Homestar v5 Consultation Summary

Introduction and overview

This report summarises the feedback the NZGBC received from our initial consultation on the next iteration of Homestar, v5. Thank you to everyone who participated in this initial consultation round. We received 100+ submissions over this period, a record for the NZGBC. This high level of engagement and participation will help inform the development of a more robust, fit for purpose tool under Homestar v5.

This report covers submissions received via the online survey during the consultation period, responses emailed to the NZGBC, and feedback/questions collected through the webinar on 1 July 2020.

We also received detailed critique from industry experts on credits not explicitly covered in the v5 consultation document. These critiques will be reviewed alongside other feedback and we will invite further review after the initial Homestar v5 draft is completed.

Please note, some comments in this report and Appendix A have been edited for clarity. In some areas, many respondents made similar comments, in which case we have selected one or two to illustrate the types of comments received for each point, and included a selection of that cover the point and justifications in Appendix A.

Some of the comments received requested inclusion of aspects already covered in the tool, for instance recognition of Passive House certification which already receives full points in EHC-1. These comments are therefore not included in this report. Some comments were feedback to the NZGBC unrelated to Homestar v5 which we have made efforts to respond to through other means.

If you have any further feedback in response to this report, please email homestar@nzgbc.org.nz including "Homestar v5 feedback" in the subject line.

We'll be launching the enhanced version of Homestar in early 2021. Before then, around November, we'll publish a revised draft of the Homestar technical manual, and would very much welcome your feedback on the new manual before the end of the year.

Clear themes

Comments received have been widespread across the tool, often detailed, and varied. However, there are some clear themes in the responses:

- High performance vs. cost/capacity of the industry
- More focus on carbon
- Homestar needs to be simple and streamlined
- Homestar should do more to educate the homeowner/tenant

High performance vs. cost/capacity of the industry

It is clear from the submissions received that people would like to see Homestar v5 make improvements to performance requirements, particularly regarding thermal performance and carbon. Submitters see the NZGBC as having a clear role in leading the industry and driving uptake of higher standards, however there were many concerns raised about additional costs associated with raising standards.

Submitters would like to see a balance met that raises standards and increases engagement across the industry but doesn't set the entry bar too high.

More focus on carbon

Submitters would generally like to see more focus on carbon, both embodied and operational through design, performance, materials choices etc. They see Homestar as having a role in helping the industry reduce emissions.

Homestar needs to be simple and streamlined

Making the tool simple, easy to understand, and easy to use will aid wider uptake, reduce costs, and help educate the industry.

Homestar should do more to educate the homeowner/tenant

A Homestar certificate is not enough for Homeowners and tenants to be well informed about their homes.

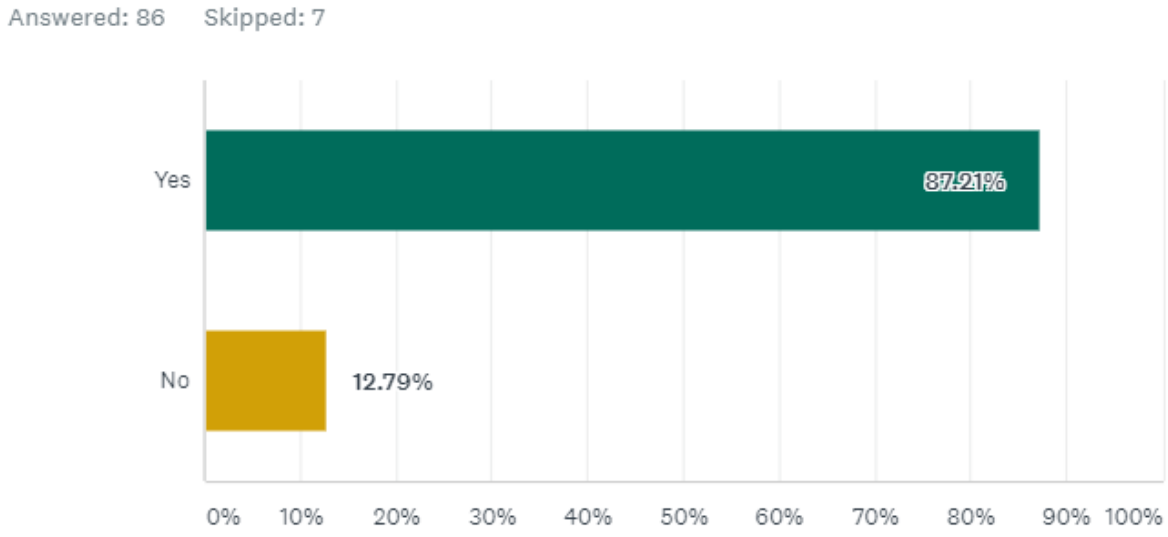
Contents

Question 1

Do you think we should simplify the Homestar categories and make clearer how Homestar benefits occupants and the wider environment?

Summary of response

There was strong overall support (87%) for simplifying the Homestar categories and making clearer how Homestar benefits occupants and the wider environment, but within the comments there was a range of views on how this should be divided.



Selection of relevant comments

There was strong support for splitting credits into benefits to the environment, and benefits to the occupant

"To some extent the occupant benefit will be relative/subjective to the actual occupants, but the environmental benefit is absolute and independent in most of the credits"

However, there were also many participants who did not support splitting into benefits to the environment, and benefits to the occupant

"It creates a schism between us as a house occupant and human being and the wider environment – when in reality we are a part of that environment. It also individualises the benefits and may drive perverse outcomes where people are more selfishly focussed on their own benefits at a cost to the wider environmental benefits"

There were many suggestions for how these categories could be rephrased

""Designed for People" is a strange category name and doesn't reflect what is being achieved. A house may a achieve a low score in the designed for people category and on your labelling suggestion in section 4 it would give the end user that the house is not designed for them which will most likely not be the case. Maybe a better name would be "Holistic Design""

There were many suggestions for how these categories could be re-organised

"Make it even simpler. Arrange the credits as Caring for people and Caring for the environment. The former would include your current credits for Warm and Dry and Designed for People, the latter would include Reducing Emissions."

There were many suggestions for how we could improve how Homestar is communicated

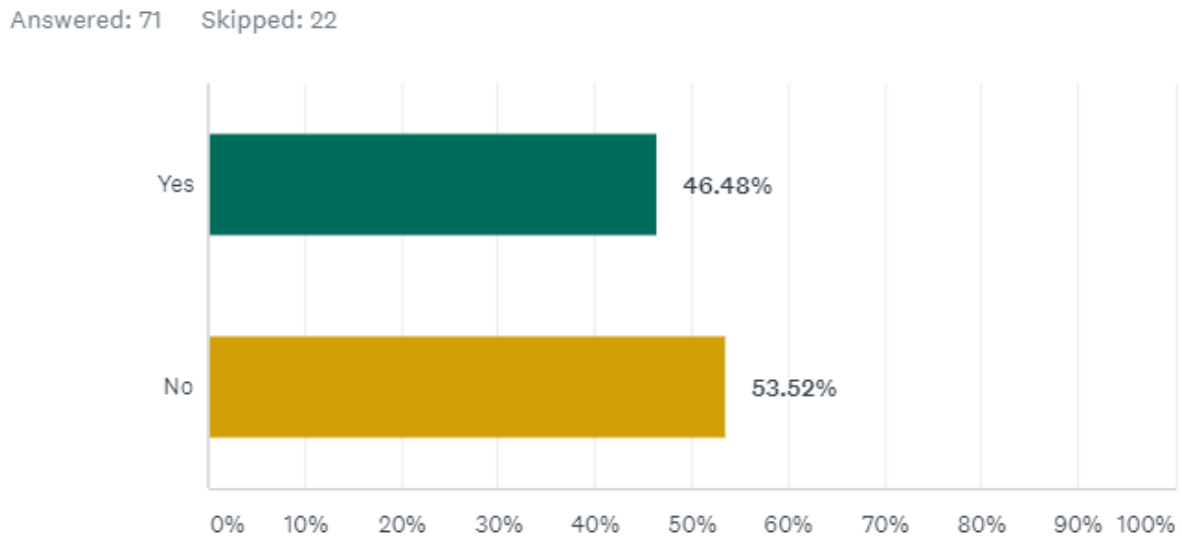
"Simple charts saying, 'this house uses x% less water, energy than a typical house' and costs x$ less to heat a year."

Question 2

Do you think the current spread of points in Homestar v4 is appropriate?

Summary of response

There was a small majority within the responses for changing the spread of points in Homestar v5, but a sizeable number of respondents are happy with the status quo. However, many who think the spread of points is appropriate would still like to see some small tweaks.



Selection of relevant comments

There was strong support for more points in Energy Health and Comfort

"Energy efficiency (and low carbon) as well as Healthy and Warm both immediately impact global warming and the occupant's financial wellbeing (as well as their health)"

There was strong support for increasing points available for reducing carbon impact

"Carbon emissions are the most important issue on the planet. Everything should be bench marked against that."

Some people suggested separating carbon and energy efficiency

"You must separate Energy Efficiency from low carbon - they are two completely different things and one hides the other."

Some people would like the tool simplified

"too many credit categories and therefore takes too long to conduct a full assessment."

Some people would like to see a cost lens applied

"some are really hard/expensive to do for relatively low points (making them unattractive)"

Some people wanted fewer points in "designed for people"

"Less weight on points for lifestyle choices, which are not necessarily used - e.g. access to public transport."

Some people wanted fewer points to waste but others want more points for waste

"Too much weight towards waste - particularly construction waste."

"Waste is only 5% of the Homestar point system, which potentially means builders can put less effort into the waste section"

There were many other small tweaks and suggestions (Appendix A) that will be taken into consideration as we develop Homestar v5.

Question 3

Are there any credits you would like to be removed from Homestar?

Summary of responses

Many participants responded that they would like all of the current credits to be retained in v5, often referencing the importance of maintaining a holistic rating tool. Some respondents made suggestions of credits, or aspects within credits, they would like removed, including; solar power, the use of gas, and some of the management and site credits.

Selection of relevant comments

Many respondents would not like any credits removed.

"As many designs are very specific to sites and the needs of the occupants, a wide range of credits should be available as levers to achieve good outcomes and to gain compliance. For example, proximity of a site to existing amenity and services and as a result points, is often not achievable as some sites being developed may be located outside of the 'amenity' area. As such these sites should not be 'disadvantaged' and having other levers remains important for parity"

Some respondents suggested removing points for solar power generation

"Parliamentary Commissioner for the environments comments that investing in solar hot water and solar PV are poor investments if you want to do something about climate change"

Some respondents suggested removing gas as an option

"I feel that the prevalence of instantaneous gas (mains or bottled) in new-build construction is an absolute travesty for NZ, where a substantial part of our grid is powered by renewable resources. Gas is being (suitably) used as a transition fuel in some markets, but it's just not

necessary or appropriate in NZ. However, it's well-known in the industry that approximately 65-70% of all new hot water fittings going into homes are instantaneous gas in New Zealand."

Some respondents suggested removing the security credit

"outside of scope and the original intent of the scheme"

Some respondents suggested removing the Home User Guide credit

"redundant - if you buy/build a new house then you should expect to have all the relevant manuals and warranties related to it."

Some respondents suggested removing/changing the responsible contracting credit

"should have framework rather than checklist"

Some respondents suggested removing the household waste minimisation credit

"requirement for recyclables largely irrelevant now that most local authorities are driving effective schemes"

Some respondents suggested removing the inclusive design credit

"there is another tool out there for this, and we don't add any value by just recognising their tool. It's also rarely taken advantage of. Not saying that's a good thing, but we're in the environmental space, we can't tackle every problem"

Some respondents suggested removing the energy efficient drying credit

"*too detailed and unnecessary for a condensed version of the tool."*

Some respondents suggested removing the storm water management credit

"hugely important but arguably now covered in most local authority areas via local storm water rules and regs"

"complex and unnecessary for a condensed version of the tool"

Some respondents suggested removing the native planting credit

"Planting requirements on overall site is really difficult for dense developments - would have to replace lawn/recreation areas. What about points for overall planting schemes? Might not all be natives"

Some respondents suggested removing the neighbourhood amenities credit

"completely outside of control by designer"

Some respondents suggested removing the cycling credit

"remove community aspects that are outside of control by designer"

Some respondents suggested removing the lighting credit

"It's just not necessary and takes up way too much of my time for very little overall impact."

