement for 6 Homestar would thus potentially contribute over 5% of this target.

73. Well designed and performing homes proven to have reduced energy demand as required in 6 Homestar will thus contribute to Auckland's climate change mitigation strategy.

Health and Productivity

74. The Auckland Region Public Health Service (AHRPS) has submitted a response to the proposed Unitary Plan. NZGBC specifically agrees with the views in sections 7 to 8 and 10 to 15 of their submission:

    7 - ...supporting Council's moves to provide quality and affordable housing, as well as better housing choices for Maori and Pacific people...
    8 - It is also important that cultural needs and housing design is suitable for all groups, including Maori and Pacific whanau, which can be larger family groups. This could include housing types that are tailored to larger families and whanau networks...
    10 - We note that the insulation requirements for the homestar rating tools are significantly higher than those required under the building code...
    11 - Housing has a substantial influence on overall population health...
    12 - The existing building code requirements, while significantly improving housing quality when developed, originate from the 1940s, with little modification...
    13 - The World Health Organization recommends an indoor ambient air temperature of 18 degrees Celsius for children, and 21 degrees Celsius for older people, children and the immunocompromised.
    14 - Temperatures below this are strongly linked to an array of housing related illnesses and hospitalizations, as well as health inequalities...
    15 - ... There is also a link between higher rates of hospitalisation in asthmatics in cold and damp housing.

75. Poor health outcomes also impact on productivity. A 2008 report by Michael Fletcher and Máire Dwyer, 'A Fair Go for all Children: Actions to address child poverty' summarised that damp, cold housing is directly linked to illnesses and diseases which translate into more GP visits and more days off school/work.

    Example: Asthma is a common chronic inflammatory disease of the airways. New Zealand has the second-highest rate of asthma in the world; one in four New Zealand children and one in six adults have asthma (approximately 800,000 New Zealanders).

    In 1999 year (last date figures released), the cost of lost productivity to the country by asthma sufferers was $895 million, including $700 million in non-medical costs such as people missing days of work and school. New Zealand's economic burden of asthma is conservatively estimated at over $800,000,000 per year[24].

    In addition to the detrimental health outcomes of asthma, wider sector experience considerable financial and social costs; direct costs (health care provision, pharmaceuticals, and income support), indirect costs (e.g. lost productivity) and intangible costs (for example, the physical and emotional toll on the individual and their family)[25].

76. A two year study commissioned by the New Zealand Business Council for Sustainable Development [26] concluded that by making homes warmer, drier and more energy and water efficient, the country could:
    - Avoid sending 50 people a day to hospital with respiratory diseases (saving $54m a year); and
    - Cut sick days off work by 180,000 a year (lifting production by $17m a year).

77. Cold, damp homes create environments that moulds, fungi and micro-organisms grow in[27]. There is an accepted link between higher rates of hospitalisation in asthmatics in cold and damp housing[28]. The value case for insulating and improving homes is clear. Children missing school and adults missing work results in less income into the home, and less societal productivity. 6 Homestar rated homes are warmer, drier and more efficient than homes constructed to Building Code. Homes of this quality provide positive wellbeing and social outcomes; increasing community health and local productivity[29].

Public Demand

Public Opinion

78. Clear support for sustainable homes as included in the draft Unitary Plan was noted in the majority of submissions made on the subject .

79. Other strands of evidence indicate that home buyers and home owners expect new homes to be cheaper to run, warmer and healthier than previously. For example 4,000 home buyers responded to a survey by Realestate.co.nz in October 2013, which aimed to uncover their most important needs in a new home. 86% wished the home to be oriented to the sun, 82% wanted a high level of insulation, 50% wanted energy efficient features, 48% wanted a home close to local amenities. These are all features which are rewarded by Homestar.

Human Rights

80. An adequate standard of living (housing) is a key indicator of connection between income, poverty and economic, social and cultural rights. The United Nations right to an adequate standard of living is fundamentally concerned 'with the human person's rights to certain fundamental freedoms, including freedoms to avoid hunger, disease, and illiteracy'[30].

