

Hon Eugenie Sage
Chairperson
Environment Committee, Komiti Taiao
New Zealand House of Representatives

Via email: environment@parliament.govt.nz

Dear Ms Sage

RE: NZGBC submission to the Environment Committee's Briefing on reducing construction and demolition waste going to landfill

New Zealand Green Building Council (NZGBC) appreciates the invitation to provide input to the *Briefing on reducing construction and demolition waste going to landfill*.

The New Zealand Green Building Council are passionate advocates for better buildings, because we know that better buildings mean healthier, happier Kiwis. We run trusted, robust authentication schemes, such as Green Star and Homestar, that highlight the many buildings that have proven their healthy, sustainable and safe credentials.

We're a non-profit, that includes 520 companies and organisations amongst our members, including banks, energy companies, insurers, government departments, publicly listed property companies, project managers, manufacturers, construction companies, architects, developers, designers and tertiary education institutions. This includes many of the NZX50. These members have a combined market turnover of \$40bn. We also work with local government members, representing over 60% of Aotearoa New Zealand's population

NZGBC notes the government's previous consultation, *Reducing waste: A more effective landfill levy*, and commends the subsequent adjustments announced to the levy in several key areas, including expanding to include construction and demolition waste, in line with NZGBC's recommendations in its submission to the same.

Since its establishment in 2005, NZGBC has been working towards a vision that all buildings and homes in Aotearoa should be green and sustainable, making healthier, happier New Zealanders. Together with our members and stakeholders, we are on a mission to reduce the impact of the built environment, and that includes reducing the waste associated with construction, demolition and operation of homes and buildings.

Addressing waste going to landfills is increasingly critical as figures continue to grow year on year. Up to 50% of total waste that ends up in Aotearoa's landfills is created by construction and demolition.¹ NZGBC operates several rating tools that encourage and reward the sustainable design and construction of buildings, homes and communities, and the operation of commercial buildings. The Green Star and Homestar rating tools both include credits that encourage and reward the reduction of waste. Green Star and Homestar projects regularly exceed best practice benchmarks and achieve 70-90% of waste diverted from landfill. To date, Green Star projects with built certification have diverted 73.6% of waste from landfills around Aotearoa.

Achieving this level of waste reduction and diversion from landfill can be challenging in New Zealand, where opportunities for recycling construction and demolition waste are limited, and outside of the

¹ BRANZ. (n.d.) *Reducing building material waste*. <https://www.branz.co.nz/sustainable-building/reducing-building-waste/>

major centres, almost non-existent. However, Green Star and Homestar projects are showing how it can be done and serve to highlight the significant opportunities as well as exposing the barriers. More information about opportunities and barriers, as well as examples and key recommendations are highlighted in this submission against the key points in the Komiti Taiao's Terms of Reference for this Briefing:

The current status of construction and demolition waste in landfills

1. *the compositional analysis and volume of what is being disposed of at different classes of landfills, primarily class 2 landfills*

No comment.

2. *the sub-classes of waste composition and volume from different construction activities, for example, housing construction versus road construction*

Construction waste from buildings and housing is more varied than other types of construction, such as road construction, which can make separating and avoiding contamination of waste streams more complicated.

Waste from construction typically includes timber (mostly treated), plasterboard, insulation, glass, bricks, roofing materials, cladding materials and hard and soft plastics. The sources of this waste include off-cuts, packaging, surplus materials, formwork, protection materials, damaged materials and rework.

Waste from demolition includes most of the above and more, and in higher volumes. I.e., high volumes of concrete and steel, particularly in commercial buildings.

While most of these materials present significant challenges, they may also present significant opportunities (see response to 3.).

Resource recovery

3. *the options available to increase recovery, processing, and reprocessing of key material types, and at what scale these options are best applied*

Recovery, processing, and reprocessing of construction and demolition waste materials will be critical in reducing waste to landfill. While recycling options are generally available in the major centres (Auckland, Wellington, Christchurch), the opportunities vary. Options in regional centres and smaller towns are often non-existent, and the costs and emissions related to transporting waste out of area makes it prohibitive.