Further suggestions have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 4

Are there any credits you would like to be added to Homestar?

Summary of responses

While many participants told us that they would not like anything added to Homestar, there was also strong support for adding a category specific to embodied and operational carbon emissions. Other suggestions for additions are included below.

Selection of relevant comments

Many respondents want specific points/a category for embodied and operational carbon emissions

"add a category of embodied carbon and give really significant weighting to it"

"an upfront carbon calculator and an operational carbon footprint calculator"

Some respondents suggested adding points for energy monitoring

"Energy monitoring, POE. Maybe smart meters: this could help with providing feedback with how specific rated homes are performing."

Some respondents suggested additional points for airtightness and ventilation

"incentive for achieving airtightness of below 3 air changes per hour when the installation of mechanical ventilation with heat recovery works exceedingly efficiently"

Some respondents suggested stronger requirements for the elimination of thermal bridging and mould

"elimination of mould development on internal surfaces and within the building structure"

Some respondents suggested additional points for water heating

"The importance of water heating as a consumer of energy is not adequately acknowledged in the HS scoring system. New homes use an average of 45% or 46% (standard or low user) of their total energy for water heating."

A few respondents suggested additional points indoor air quality

"key to health and comfort of occupants"

A few respondents suggested points for solar control/glare control

"Add Solar Control with the appropriate specification measures i.e. solar factor for glazing. State solar gain should be a separate attribute and not be listed under U-Value"

A few respondents suggested additional points for noise control

"Noise control – has a significant impact on the health, comfort and well-being of people dwelling in houses"

A few respondents suggested points for local procurement

"Credits for New Zealand owned businesses or use of New Zealand manufactured products. If we use 'local' we are reducing carbon emissions associated with freight"

A few respondents suggested additional points for power generation and EVs

"power generation i.e. power (wind/solar)"

"points for actual EV charging points, not standard electrical socket in the garage"

A few respondents suggested points for resilience

"Resilience: The capacity of a building material to offer a home robustness and permanence is key to the principles of sustainability."

A few respondents suggested additional points for cycling

"Cycling credit should give better consideration to developer transportation impact assessments, vehicle access / cycling / pedestrian access, & interface with street frontage"

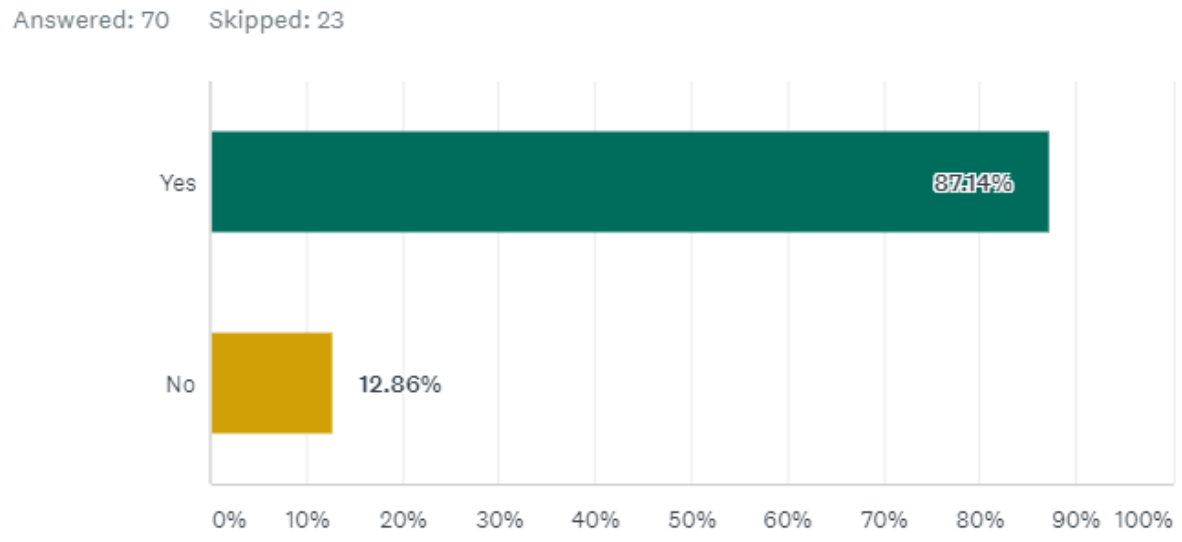
Further suggestions have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 5

Do you agree that Homestar should display further information on how the home scored against the various categories?

Summary of responses

There was strong support for displaying further information on how the home scored against the various categories as it would provide the end user with more information about their home. There was some feedback on the scope of what will be displayed and the need to keep it simple to avoid confusing the end user.



Selection of relevant comments

Many respondents were supportive of this proposal as it would better inform the end user

"should also factor in performance aspects into property evaluation, differentiate homes and serve as an incentive to subscribe to and score better in the various categories"

Some respondents were concerned it would be confusing for the end user

"too confusing for owners unless they had in depth knowledge of what each category was and how the points were achieved in those categories"

Some respondents only wanted information on energy consumption displayed

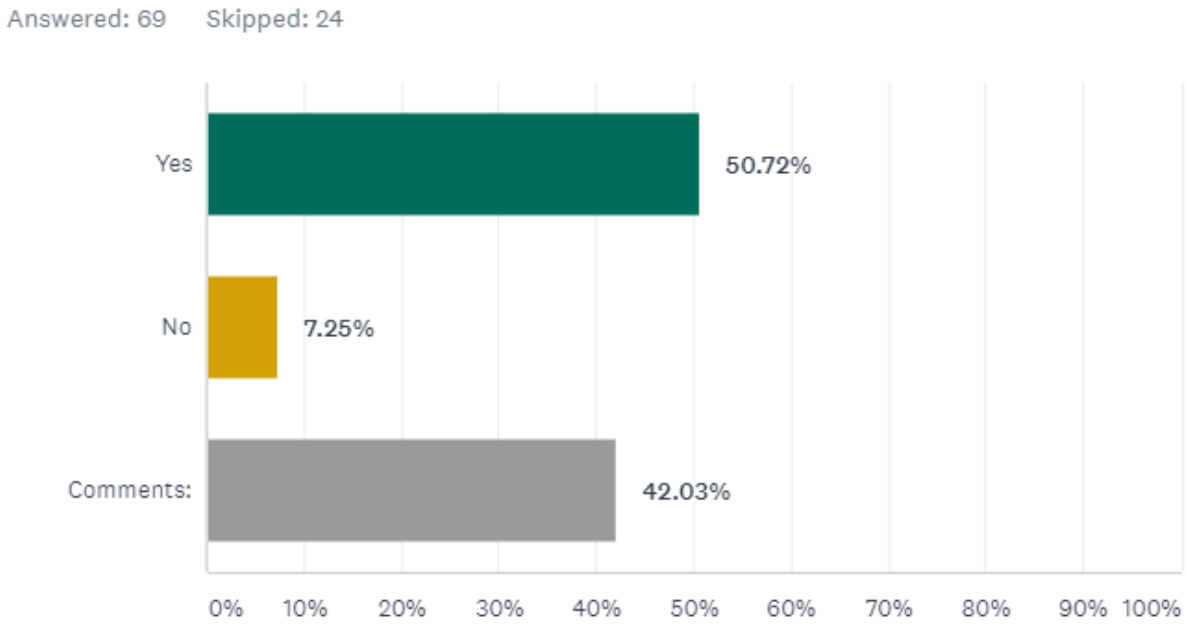
"Other information such as displaying energy consumption would be far more valuable and easily understandable to an end consumer."

Question 6

Do you agree that the Homestar certification process would be made simpler and more efficient with the use of a WebApp?

Summary of responses

A majority of submitters supported the development of a webapp, however many participants indicated their support was conditional on its functionality.



Selection of relevant comments

Many respondents believe a web-app will make Homestar simpler

"the right WebApp could potentially simplify the process of compiling an assessment, ultimately reducing the time and cost."

Many respondents said it depends on the functionality

"needs to be thorough, or at the least include links to the various tools which might be held outside the app"

"provide all the little calculators such as measuring plans, elevations, window sizes, average room heights, slab edge calculations etc."

Some respondents were concerned it would make Homestar more complicated

"small steps are better than a big "WebApp" step – builders, designers and homeowners are keen on using the rating tool but it is inevitable the amount of additional work it can

create till it becomes part of their day to day. Using a web app might complicate the figure."

A few respondents would prefer the NZGBC spent the time and money elsewhere

"prefer large resources went into driving uptake and education on how to design and construct higher performing homes"

A few respondents were concerned it would not work for multi-dwelling developments

"would be very difficult with multi-unit projects - how would it scale for a 100apt building?"

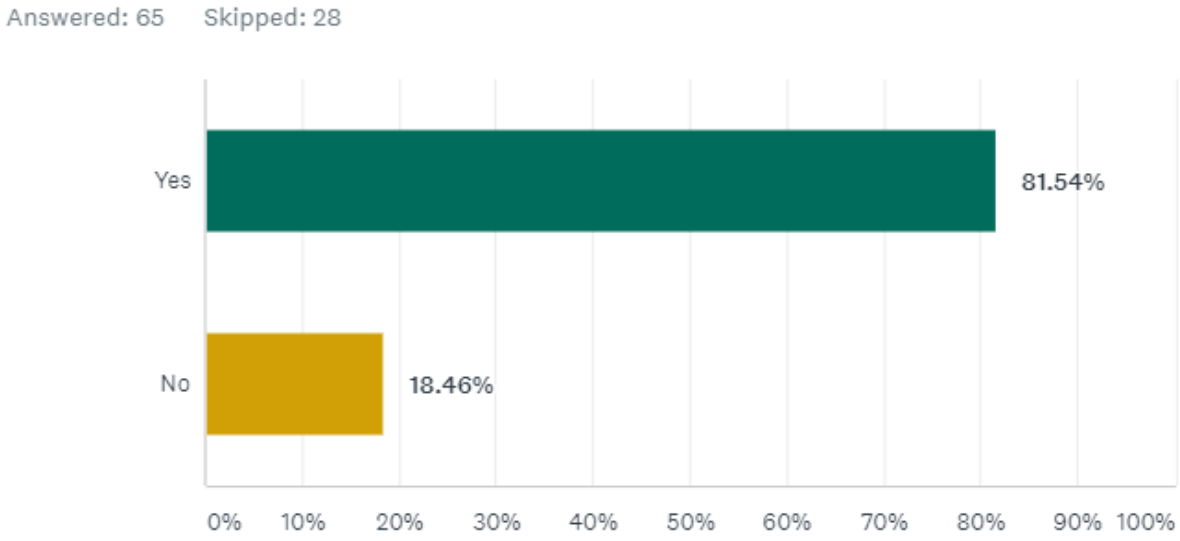
Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 7

Do you agree with the proposal for sample auditing and reduced documentation?

Summary of responses

There was strong support for sample auditing and reduced documentation as it will save assessors time and make Homestar cheaper. However, some respondents were concerned this would be abused and have a negative effect on the integrity and robustness of the tool.



Selection of relevant comments

Many respondents believe this will save assessors time and make Homestar cheaper

"right now documentation is to specific and pedantic"

Some respondents were concerned this would be bad for integrity and robustness of tool and will be abused

"some individuals will find loopholes"

ultimately the third-party process is what makes Homestar valuable. Convenience should not be made more important than the audit process."

A few respondents commented that time savings won't be achieved if assessors still need to have evidence on record

"I agree that reduced documentation is required to bring the cost of an assessment in line with its perceived value. However, I don't think this integrity model will achieve this if full documentation is still required to be compiled, simply not submitted. The amount of documentation could be reduced through other methods."