81. Of the 1,756,143 households in New Zealand[31], almost a third of New Zealand homes fall below the World Health Organisation (WHO) recommended indoor temperature of 18°C[32]. Homes which are cold, damp and mouldy do not allow occupants to avoid disease, and temperatures below 18°C are linked to housing related illnesses and hospitalisations.

Reduced environmental impact

82. Homes that achieve 6 Homestar or higher achieve e reduced environmental impacts through holistically considering the development of a site and home within the built and the natural environment, encouraging lower water and energy consumption, the avoidance of toxic materials and reduction in waste. The planting of native species also attracts credits in Homestar.

Liveability

83. One priority of The Auckland Plan is to "increase housing choice to meet diverse preferences and needs". This is furthered by Objective 1 (b) of the Regional Policy Statement which aims for Auckland to have a quality built environment which provides for a 'mix of choice and opportunity for our communities and can adapt to changing needs (diversity)'. Several policies extend upon this
    - 4.Encourage development which is designed for change of use through time.
    - 5.Design development with a level of amenity that enables long term options for living and working.
    - 6.Encourage development to be designed to have equal access for people of all ages and abilities.
    - 8.Enable the development of a range of built forms within neighbourhoods to support maximum choice and recognise different lifestyles.

84. Objective 2 (b) of the Regional Policy Statement which aims to enable quality urban growth aims to have neighbourhoods contain quality homes that help meet the housing needs of current and future, low to moderate income households (objective 1, policy 1) encourages residential development to provide a range of dwelling types and sizes that help meet the housing needs of households on low to moderate incomes. Homestar rewards the design and construction of appropriately sized homes.

Use through time

85. Housing is fundamental to Aucklanders' social well-being and providing a diverse range of housing choice is necessary for building thriving, mixed communities. Auckland's population is expected to increase by one million people over the next 30 years; of that increase, a significant proportion will be older residents. Statistics New Zealand predict that by 2051, more than one quarter of the NZ population will be over 65. There is provision in the proposed Unitary Plan for universal access. It should be noted that 6 Homestar gives credit for the achievement of level 3 of the Lifemark standard, which is integral to the universal design of homes for all stages of life.

Tangata whenua and Pasifika

86. As has been demonstrated in Section 4 above, achieving 6 Homestar does not necessarily impact disproportionately on the capital cost of construction. Homestar supports and rewards effective use of space in the design and construction of homes because it relates the size of a home to the number of bedrooms. Thus it does not penalise designs which provide a high number of bedrooms in proportion to the overall size of home, as may be appropriate for larger family homes typically desired by Maori and Pacific Island cultures.

87. These cultures are disproportionately represented in lower income deciles and frequently rent rather than buy their homes. 6 Homestar will help ensure that their running costs are minimised at the same time as their home provides a healthy place to live

CONCLUSION

Process

88. NZGBC provides market-led tools that encourage the adoption of new and sustainable design, construction and operational practices of both commercial and residential buildings. We support the vision of more sustainable homes across Auckland; however the practicalities of actual implementation of Council's proposals are not yet fully clear. We envisage working closely with Council to refine ideas and processes to achieve a more sustainable built environment with minimal additional cost or delay.

Sustainability

89. The Homestar tool and in particular the 6 Homestar level proposed in the rule could significantly contribute to the achievement of the sustainability goals of the Auckland Plan. In particular the reductions in energy and water consumption and building waste as well as saving costs for families and the community will also help meet the emissions reduction targets in the Auckland Plan.

Affordability

90. Independent studies referenced in this submission indicate that achieving 6 Homestar will have negligible effect on the affordability of new homes due to minimal increased construction cost offset by reduced in use costs. New Zealand appears to be approximately five to ten years behind the rest of the world in building standards and accepting that higher sustainability need not mean reduced affordability. We have cited examples from the UK and Australia which illustrate this. There are many more from both those countries and the US that we could also reference.