NZGBC urges the government to explore opportunities for developing and investing in waste recovery, recycling and processing in regional areas. Facilities could be made viable at a regional level for some material types, particularly if a plant for recovery and processing can be located near industry that can use/reuse the end product.

Below are a few examples that demonstrate what is possible and what must be urgently explored and scaled-up across Aotearoa:

Treated timber: Treated timber is being successfully recovered in Auckland by Green Gorilla, chipped and then used as a bio-fuel to replace coal at the Golden Bay Cement works near Whangārei.²

Gorilla-sized recycling success

Green Gorilla's waste processing plant is an innovative electrically powered processing unit that produces consistent quality wood chip product.

Large volumes of treated and untreated timber waste from pallets, construction and other waste sources comes into the Green Gorilla facility and is weighed and checked for contamination. Heavy-duty specialised machinery, beginning with a slow speed shredder, breaks the wood into smaller pieces and releases any steel contamination. Magnets removes steel and nails and the wood is conveyed into a high-speed chipper and sized to the customer's requirements. Specialised chip-liners transport the chip to Golden Bay Cement where it is conveyed directly into the cement kiln, supplementing coal as the fuel source.

Plasterboard: Green Gorilla also offers a plasterboard recycling service in Auckland,³ with the recovered gypsum being used in the agricultural industry at a lower cost than that of virgin gypsum mined and shipped from overseas. Plasterboard recycling was once available in the Hawkes Bay, but this service ceased due to contamination making sorting problematic and too costly. In Christchurch there is an example of several companies working together to recover and recycle plasterboard into gypsum for agricultural use.

Solutions delivered to site

Winstone Wallboards have recently added Green Gorilla plasterboard recycling bags to its GIB plasterboard delivered to site (DTS) service. Customers in the Auckland region can order their plasterboard recycling bags at the same time as placing their GIB plasterboard DTS order with their preferred merchant.

Plasterboard offcut recycling bags are delivered to site along with the GIB plasterboard order. When the offcut bag is full, a simple call to Green Gorilla sees the bag picked up and transported to Green Gorilla's Onehunga recycling site. Here the gypsum in the plasterboard is extracted and reused in products such as compost, while the paper lining is also extracted and recycled into paper-based products.

Local loop for plasterboard

In Christchurch, Canterbury Landscape Supplies receives plasterboard waste from Winstone Wallboards in Christchurch via Container Waste Christchurch. The company processes these offcuts by shredding and screening to return it to gypsum form. The paper from the processing goes into Canterbury Landscape Supplies' compost production.⁴

Concrete: Twice as much concrete is used in construction than all other building materials combined.⁵ Concrete recycling is available in the main centres, but not widely available throughout

² Green Gorilla. Wood chip processing. <https://www.greengorilla.co.nz/processing-facility/wood-chip-processing/>

³ Green Gorilla. Waste plasterboard recycling. https://www.greengorilla.co.nz/waste-plasterboard-recycling/?gclid=CjwKCAjw9aiIBhA1EiwAJ_GTSjH3Sj-u6SP4CKnv6RGiX_b6hPI5cnxU3FJp_71sAexTXQbefTC8WBoCg3IQAvD_BwE

⁴ GIB. Plasterboard recycling services. <https://www.gib.co.nz/assets/Uploads/Plasterboard-Recycling-April-2018.pdf>

⁵ Chisholm. D. 2012. *New life for concrete*. Build Magazine, No.133, December 2012/January 2013. <https://www.buildmagazine.org.nz/assets/PDF/Build-133-75-Sustainability-New-life-for-concrete.pdf>

the regions and transporting waste for large distances is not generally viable. There are a number of ways to recover and reuse concrete, saving costs as well as diverting waste from landfill.