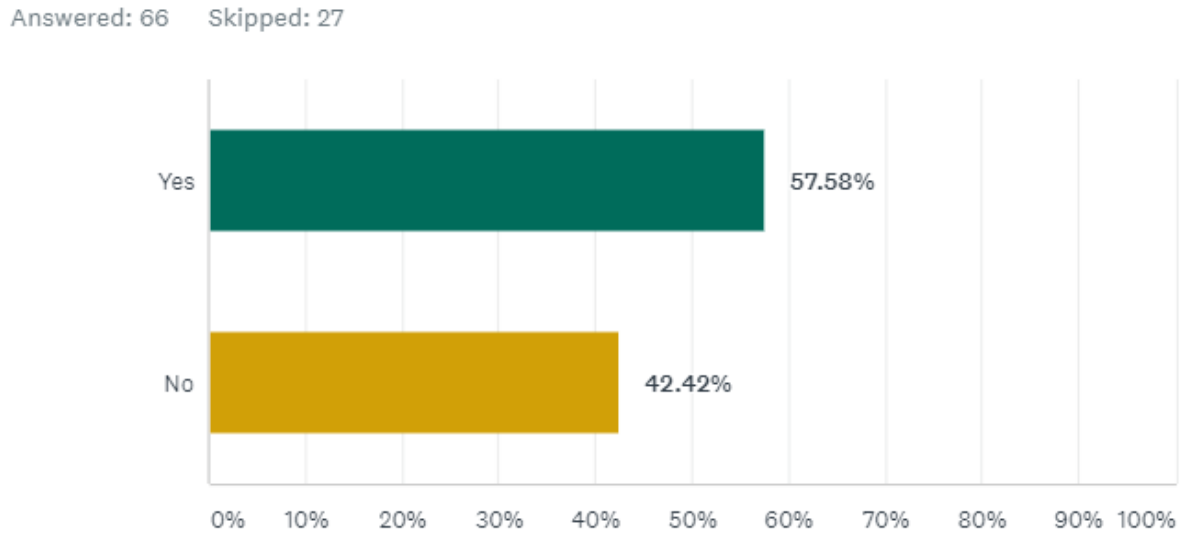
Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 8

Do you agree that we should remove points available for standard kitchen/bathroom extract and opening windows?

Summary of responses

The majority of the respondents agreed that we should remove points available for standard kitchen/bathroom extract and opening windows as these are building code requirements and shouldn't be rewarded in Homestar because Homestar should be a standard higher than the building code. However, some respondents believe these are important to retain as the code can't be relied on, and others suggested these could be retained with reduced points or no points. Some participants commented that these are still effective and a higher standard would be too expensive.



Selection of relevant comments

Many respondents commented that these are building code requirements and shouldn't be rewarded in Homestar because Homestar should be a standard higher than the building code

"Points for any code minimum requirements should be removed."

"Homestar should expand upon Building Code"

Some respondents believe these requirements should be retained as the code cant be relied on

"Evidence from recent new build studies still suggests that some of the basics like installation of extract ventilation is STILL not being done correctly"

Some respondents believe these requirements should be retained as higher standards are too expensive

"Installing a whole home ventilation system is still very expensive in NZ"

A few respondents believe these requirements should be retained as mechanical systems can't be relied on

"Mechanical systems will/do not always cope with all situations in a kitchen or bathroom and the ability to have short term additional ventilation is imperative."

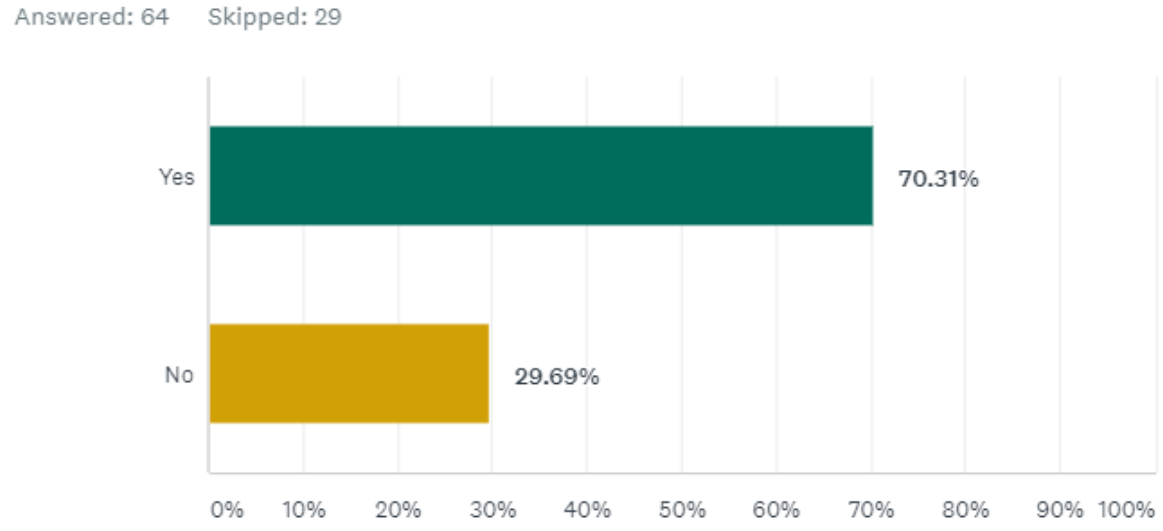
Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 9

Do you agree that we should require more than just opening windows for ventilation of habitable rooms (other than mechanical kitchen/bathroom) in Homestar? Please comment, if yes, at what Star level this should kick-in?

Summary of responses

There was strong support for requiring more than just opening windows for ventilation of habitable rooms (other than mechanical kitchen/bathroom). Suggestions of which star level to introduce this at were for the most part split between at 6 star or only at higher star levels, and some suggested this should be climate-zone specific. Some participants did not support this due to concerns relating to cost, functionality of the systems, and support for passive ventilation.



Selection of relevant comments

There was strong support for requiring more than just opening windows for ventilation of habitable rooms

"quality ventilation systems in habitable spaces help to regulate the air quality regardless of occupation"

Many participants believe this should be introduced at 6 Stars

"I'd bring in a basic system at six stars"

Some participants believe this should be introduced at 7 Stars

"should have whole house ventilation as a mandatory minimum"

Some participants believe this should be introduced at 8 Stars

"8-star and up should require MHRV."

Some participants believe this should be introduced at *9 Stars*

"9-star - ideally using "active house" principals."

Some participants suggested this requirement should be zone specific

"the requirements of this should be Zone specific"

Some participants did not support this due to concerns relating to cost

"would be a deal-breaker for using Homestar for many builders/developers. Prohibitively expensive and unnecessary for most compact-sized homes"

Some participants did not support this due to concerns relating to functionality of the systems

"research out of Europe suggests that people do not adequately maintain such systems – and some have become very sick when these units have been accidentally switched off without occupants realising"

Some participants did not support this as they believe the other pathways can still be effective

"Designers should be encouraged to meet the requirements of the building through as many passive strategies as possible to achieve good ventilation, healthy temperatures, low resource use etc."

"If the designer can prove that by maintaining a certain internal temperature and using mechanical vents in bathrooms and kitchens can maintain a healthy Relative Humidity in the house then this pathway shouldn't be eliminated."

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

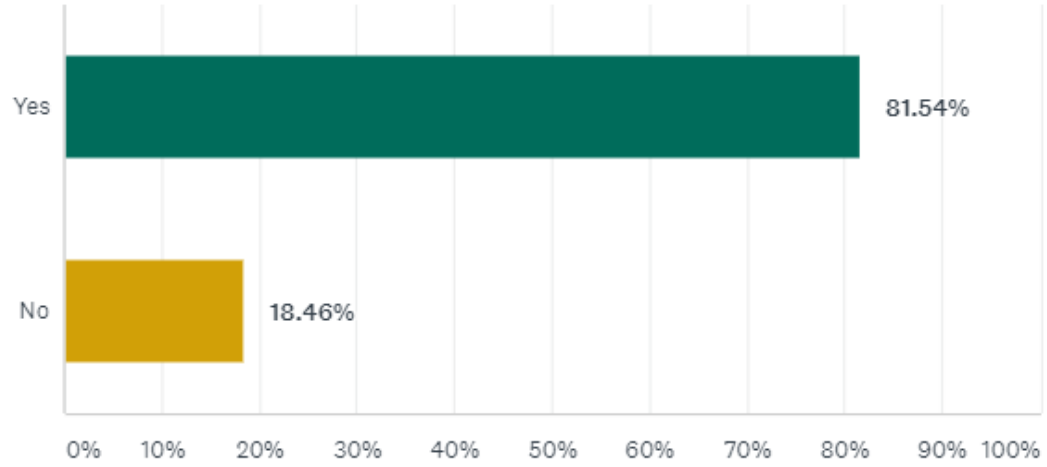
Question 10

Do you think that Homestar should have minimum requirements for heating systems in the main living space to be correctly sized and cost effective?

Summary of responses

There was strong support for having minimum requirements for heating systems in the main living space being correctly sized and cost effective. Some respondents supported this provided cost-effectiveness was *not* included as a metric, and some made comments regarding exceptions for Passive House designs. Some respondents did not support this as it adds complexity.

Answered: 65 Skipped: 28



Selection of relevant comments

There was strong support for having minimum requirements for heating systems in the main living space being correctly sized and cost effective.

"Undersized heating will be run flat out and still not work. Oversized will waste fuel whatever it is."

Some participants supported this provided there are exemptions for homes designed passively/ Passive Houses

"more weight should be given to Passive heating and cooling, as these generally make a home more energy efficient and reduce carbon, and this should be prioritised over fixed heating"

Some participants supported this provided cost-effectiveness is *not* used as a metric

"We do not believe cost-effectiveness should be considered. Cost is often a reflection of better quality, higher performance and increased durability so should not be discouraged. We also note that no other Homestar requirements take capital cost into account."

Some participants did not support introducing these requirements as it adds more complexity

"It's yet another thing to calculate, and the output of a heating system will depend more on the heating demand than its total kW rating"

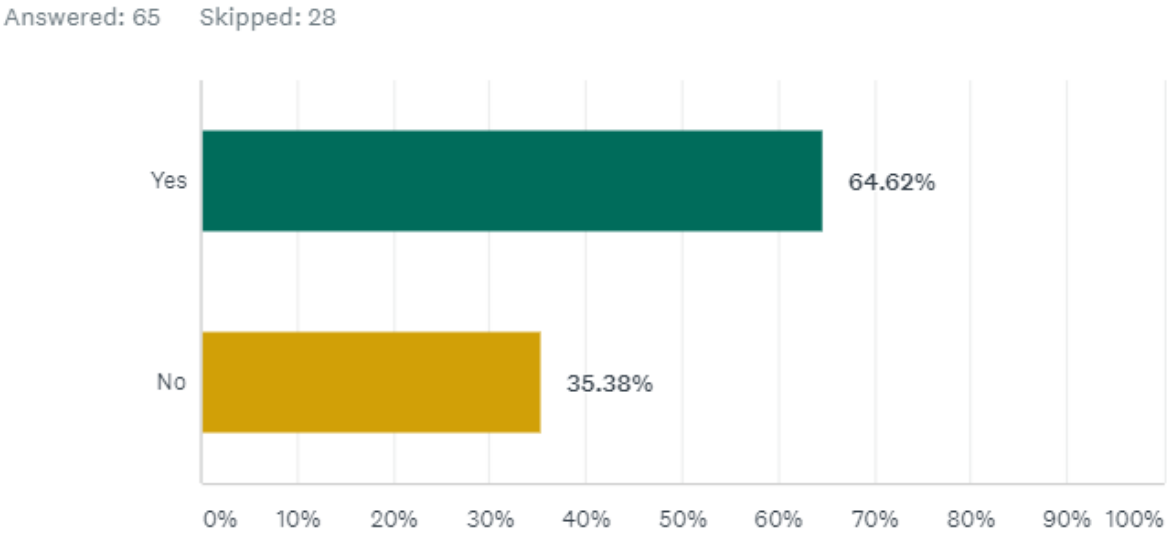
Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 11

Do you think that Homestar should include requirements for all habitable rooms to be heated, perhaps at the higher levels of Homestar?