Health and Productivity

91. There is abundant evidence that the impact of cold and damp housing has adverse health and productivity consequences. It is well accepted that the current NZ Building Code does not sufficiently address the design and construction of homes in respect to these factors.

Consistency within the Unitary Plan

92. We recommend that Auckland Council undertakes an analysis which reviews the standards embedded in Homestar against any existing or proposed rules and policies which may act as a barrier to implementation.

New Zealand Green Building Council submission prepared by:

Erin Whooley
Membership Executive
NZGBC
erin.whooley@nzgbc.org.nz

Leigh Featherstone
Director of Homestar
NZGBC
leigh.featherstone@nzgbc.org.nz

Matthew Cutler-Welsh
Homestar New Build & Design Manager
NZGBC
matthew.cutler-welsh@nzgbc.org.nz

NZGBC would like to be heard in relation to this submission.

For further information please contact:

Leigh Featherstone
Director of Homestar
The New Zealand Green Building Council
PO Box 5286, Wellesley Street , Auckland 1141

APPENDIX 1

New Zealand Green Building Council - Homestar Submission on The Proposed Auckland Unitary Plan Relief Sought

Specific Relief sought:

H.6.4 Sustainable Development 2 Land Use controls Rule 2.1

2.1 Dwellings

1.In new developments containing five or more dwellings, each dwelling must be designed and constructed to achieve:

a. a minimum 6 Homestar design rating and a minimum 6 Homestar Certified Rating, certified by ~~star level from~~ the New Zealand Green Building Council)Homestar Tool (2013), or

b. certification under the Living Building Challenge (2013).

2.This control does not apply to:

a. extensions and alterations to existing dwellings.

b. converting an existing building to a dwelling

c. new developments containing four or fewer dwellings.

Certified Rating

Part 6 Non-Statutory Guidance

This part of the Unitary Plan contains non-statutory guidance.

Attachment 1 contains precinct reference documents and Attachment 2 contains non-statutory urban design guidelines for specific precincts. The urban design guidelines will be incorporated in the ADM and when this occurs they will be removed from this part of the Unitary Plan. Attachment 3 contains the New Zealand Green Building Council-(Homestar Tool v2 2013).

Comment regarding the relief sought:

93. In the submission the strengths of and rationale for Homestar in helping to meet the aims of the Auckland Plan have been discussed in broad terms.

94. We now comment on matters of practical implementation of Homestar in the Unitary Plan. NZGBC are keen to help both Council and the building industry smoothly to work smoothly to implement Homestar as seamlessley as possible.

95. The requirement for 6 Homestar is a new requirement and it is critical to the success of this innovation that the Council process around consenting is aligned with the practicalities and practices of the development and building industry; and that wherever possible processes are simplified to limit costs and delays.

‘Equivalency’ risks

96. Homestar provides an independent verified and valid measure of overall quality and proof of a sustainability standard for home owners, occupiers and Council. Environmental rating tool certification

cuts through 'green-wash' and ensures buildings are designed and built to meet a rigorous industry standard.

97. The proposed wording of Rule 6.4.2.2.1 of the Proposed Unitary Plan require new dwellings to be *designed and constructed to achieve:*
a.a minimum 6-star level from the New Zealand Green Building Council Homestar Tool (2013)

98. The NZGBC would like to highlight that, although we believe implied, this may not require the dwellings gain formal 6 Homestar Design rating and Certified Rating, verified and audited by NZGBC. Accordingly, NZGBC has proposed alternative wording in the relief sought.

99. If developments merely claim equivalency to Homestar standards without formal verification from NZGBC then Council will carry the consent process and liability burdens of checking that their statements are true. This will also naturally increase costs and add delays to the consenting process. For this reason NZGBC believes it is imperative that the process of confirming achievement of a 6 Homestar rating is verified by NZGBC.