Centreport circularity

Following the 2016 Kaikoura earthquakes, 10 buildings in the Centreport precinct in Wellington needed to be demolished. The construction materials in them were recycled and reused and nothing was removed from the port. In excess of 30,000m³ of concrete, 5,360m³ of asphalt and 1,800 tonnes of steel was diverted from landfill through recycling. In a \$28 million project, cleanfill concrete was stockpiled, processed into gravel, and then used to rebuild damaged infrastructure.⁶

Scrap metals and steel: There are viable recovery and recycle options throughout New Zealand for scrap metals and steel due to the established commercial value and process for recycling these materials. However, there may be opportunities for greater uptake and improved recovery rates to ensure that none of these resource-intensive materials end up in landfill.

4. *the barriers to increasing recovery and reuse of key material types, and how to remove those barriers on both supply and demand sides; for example, transportation*

There are two major barrier to increasing recovery and reuse of key material types. One is the lack of this being specified by clients. Where more clients specified that they wanted evidence that construction waste was being diverted from landfill this will help drive up demand for this service. Government and councils could do this through procurement.

Secondly, and as mentioned in the response to 3. above, the biggest barrier to recycling/diverting waste from landfill is not having anywhere else to send it. Outside of Auckland, Wellington and Christchurch, there is almost nowhere else to send some construction and demolition waste streams apart from landfill.

Investing in regional/local opportunities for recovery, recycling and processing, as well as identifying end users for the final product must be a critical part of the national waste reduction strategy. Considering how to activate local and regional opportunities for construction and demolition waste will alleviate issues of transport and the associated costs and emissions, as well as creating opportunities for local jobs.

Part of this investment will be building capacity of existing waste companies at local and regional levels. For example, some of the smaller facilities/landfills lack infrastructure such as weigh bridges that will allow them to participate in recycling and recovery opportunities.

Policy barriers surrounding the reuse of building materials salvaged in deconstruction must also be examined. For example, the New Zealand Building Code does not allow timber salvaged in building demolition to be reused in structural aspects of buildings. Much of what can be recovered from demolition may be suitable for reuse. New Zealand is currently experiencing unprecedented demand for building products of all kinds, coupled with unprecedented issues with global supply. Removing this regulatory barrier will create opportunities for companies to salvage, regrade and resell materials such as timber. Please see response to 5.

5. *technology and pathway options for hard to manage materials, for example, treated wood*

⁶ Concrete NZ. *Case study 2: Centreport, Wellington*. https://concretenz.org.nz/page/s_case_study_2
www.nzgbc.org.nz

If viable opportunities for using/reusing recovered, recycled or reprocessed materials can be found and/or developed, then the technology and examples of pathways already exist in New Zealand and overseas to establish opportunities at regional levels and/or scale up existing processes. For example, powering industrial heat processes with recovered wood chips instead of coal, such as at Golden Bay Cement. Please see responses to 3. and 6.

There has been some research into regrading recovered timber which found that treated timber is strong enough to be used again in the construction industry for light timber-frame construction.⁷ This is an avenue that should be furthered explored for the range of benefits it could deliver for reducing waste, creating jobs and supplementing the supply chain.

6. *international best practice, the costs and benefits of different approaches to resource recovery, and at what scale these approaches are best applied*

- Australian Green Star research that was first released in 2013⁸ showed that Green Star projects were recycling up to 96% of construction and demolition waste. Green Star set benchmarks for projects to achieve for construction and waste recycling that were well beyond standard industry practice at the time in Australia (average new construction projects had a 56% recycling rate). Due to the stringent verification required by the Green Star certification process, project stakeholders worked with waste companies to find ways to achieve the benchmarks. As the uptake of Green Star increased, so did the demand for construction and demolition waste recycling, creating new revenue streams for the waste industry and less waste to landfill.
- Company leadership is often a powerful catalyst for change. The Wates Group is one of the leading privately-owned construction, residential development, and property services businesses in the UK. In 2020, Wates committed to eliminating waste and carbon from its operations by 2025.⁹ These environmental targets now challenge Wates, its workforce, and the industry to set new standards for how they manage waste, carbon emissions and impact on the natural environment.
- Deconstruction of buildings and salvaging materials that would otherwise go to landfill is at the core of the business model of the ReBuilding Center in Portland, Oregon in the US. The facility trains and employs people to deconstruct buildings and operates a Bunnings-like warehouse selling used building materials. Over 1800 tons of waste are diverted from landfill each year by the facility.¹⁰