Summary of responses

The majority of respondents supported including requirements for all habitable rooms to be heated, perhaps at the higher levels of Homestar. Making this a requirement at all levels was the most popular response, although only at higher levels was also a popular comment. Many participants commented that the focus should be on improving passive design so that desired temp is reached without a heater. A few suggested this should be climate-zone dependent. Some respondents did not support this, often because they believed it was not necessary if the home was well designed.



Selection of relevant comments

Many participants supported this and commented it should be required at all levels

"Spot-heating is just not terribly effective"

Some participants suggested the focus should be on improving passive design so that desired temperature is reached without a heater

"could be achieved with good design and insulation."

Some participants supported this, but only at lower levels because higher levels should be passively designed

"The Homestar framework should instead be designed to allow for a provision for heating only for the lower levels, with the higher levels required to be suitably designed for being fully passively energy efficient in order to achieve net zero carbon rating equivalence."

Some participants supported this, but only at higher levels

"only at the higher levels of Homestar (8 Star and above)"

A few participants comments this is unnecessary if the home has a good central heating/ventilation/MVHR system

"this would be negated by use of a MVHR, as the heat or cooling from a central source would be evenly distributed."

Many participants do not support this because the focus should be on passive design as this is more effective for addressing fuel poverty etc.

"With regards to the argument of fuel poverty or cultural preference, shouldn't we be ensuring that the thermal envelope of any star level makes it efficient to heat?"

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 12

Do you support assessing summer overheating risk separately from overall energy demand?

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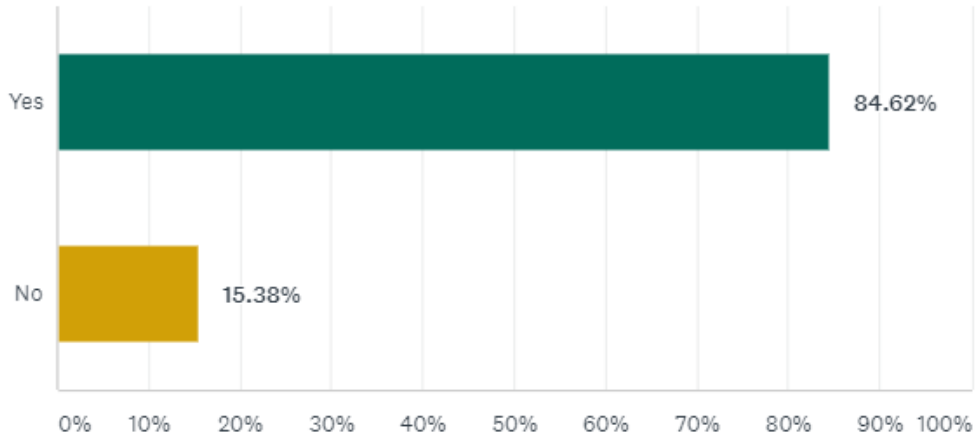


Summary of responses

There was strong support for assessing summer overheating risk separately from overall energy demand as this is important for maintaining comfortable indoor air temperatures. Some participants support this but think it should be climate-region specific. Some participants do not support this as they believe it is a minor issue that can be resolved by opening windows or installing small fans without unnecessary extra expense.

Selection of relevant comments

There was strong support for assessing summer overheating risk separately from overall energy demand as this is important for maintaining comfortable indoor air temperatures.

"highlight (and condemn) designs where comfortable sleeping and habitable temperatures are regularly exceeded"

Some participants support this but think it should be climate-region specific.

"Rating and minimum levels can be different depending the climate zone"

Some participants do not support this as they believe it is a minor issue that can be resolved by opening windows or installing small fans without unnecessary extra expense.

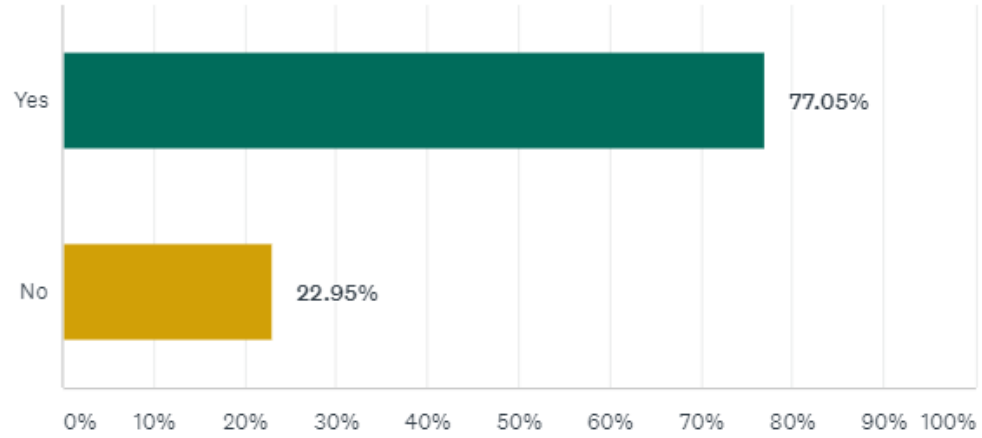
"Not necessary if opening windows are also mandated. How would this be assessed? It just adds additional cost for little value."

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 13

Do you think low risk of summer overheating should be a mandatory minimum for any Homestar rating?

Answered: 61 Skipped: 32



Summary of responses

There was strong support for making low risk of summer overheating a mandatory minimum for any Homestar rating as this is important for maintaining comfortable indoor air temperatures. Some participants only supported this for higher ratings, or in some climate zones, and some did not support this as it would make lower level ratings hard to achieve.

Selection of relevant comments

There was strong support for making low risk of summer overheating a mandatory minimum for any Homestar rating as this is important for maintaining comfortable indoor air temperatures.

"we should be looking ahead to global warming pushing up the temperatures and having homes that are robust enough in their design to withstand these extreme weather events."

Some participants only supported this for higher ratings, or in some climate zones

"*The risk of summer overheating should be factored in based on applicability by region, and could potentially be exempted for the lower ratings"*

Some participants did not support this as it would make lower level ratings hard to achieve

"This would be difficult to access"

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

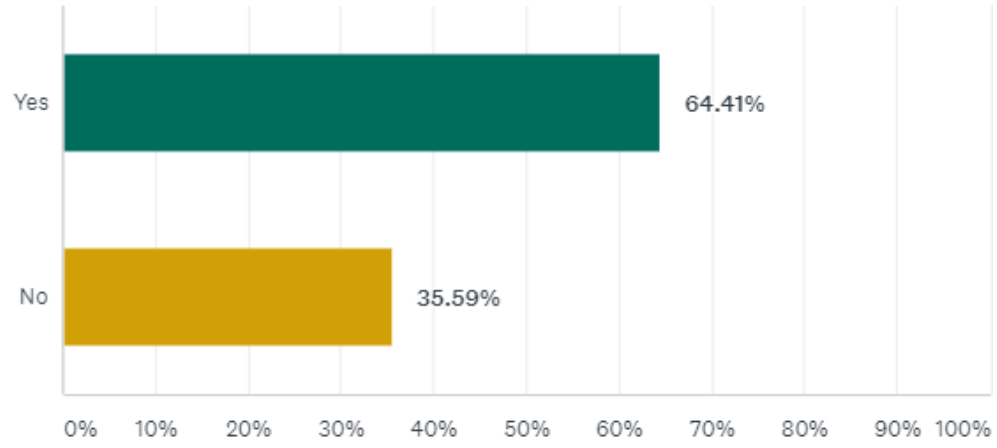
Question 14

Do you think the mandatory requirements of EHC-4 should be tightened? If so, how?

Summary of responses

Majority of respondents supported tightening the mandatory requirements of EHC-4. Many suggested requiring slab-edge insulation and recessed, thermally broken windows, and some only wanted these tightened at higher star levels. A few suggested blower door tests. Some respondents raised concerns around requiring vapour barriers, and a few respondents were against the suggestion of thermally broken windows. The respondents who did not support this felt it was unnecessary or too expensive.

Answered: 59 Skipped: 34



Selection of relevant comments

Many respondents suggested requiring slab-edge insulation

"insulated slabs are good but we get issues with durability of thermally broken slabs (damaged during built process). The longevity and damage on the build site is a challenge of the product."

Many respondents suggested requiring thermally broken windows

"thermally broken and recessed. Also the detailing around the window needs to avoid thermal bridging such as metal sill tray flashing under a thermally broken frame in contact with the inside aluminium behind the thermal break; as this will bypass the thermal break making in it ineffective."

Some respondents supported this for the higher ratings

"But only at the higher Star ratings e.g. 8 Star and above."

A few respondents suggested requiring blower door tests

"requirements need to be tightened and best assessed with a Blower Door Test."

Some respondents raised concerns around requiring vapour barriers

"If you require vapour retarders it needs to be done properly. A vapor retarder is a double-edged sword: while under some circumstances it can have the beneficial effect of helping to keep a wall or ceiling dry, under other circumstances it can have the undesirable effect of preventing a damp wall or ceiling from drying out."

A few respondents were against the suggestion of thermally broken windows

"I'm not sure it needs to be mandatory due to the construction cost implications. Maybe increase the weighting instead?"

The respondents who did not support this felt it was unnecessary or too expensive.

"Simply increasing benchmark is not the right answer and avoids the controversial topic of adding cost to building. The industry is under pressure to reduce building costs and increase affordability. For Example specifying thermally broken joinery dramatically increases cost for a R value benefit of say R0.1? In a perfect world where affordability doesn't matter I support the initiative, however with commercial drivers the benefit vs cost doesn't stack up."

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 15

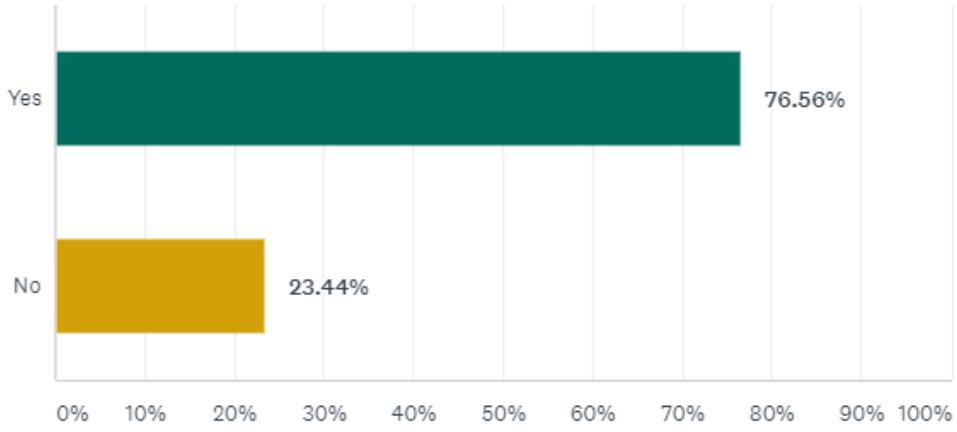
Do you think we should have mandatory minimum energy and/or carbon performance levels for each Star rating?

Summary of responses

Here was strong support for mandatory minimum energy and/or carbon performance levels for each Star rating. Respondents felt this is an important step to reducing the carbon emissions of homes. Some respondents commented they would only like energy included, not carbon performance, and a few respondents commented that *embodied* carbon should be excluded. A few respondents supported this for the higher rating levels

only.

Answered: 64 Skipped: 29



Selection of relevant comments

Many respondents felt this is an important step to reducing the carbon emissions of homes

"It supports international and local objectives about energy use and emissions and it will help to normalise inquiry into energy use/emissions generally."

Some respondents commented they would only like energy included, not carbon performance

"Carbon levels no - most clients and us as don't actually care"

A few respondents commented that embodied carbon should be excluded

"far too subjective and difficult to assess different materials as the rules for EPD are very different. For materials base them on using the best practice of the material type. then comparisons become meaningful."