> *Analogy for the value of Homestar certification as opposed to building 'equivalency':*
>
> *Whilst attending university for four years, investing money in expanding intellect and gaining the benefit of increased knowledge, a student may know they had diligently attended courses and worked hard to achieve strong learning outcomes, why would they then not sit the exam and receive the certificate? And if they didn't, in 5 or 10 years, would a prospective employer believe them?*
>
> *A building and its occupants will benefit from being designed and constructed to an equivalent standard to Homestar, however, once the investment has been made to improve the building and its systems, certification proves it unequivocally.*

Design or Certified Rating

100. The Homestar tool is made up of a Design rating and a Certified Rating. The Rules, as currently drafted, do not specify that the entire process/rating/certification are required. The Design and Certified Rating both play important roles:
- *Design Ratings:* This includes assessment of the plans and paperwork, and Homestar credits targeted in order to achieve the requisite points. Design ratings encourage designers to consider sustainability from the initial stages of a project's development. It also ensures that the Council can garnt building consents that will comply with the 6 Homestar requirement.
- *Certified Ratings:* Certified ratings are achieved after practical completion and confirm that the building has been built to the Homestar standard claimed. This rating demonstrates that the Homestar criteria have been met through construction and in the final outcome.

101. NZGBC believes it is critical for successful implementation of the rule as currently drafted, that developers/applicants provide formal confirmation of intent to achieve 6 Homestar via registration of the project with NZGBC.

'Construct to achieve' risks

102. The proposed wording of Rule 6.4.2.2.1 of the Proposed Unitary Plan require new dwellings to be *designed and constructed to achieve:*
a.a minimum 6-star level from the New Zealand Green Building Council Homestar Tool (2013)

103. Per the above explanations of the Design and certified ratings; the design stage of a Homestar assessment is whether the design will achieve the required Homestar rating once constructed. This assessment is made from the plans and specifications; and accordingly, at this stage, whether the building has been constructed to achieve the standard is irrelevant. Assessment of whether the dwelling has been constructed to achieve the required Homestar rating is however vital at the second later assessment stage, when the Certified rating is assessed.

104. On the basis of the above suggestion to consider utilising both Design and the Built ratings in the Proposed Unitary Plan, NZGBC has proposed alternative wording in the relief sought.

Alternative compliance paths

105. The proposed rule which includes the Homestar tool as a certification option, also includes provision to use the Living Building Challenge (LBC). The Living Building Challenge encourages and requires true building innovation; NZGBC commends and is delighted to see New Zealand projects take on this challenge.

106. NZGBC understands and supports the practicalities of offering an alternative compliance path, and would like to highlight that final certification under the Living Building Challenge only begins 12 months after completion of the building. Certification of a Living Building Challenge project may only be partial and this may create Council compliance issues.

Reference of the Homestar tools

107. The NZGBC notes that Rule 6.4.2.2.1 references the *"New Zealand Green Building Council Homestar Tool (2013)"*

108. The NZGBC acknowledge that if included in the Unitary Plan, the stated Homestar tool version cannot be changed nor updated until the next time a Plan Change or Variation is undertaken. Accordingly, NZGBC anticipates that as the tool is continually reviewed and improved in relation to the gradual shift of the building market and the availability of new building systems and products, different versions will be made available to other parts of New Zealand, although only the referenced documents will be used in Auckland. Defining which tool versions to use will make ongoing references to the tools more straightforward for consumers to understand, i.e. ideally there would not be a tool for Auckland which was not identical to the updated tool used elsewhere in New Zealand.

109. The soft copies of the tool and manuals are currently only given to NZGBC qualified Homestar Assessors. If the rule as drafted is included in the Unitary Plan, NZGBC will work with Auckland Council to set up a framework from which the New Zealand Green Building Council Homestar Tool (2013) document can be purchased (per requirements of Clause 30(1), Schedule 1).

110. If the rule as drafted is included in the proposed Unitary Plan, NZGBC advises strongly that Auckland Council work with us to set up a framework from which the New Zealand Green Building Council

Homestar Tool / New Zealand Green Building Council Homestar Standard v2 2013 (or as appropriate in the light of 7.6.1 above) documentation can be acquired by members of the public as hard or soft copy from Council (per requirements of Clause 30(1), Schedule 1).

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