A few respondents supported this for the higher rating levels only

"Perhaps for 9 and 10 ratings. Lower should not have this."

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 16

What do you think are the best metrics for minimum performance (energy, cost, carbon emissions, primary energy etc)?

Summary of responses

Many participants suggested energy consumption was the most important metric. Carbon emissions was also a very popular recommendation, although some participants rejected this idea as they felt it was too difficult to measure. Majority of the participants who

commented on cost rejected the idea as they felt it was too variable, although some participants were very supportive of cost as it is easily communicated to the end user.

Selection of relevant comments

Many participants suggested energy consumption was the most important metric

"energy is the best for general public understanding"

Carbon emissions was also a very popular recommendation…

"Carbon is the best for reducing environmental damage."

…although some participants rejected this idea as they felt it was too difficult to measure

"Carbon emissions is too abstract"

Majority of the participants who commented on cost rejected the idea as they felt it was too variable…..

"definitely not cost, because this could fluctuate dramatically with world events"

…although some participants were very supportive of cost as it is easily communicated to the end user

"It needs to be tied back to something that regular people not from the industry can understand to broaden the approach and collectively improve"

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

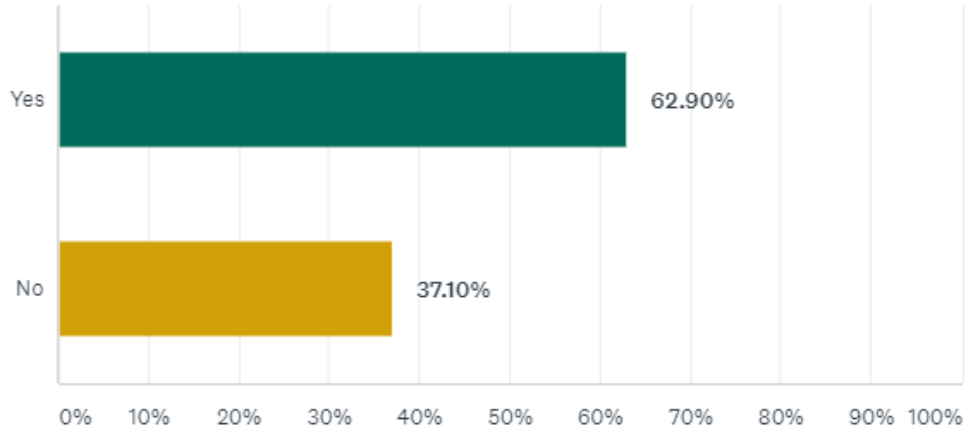
Question 17

Do you support combining all of the energy credits into one holistic energy/carbon credit supported by the development of a new calculator?

Summary of responses

There was a broad majority for combining the energy credits into one holistic energy/carbon credit. Most of the concern amongst those not in favour was that the approach might hide specific aspects of a home that are poorly performing such as efficient space heating.

Answered: 62 Skipped: 31



Selection of relevant comments

Yes

"What matters is the whole home energy consumption, not bits of it. It's not like you can pick which bits of the power bill to pay."

Yes/maybe, but would be very complicated

"Will it detract from the emphasis on each one (heating, hot water, renewables)"

No, keep them separate

"one credit will blur the results"

"With one credit a house could be super good in one thing but poor on one or more others, which could actually be improved, but points might not show this in combined. Maybe an overall rating but showing each element as well."

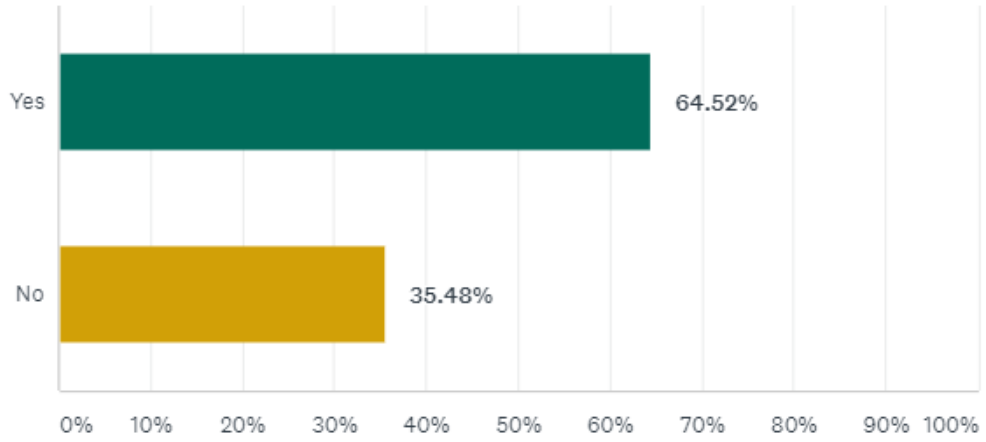
Question 18

Do you support the inclusion of appliances in an overall energy calculator?

Summary of responses

A majority of respondents supported including appliances in an overall energy calculator, however a few raised the point that these are not always included at point of sale which will need to be accounted for. Some supported this for fixed appliances only, and some did not support this at all as they are easily removed, not always provided, and it adds complexity to the tool.

Answered: 62 Skipped: 31



Selection of relevant comments

A majority of respondents supported including appliances in an overall energy calculator…

"ignoring them makes no sense as BRANZ research shows how important they are."

…however, a few raised the point that these are not always included at point of sale which will need to be accounted for.

"appliances are important but they don't always get included at sale so maybe have default number if they are not included?"

Some supported this for fixed appliances only

"Not moveable appliances. Fixed appliances could be included (this usually includes a dishwasher, but doesn't address the problem child of refrigeration!)"

Some did not support this at all as they are easily removed, not always provided, and it adds complexity to the tool

"Including appliances would make the tool unnecessarily complex"

"Appliances can easily be removed from the property and have an inefficient appliance installed in its place."

"as house builder / developer normally don't provide the appliances as part of the build."

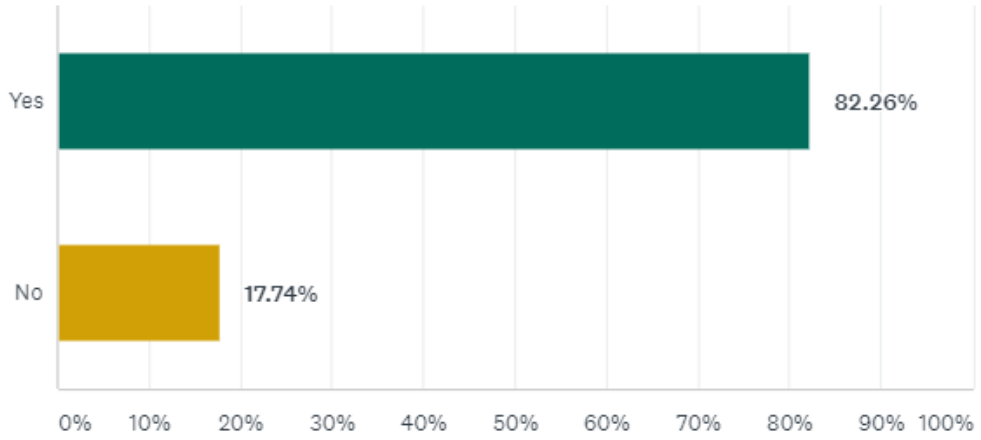
Question 19

Do you support the inclusion of water efficiency (shower WELS rating) in an overall energy calculator?

Summary of responses

There was strong support for the inclusion of water efficiency (shower WELS rating) in an overall energy calculator as conserving water will become even more important under future climate change forecasts. Some did not support this as they would rather it was assessed separately or felt it was unnecessary.

Answered: 62 Skipped: 31



Selection of relevant comments

There was strong support for the inclusion of water efficiency (shower WELS rating) in an overall energy calculator as conserving water will become even more important under future climate change forecasts.

"Usable water is increasingly a scarce resource and measures towards optimising its consumption will benefit future generations. It would be beneficial to factor in this important natural resource into the calculator."

Some did not support this as they would rather it was assessed separately or felt it was unnecessary.

"Already covered in the water ratings"

"Rural sections have there own water storage so conservation is not as much of an issue for these clients and it would be unfair to have it only for urban and require rural sections to have this which would incur an extra cost"

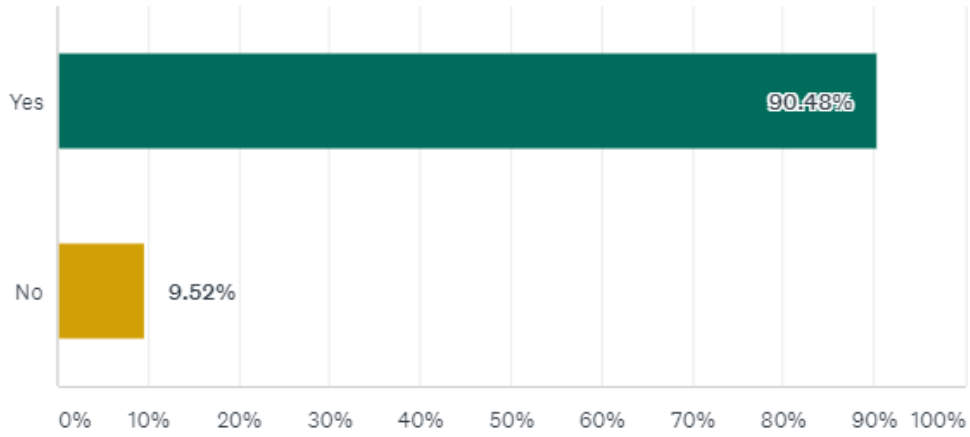
Question 20

Do you agree that the Homestar certificate should display data on the home's predicted energy performance?

Summary of responses

There was a very large majority (over 90%) for this question. Responses to it are summarised further in questions 21 and 22 below.

Answered: 63 Skipped: 30



Question 21 and Question 22

If you do agree, what information would you like to be displayed? (Pick as many as you like). Please comment on your above choices

Summary of responses

There was a mixture of preferences here with the largest support for overall energy consumption per m2, followed by space heating demand per m2, overall running costs ($ per year) and overall carbon emissions (

Space heating demand (kWh/m2)	44.07%	26
Space heating demand (Gross kWh)	28.81%	17
Overall energy consumption (kWh/m2)	47.46%	28
Overall energy consumption (Gross kWh)	38.98%	23
Carbon emissions (kg.CO2/m2)	40.68%	24
Carbon emissions (gross kg.CO2)	32.20%	19
Overall running costs ($ per year)	42.37%	25
Overall running costs ($ per year per m2)	35.59%	21
Space heating running costs ($ per year)	13.56%	8
Space heating running costs ($ per year per m2)	15.25%	9
Primary Energy (kWh/m2)	27.12%	16

Selection of relevant comments

Cost is what the consumer will understand – strong

"monthly costs as that is what the consumer understands"

Cost is too variable/inaccurate to be used – strong

"It's pretty hard to explain succinctly, for example, that the "keeping warm in the winter and cool in the summer" is based on maintaining x temperature band and therefore, because of personal preference, budget, etc. may not represent actual running costs of either home."

Energy consumption is important – strong

"Energy consumption infers operational costs and climate impact"

Carbon emissions are important

"your comment that carbon emissions is not a currency that is salient to consumers…given it is such an important issue for the world currently…Homestar ought to be part of changing that fact, that carbon emissions are fundamentally important to how consumers should analyse their purchase…It's educating the consumers that is important rather than changing the method of measurement"

Kwh/m2/KG co2 eq /m2 vs. Gross

"Kwh/m2 and KG co2 eq /m2 are my preferred choices because you can compare with others homes. (Gross can't)"

Question 23

Do you think Homestar should produce energy/carbon bandings similar to appliance energy labelling (A-G)?

Yes – NZGBC should pioneer this.	55.74%	34
No – this needs to be a Government-led initiative.	44.26%	27

Question 24

If you answered "yes" to the above, what is the best way for us to do this?

Summary of responses

There was a small majority of support for Homestar to include an energy label, but

Selection of relevant comments

The European model – common

"Similar to what is done in Europe with buildings. A-f score. Easy to understand"

Other

"coordinate this with BRANZ/CSIRO/Govt/others in order to produce a singular metric that is easily understood and is transparent. There is little point in all organisations measuring this differently and requiring differing outcomes."

"I think two vertical rainbow bands from a 1-100 scale w arrow indicators for KwH use and Co2 emissions--one band for the Homestar home, and one band for a standard Built to Code home of the same size"

Question 25

if you answered "no" to the above, are there other ways we could visually show how the home compares?

Summary of responses

On the whole those that did not support Homestar introducing energy labels did so because they wanted this to be led by Government (or all of industry) or they felt that the Homestar Star levels were sufficient in of themselves, particularly if mandatory energy targets at set at each of the Star levels.

Selection of relevant comments

Needs to be govt led

"an EPC is needed, but not provided by Homestar, only used by Homestar"

Other

"Homestar level rating (such as 6, 7*, etc) should be sufficient enough to differentiate from simply code compliant houses"*

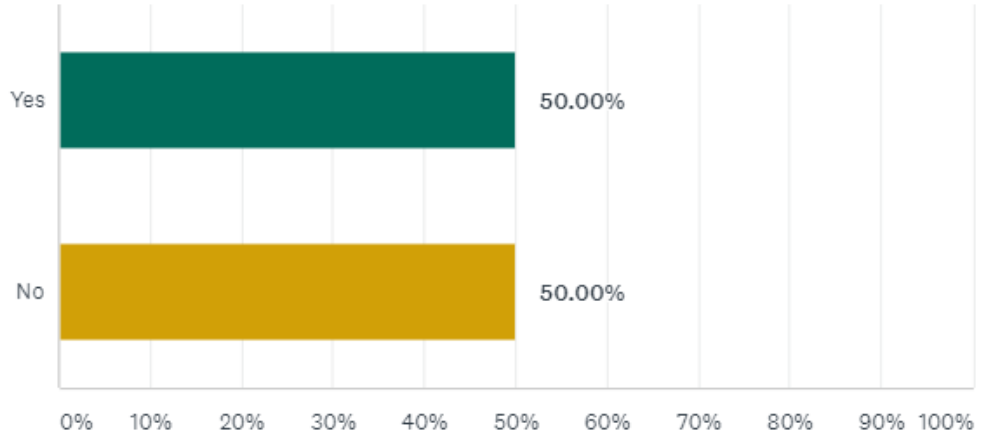
Question 26

Do you agree with the idea that larger homes (with the same number of bedrooms) should find it harder to get a good energy label?*

Summary of responses

There was no clear preference for whether larger homes (with the same number of bedrooms) should find it harder to get a good energy label.
*This question did not have a comment box in the consultation and the below comments have been extracted from responses to other questions.

Answered: 62 Skipped: 31



Selection of relevant comments

"No, a home's energy consumption (and associated carbon emissions) is more important than its size"

"Easy for larger home to get better energy efficiency rating per kWh per m2"

"As not all homes are the same, and all families are different, Homestar measures currently discriminate against larger homes. If developments mandate Homestar compliance a result might be to only produce small homes that are more 'compliant'. This might lead to poor holistic outcomes. An example could be larger homes for larger families with more occupants or multi-generational families?"

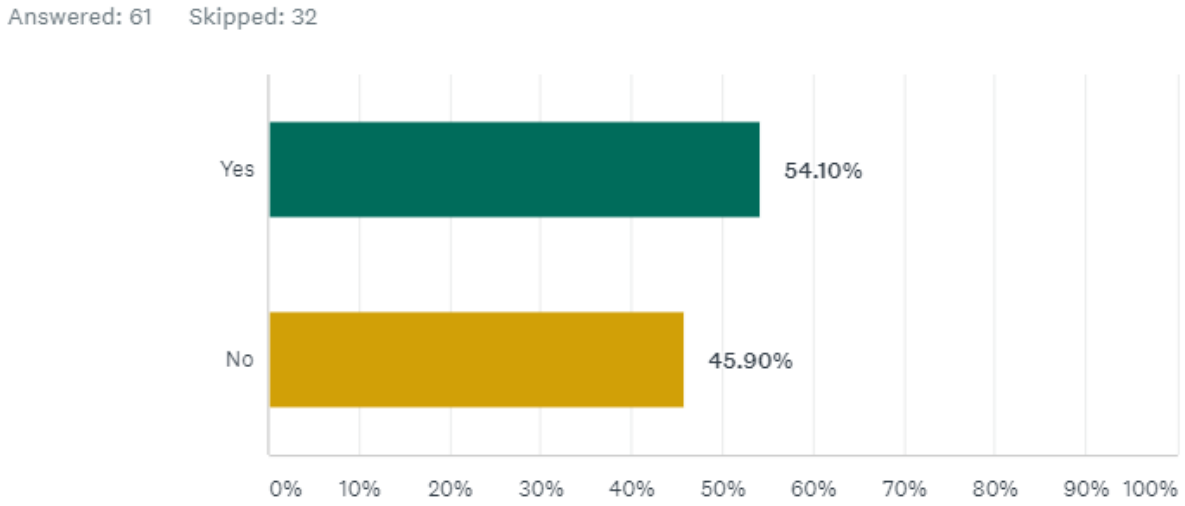
Question 27

Do you agree that Homestar should develop (and mandate the use of) a single modelling tool?*

Summary of responses

A small majority of participants supported the idea of Homestar developing (and mandating the use of) a single modelling tool. A few respondents felt this would be unnecessarily complicated and expensive to develop, and several participants suggested using PHPP instead.

*This question did not have a comment box in the consultation and the below comments have been extracted from responses to other questions.



Selection of relevant comments

Some respondents felt this would be unnecessarily complicated and expensive to develop

"A Homestar specific modelling tool would be very complicated and potentially expensive to generate and keep updated – and it is alarming to hear that such different results are already coming out of the variety of tools used (sort of demonstrates that modelling only really is partially effective – and therefore only partially valuable!)."

Several participants suggested using PHPP instead

"Use PHPP – no need for you to reinvent the wheel"

*This question did not have a comment box in the consultation and the above comments have been extracted from responses to other questions.

Question 28

Please tell us about any improvements you would like to see to the existing Homestar thermal modelling protocol.

Summary of responses

There was a wide variety of responses to this question. Many felt that developing (or picking) a single tool would solve the problem. Others felt that thermal bridging should be included. Some felt that the modelling protocol should align with NZS4218.

Selection of relevant comments

Pick a single existing tool/develop a tool and don't allow others - common

"If one standardised test was used, then it simplifies the grading."

Thermal Bridging

"standardised thermal bridging values should available different typical construction methods as well as a pathway for modelling thermal bridges. Typical thermal bridges that require assessment... Window installation E2/AS1 v Recessed etc inter-story junctions corners of building Window and door openings Wall to ceiling junctions Wall to floor junctions etc"

"I think it needs to be consistent and simplified for general public to be able to understand. This is more important that getting a very accurate result. A calculator where you can input Overall dimensions Latitude Glazing area and insulation level of each wall Insulation level of roof/floor Overhang provided to North windows This should be able to give a rough but fairly accurate summer and winter thermal performance score, which could then be used as a multiplier for other factors such as heating and cooling loads."

Airtightness

"How many homes are actually pressure tested. How many pressure testing doors are the in NZ? Nice idea but how practical."

"needs to consider heat losses from ventilation and air leakages."

Other

"internationally the big measure has always been comparing to a reference building. 2 model / 1 model which I think is good approach."

"overheating should be added"

"The current modelling protocol is a mess. There are a lot of things wrong with it. It has almost no relevance for apartments and isn't backed by any reasonable assumptions for how a house or apartment are designed or operated It is extremely difficult to balance standard design inputs with the modelling protocol. it bears little resemblance to standard design modelling protocols which means the findings for a 'good design' do not match, meaning some compromise has to be found. There needs to be significantly more focus on alignment with NZS4218, not the NZBC clause H1 Building performance Index - No one uses this in reality. (why deviate from the 4218 protocol anyway? it makes homeowners pay for 2 types of modelling which will return different results). Add to the 4218 protocol if

needed, but please stick closely to it. there are plenty of other issues too, like the requirement for heating and cooling loads to be reported only, but not mechanical ventilation system energy. Additionally, ENERGY should be reported, not LOAD. (Energy allows homeowners to be rewarded for high COP equipment). They should be rewarded from having both a low load house and high efficiency equipment. Ultimately it needs more experienced experts to review the protocol and to provide new guidance."

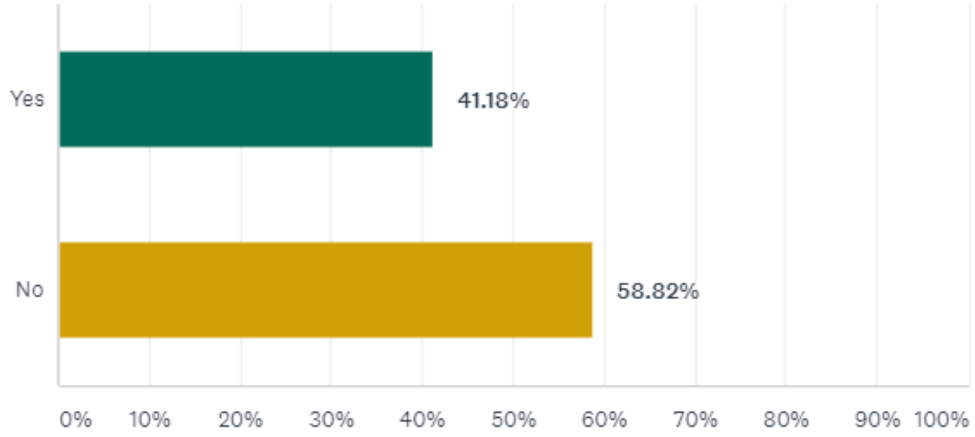
Question 29

Do you agree that Homestar should no longer support the use of schedule/NZS 4218 methods in EHC-1?

Summary of responses

There was majority support for keeping the schedule method in some form. On the whole those that wanted it to be retained did so because of its simplicity and ability to clearly communicate standards with the wider house building industry. Those that wanted it to be removed did so because they were concerned with its inaccuracy.

Answered: 51 Skipped: 42



Selection of relevant comments

Simplicity of schedule method makes lower Homestar levels accessible to broader market and helps uptake – keep it for lower levels – strong

"Schedule methods are straightforward and are more likely to encourage people to use Homestar. If the aim is to raise the quality of our buildings, we believe that schedule methods are good enough for the lowest (6 star) level only."

NZS 4218 is inaccurate and problematic - common

"No consideration for thermal bridging No consideration for many of the readily available construction types. Only 3 distinct climate zones for all of New Zealand No consideration for solar heat gain (cooling requirements due to overheating) Insulation requirements for each climate zone are almost identical Issues with the way windows are modelled… Uses an old method for calculating thermal performance, THERM / WINDOW software from LBNL using NFRC boundary conditions (industry has moved on to a different European standard) Window sizes are standardised and are not accurate to what is installed Generic thermal performance tables are inaccurate Glazing packages used in the generic thermal

performance tables are old and do not reflect what is available in the market No consideration for the thermal performance of doors No consideration for the impact of the installation of windows on thermal performance"

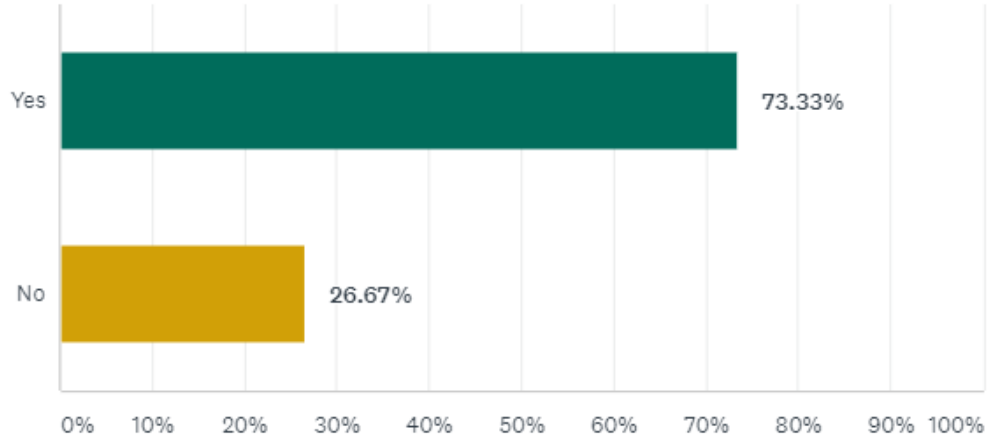
Question 30

Do you think the thermal performance requirements of Homestar should be tightened, particularly at the lower Star levels and in Zone 1?

Summary of responses

There was strong support for tightening thermal performance requirements, particularly at the lower star levels and in Zone 1, because the Homestar standard should be higher than the building code. Some participants made suggestions of how this should be done, including accounting for overheating, increasing required r-values, accounting for solar control, and accounting for regional differences.

Answered: 60 Skipped: 33



Selection of relevant comments

Many participants commented that the Homestar standard should be higher than the building code

"We can assume the BC is going to get slightly harder, the new Homestar tool should demand higher standards still."

Some participants suggested it should account for overheating

"building code currently only covers the energy"

Some participants suggested required r-values should be increased

"we need to be speccing the highest levels of insulation it is possible to get into any wall, floor and ceiling… that might start to off-set typical poor installation"

A few participants suggested it should account for Solar Control

"should also cover solar control."

A few participants suggested it should account for regional differences

"ratings should also be differentially configured on a region/climate specific basis factoring in the need for thermal performance and solar control on independent scales i.e. not an either/or approach but each on its merits."

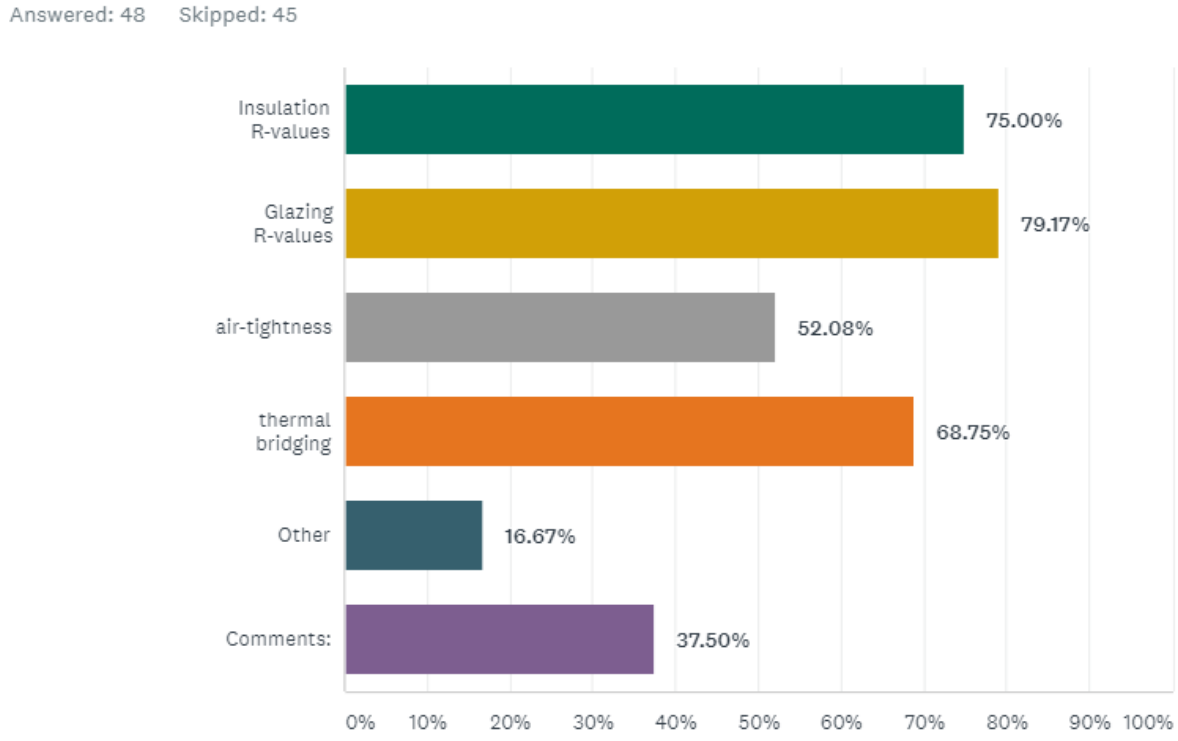
Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 31

If you answered yes, what aspects should be tightened and by how much? (Pick multiple).

Summary of responses

Most participants felt glazing R-values should be increased, followed by insulation R-values, thermal bridging and then airtightness. Air-tightness showed markedly less support than the other measures perhaps because of the lack of experience of this in New Zealand at this time.



Selection of relevant comments

"Glazing R-values - R0.35"

"all of the above, 10% better everywhere."

"put in solar control as required R values cool and warm"

"Glazing R-Values: Minimum 0.37 m2.K/W (current 0.26 m2.K/W =old technologies), tighten towards the higher ratings. Solar Factor (for solar control - assess as required by region/climate); Similar approach for non-glazing insulation materials."

"Location of windows within the wall cavity."

"Thermal bridging and air-tightness less important or even counterproductive in zone 1."

"Glazing is typically very expensive to upgrade thermally, and one may be better off with thermal drapes. Regardless of how good the glass or frame is it's still the weakest point of the envelope. Targeting airtightness will change the kiwi way of life and use of outdoor spaces, depending on climate zone it can have negligible benefit and requires strict adherence and reliance on mechanical systems etc. If any 'upgrades were to be made, insulation (to a point to fit into standard framing sizes) is typically the most cost effective and caters for a majority of the envelope providing maximum benefit."

"Consideration would have to be made for humid climate"

"get the building orientation right"

"Thermal bridging only at 8+ level."

"Shading coefficient of glass"

"ventilation / reuse"

"Just account for slab edge thermal bridging in the R value calculation would reduce heat loss by 30%"

Question 32

We are also interested in evidence that the cost of (and skills to design and build) better performing products and systems is reducing/improving, for example slab-edge insulation and higher performance glazing. Please use this comment to provide any evidence you might have.

Summary of responses

Many participants commented that they had not seen evidence that costs were reducing and were concerned that price was still a major barrier for uptake of higher standards. Some participants commented on specific items, particularly slab insulation, becoming more available, and some commented that they are expecting costs to reduce in future.

Selection of relevant comments

Many participants commented that they had not seen evidence that costs were reducing and were concerned that price was still a major barrier for uptake of higher standards.

"The cost to maintain high performance is high and out of reach of many. Good, solid performance is achievable by many, instead of high performance by few."

Some participants commented on specific items, particularly slab insulation, becoming more available

"when Homestar started there wasn't a commercially available slab insulation product - now there are several"

"In the glass industry high performance glass products have transformed over the last 6 – 7 years and are more accessible."

"thermally broken double glazing seems to be moving toward standard"

Some respondents commented that they are expecting costs to reduce in future

"Supplies of higher performance products in NZ is improving. Cost will improve if volume increases."

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 33

How should NZGBC deal with possible improvements to the Building Code as and when performance requirements are increased?

Summary of responses

Majority of respondents felt that the best approach is to shift the goal posts to ensure Homestar stays ahead of the Building Code and make sure older ratings still have value. Some felt it was best to retire the lower ratings as they would no longer be compliant with current standards, and others believe the requirements should stay the same but emphasise Homestar's other benefits to reduce confusion. Other suggestions were to add more categories or relate the star ratings to % above code.

Keep the requirements the same but emphasise Homestar's other benefits	22.22%	14
Shift the goal posts	47.62%	30
Retire the lower star ratings	25.40%	16
Other	12.70%	8

Selection of relevant comments

Majority of respondents felt that the best approach is to shift the goal posts to ensure Homestar stays ahead of the Building Code and make sure older ratings still have value.

"be always 10 % above code, so Homestar goals move with codes improvement, confirming an Homestar rating will be always better."

"Retiring lower star levels would penalize early adopters of the tool, turning proponents into critics. I would hate to have invested into the tool to get a rating only to have it dissolved a few years down the road."

Some felt it was best to retire the lower ratings as they would no longer be compliant with current standards

"Statements that lower star ratings are no longer compliant with the Homestar rating protocols as they are substandard or code minimum."

Some felt it was best to keep the requirements the same but emphasise Homestar's other benefits

"buildings are long term investments. Constantly changing the goal posts just causes confusion."

Other suggestions

"add more categories"

"If you shift the goal posts - then previously accredited houses won't be comparable to newly accredited ones. You either need to relate Homestar ratings to a % above code minimum (somehow), or develop new ratings if/when the Building Code changes."

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

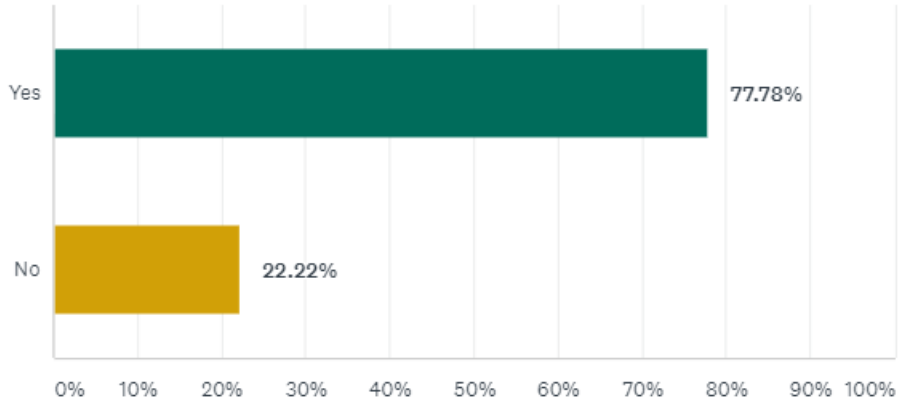
Question 34

Do you think that Homestar should include recognition for low global warming potential refrigerants?

Summary of responses

There was strong support for including recognition for low global warming potential refrigerants in Homestar, especially for heat pumps, as there are solutions available and it's important for emissions reduction. Some participants were concerned this might increase costs.

Answered: 63 Skipped: 30



Selection of relevant comments

There was strong support for including recognition for low global warming potential refrigerants in Homestar, especially for heat pumps, as there are solutions available and it's important for emissions reduction.

"This is in line with discouraging refrigerants that are believed to be contributing to global warming and ozone depletion, especially at the end of life of refrigeration/air-conditioning equipment."

"There is good evidence of the ongoing leakage of installed heat pump systems and the lack of containment during charging and end of life disposal. In addition, there are several CO2 systems now easily available in the marketplace."

Some participants were concerned this might increase costs.

"This needs to be done being conscious of cost and with alternatives readily available and in a cost-effective manner."

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

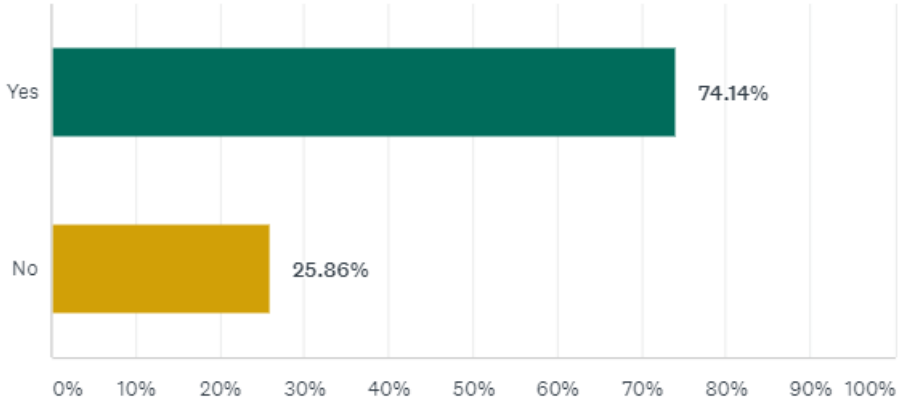
Question 35

Do you support introducing a credit for reducing the carbon footprint of main assemblies in Homestar?

Summary of responses

There was strong support for introducing a credit for reducing the carbon footprint of main assemblies in Homestar as this is very important for reducing the impact of climate change, although there were questions about what exactly would be measured, and how. Some participants did not support this as they felt itis not possible to measure this at present and would add complication and cost.

Answered: 58 Skipped: 35



Selection of relevant comments

There was strong support for introducing a credit for reducing the carbon footprint of main assemblies in Homestar as this is very important for reducing the impact of climate change.

"Without this the rating tool simply doesn't fully address the impact of the building."

Some participants did not support this as they felt it is not possible to measure this at present and would add complication and cost.

"Until there is a clear way of accounting for this, there shouldn't be credits."

"not all material suppliers know this, and this will add more cost to the homeowners."

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 36

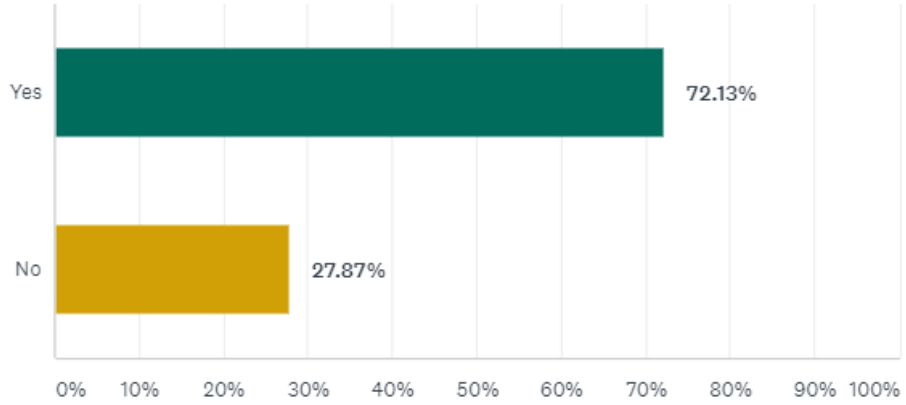
Should Homestar explicitly recognize and reward net zero carbon (ready) homes?

Summary of responses

There was strong support for introducing a way to explicitly recognize and reward net zero carbon (ready) homes, although for some participants this depended on how net zero carbon (ready) homes are defined. A few respondents were concerned that fully-

electric should not be the only pathway, and others were concerned this would be too high a bar.

Answered: 61 Skipped: 32



Selection of relevant comments

There was strong support for introducing a way to explicitly recognize and reward net zero carbon (ready) homes…

"Climate change is our #1 environmental issue and New Zealand is committed to taking action. We are a signatory to the Paris Agreement and the built environment is a key contributor. Homestar can provide practical, long-lasting guidance on translating our national goals into action."

…but it depends on definition of Net Zero carbo (ready)

"net zero carbon on what criteria? the built? the lifetime of the building? how does it apply to reno?"

A few respondents were concerned that fully-electric should not be the only pathway

"Significant investment is already taking place to develop green hydrogen, biogas and bio-LPG as realistic zero carbon alternatives to electricity."

A few participants were concerned this would be too high a bar

"rewards only the elite homes, not your regular consumer which is 95% of the market."

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

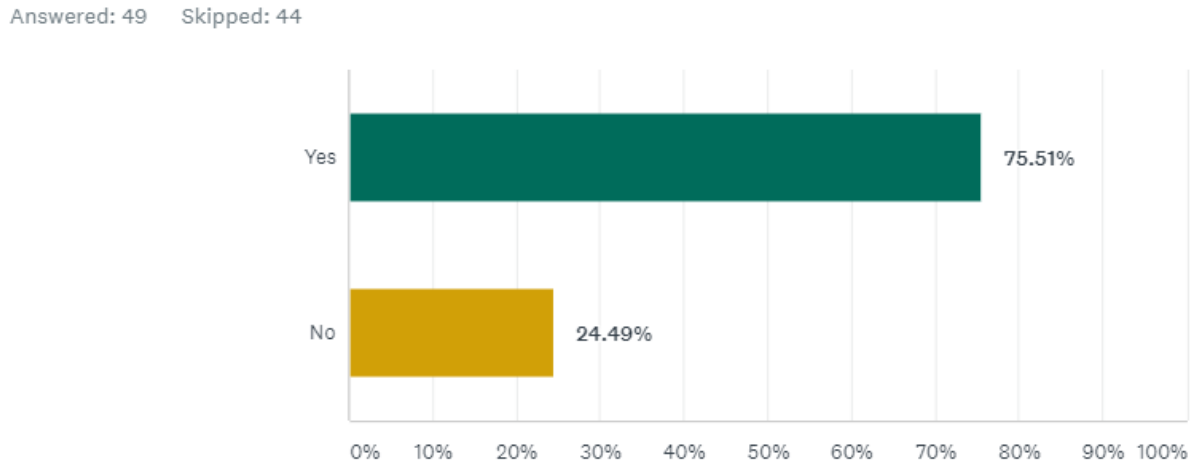
Question 37

If yes, should Homestar require homes at higher star levels (say 9 and 10) to be net zero carbon (ready)?

Summary of responses

There was strong support for requiring homes at higher star levels (say 9 and 10) to be net zero carbon (ready), although for some participants this depended on how net zero

carbon (ready) homes are defined. Some participants did not support this as they felt it was unnecessary and complicates the tool.



Selection of relevant comments

There was strong support for requiring homes at higher star levels (say 9 and 10) to be net zero carbon (ready)...

"Rankings of 9 or 10 need to be absolute best practice, and a strong argument exists for them to be net-zero carbon (or even negative carbon) in terms of construction materials embodied carbon too. This will increase the amount of timber products and decrease use of concrete/steel where possible."

...but it depends on definition of Net Zero carbo (ready)

"Do you mean carbon neutral? based on the Paris agreement, technically in 2030 this should be the norm. So, all rated 10 stars in 10 years?"

Some participants did not support this as they felt it was unnecessary and complicates the tool.

"You're just shifting the goal posts again. Develop a new standard Homestar 10+ etc for net zero carbon."

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

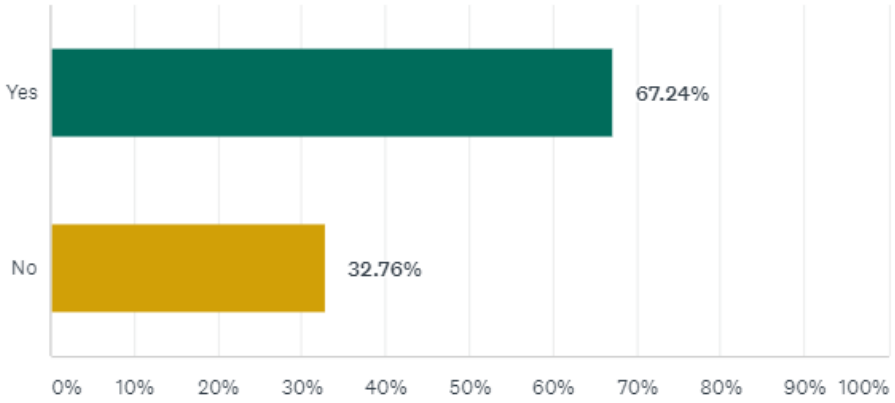
Question 38

Do you agree that we should increase the number of mandatory minimums for the different Homestar levels?

Summary of responses

Majority of participants agreed that we should increase the number of mandatory minimums for the different Homestar levels, although for some this depends what they are. Some participants did not support this as they felt it was too complicated and confusing, and there were other ways to incentivise what gets targeted at each level.

Answered: 58 Skipped: 35



Selection of relevant comments

Majority of participants agreed that we should increase the number of mandatory minimums for the different Homestar levels…

"Better holistic approach that is achievable and applies to all vs small market segment of high value homes."

…although for some this depends what they are

"Not sure, would depend on the rating level and what is considered mandatory."

Some participants did not support this as they felt it was too complicated and confusing, and there were other ways to incentivise what gets targeted at each level.

"If the benchmark thresholds (60-69 points for 6 rating, etc) are set correctly, and the weightings are correct, then this shouldn't be necessary. Better to put maximum values able to be achieved from each category"*

"This makes it hard to compare a 3 year old dwelling vs a new one where both are 6 star. Meaning the consumer then needs to look at the year the building was rated and translate that to the current."

Further comments have been included in Appendix A and will be taken into consideration as we develop Homestar v5.

Question 39

We are sure that many of you will have your own ideas about how Homestar could be improved. Please use this section to give us any remaining thoughts.

Summary of responses

There were a variety of comments made relating to small changes, re-iteration of points made earlier in the survey, and one-off suggestions. These have been included in Appendix A will be taken into consideration as we develop Homestar v5. Topics raised by multiple respondents include waste (construction & demolition, and household), the question of post-occupancy data collection, innovations, and transparency in communicating ratings.

Selection of relevant comments

A few participants commented that reducing construction waste is important, not adequately rewarded, and the credit needs to be reviewed

"Waste management plan should be mandatory minimum with no points associated"

"Sorting of waste takes time and distraction that affects pressure to deliver onsite. This can lead to cross contamination."

A few participants commented that meeting waste reduction targets is really hard outside of Auckland, and there needs to be lower targets in the regions

"regions outside of Auckland should have a lower target – 50%? More achievable and incentivises some action"

A few participants commented that designing out waste/designing for dis-mantling at end of life needs to be rewarded

"I think this should be more prominent in the process as engagement with the whole project team (clients, designers and contractors) from the outset is the biggest opportunity to influence waste minimisation but also sustainable use of materials. Designing out Waste workshops are one way of introducing this process and the actions coming of these can be documented and tracked."

"Kainga Ora is demolishing 1 in 3 houses. Where are the points in the system for deconstruction? And re-use?"

A few participants commented that the household waste credit needed to be reviewed or possibly removed as it was not as effective as intended

"putting facilities in place won't mean that the householders will use them"

"there are such different systems in place around the country for collection, and these also change on a regular basis so very hard to future proof. There are lots of additional streams that householders may want to collect and store for later drop off outside of kerbside collection e.g. e-waste and batteries."

"I'm not sure the provision of composting facilities will achieve the intended outcome. Some people will not want to compost even with facilities provided. Many others will not compost correctly. Bokashi can be hard to do right, and some composting expert feel that, unless used along with a second stage compost, will be detrimental to soil health. The main thing is to ensure there is space available to ensure dwellers can engage with composting if they choose to."

A few respondents raised the possibility of post-occupancy/in-use assessment(s), some for…

"more measurable outcomes for environmental impacts and indoor air quality"

"Validation through monitoring. could be design rating, built rating, measured rating"

…and some were against this suggestion

"what if you're overseas for 3 months? It's a bit "big brother" – temp preferences are very personal. Has the benefit of educating the occupant but doesn't simplify things and doesn't really interest developers who are the biggest HS users"

A few participants commented that the Innovations credits need to be made more prominent and accessible

"Innovation credits that have been awarded over the years need more prominence within the NZGBC pages. The intent of these credits was to promote cutting-edge/novel initiatives that others could learn from and replicate en masse."

A few respondents commented that the NZGBC needs to be more transparent with the public regarding which homes have ratings, and what basis they were awarded on

"Transparency and a register of homes."

"Calculation method transparency is required in order to reduce "closed-shop" perceptions of Homestar in the marketplace, and to allow the programme to flourish"

Consultation feedback

"Thanks for opportunity to contribute / consult!" or similar – common

"It is a marathon not a sprint, you're doing great. Accept we will need to keep reviewing and changing"

"I think you're on the right track. The streamlining of the tool is far clearer for ordinary people and will encourage uptake."

"Looking forward to Homestar v5"

"I am really encouraged"