Policy settings and their effects

7. *the role of economic incentives and regulations to reduce construction and demolition waste*

Economic incentives and regulations will have an important role to play in reducing construction and demolition waste.

⁷ Forbes. N. 2018. *The structural reuse of Pinus radiata in New Zealand*. Victoria University of Wellington. https://researcharchive.vuw.ac.nz/xmlui/bitstream/handle/10063/7725/thesis_access.pdf?sequence=1

⁸ Green Building Council of Australia. 2013. *The value of Green Star: A decade of environmental benefits*. https://www.gbca.org.au/uploads/194/34754/The_Value_of_Green_Star_Key_Findings_web.pdf

⁹ The Wates Group. 2020. *Wates Group commits to zero waste and carbon from operations by 2025*. <https://www.wates.co.uk/articles/news/wates-group-commits-to-zero-waste-and-carbon-from-operations-by-2025/>

¹⁰ ReBuilding Center. Reuse, repair, resilience. <https://www.rebuildingcenter.org/www.nzgbc.org.nz>

The waste levy is the key lever in incentivising practices that will reduce waste to landfill, but will be most effective if the proceeds are invested as quickly as possible into targeting barriers and creating opportunities for all construction projects across the country to have options to divert from landfill. See also response to 4. and 13.

Regulations posing a barrier to reusing salvaged building materials must be removed (see response to 4.), while policies encouraging alternatives to demolition such as deconstruction of buildings, and/or retaining building structure and façade where possible, should be developed (see response to 9. and 13.).

8. *the role and effect of procurement standards for central and local government*

Government, both central and local, has a powerful role to play in influencing and changing the construction and waste industries. Governments have an opportunity to set procurement targets and policies that can incentivise market development and drive capacity¹¹ relating to emissions reduction, low carbon building materials,¹² and whole-of-life considerations including waste and the use of sustainable materials, such as recycled content in procured goods and services.¹³

Governments can lead the way immediately with their own projects and assets and demonstrate a commitment to sustainability and waste reduction by:

- setting targets for diverting waste from landfill
- encouraging recycling and reusing materials
- prioritising the practice of designing out waste
- retaining structure and façades instead of demolition of existing buildings where appropriate
- encouraging deconstruction of buildings rather than demolition
- specifying materials that can be recovered, recycled and/or processed locally (and optimally, the end product used locally as well)
- specifying low emissions material, materials containing recycled content and reused materials.

Green Star and Homestar can support governments in demonstrating leadership in reducing waste along with other sustainable building practices. The use of these rating tools encourages and rewards reducing waste and diverting waste from landfill. The rating tools offer benchmarks and guidance to underpin the suggestions listed above.

Kainga Ora has already committed to achieving 6 Homestar ratings in the homes it builds (see case study at 10 illustrating how Homestar was used to drastically reduce waste to landfill) and several government departments, including Ministry of Health, are using Green Star for their own projects. A number of local councils around New Zealand are also demonstrating a commitment to sustainability leadership with Green Star. However, an even greater commitment is needed if we are to make the progress we need in reducing construction and demolition waste.

¹¹ GBCA. 2020. Building to bounce back. <https://gbca-web.s3.amazonaws.com/media/documents/building-to-bounce-back-advocacy-rebranded-2020.pdf>

¹² NZGBC. 2021. NZGBC submission to the Climate Change Commission's 2021 Draft Advice for Consultation. https://www.nzgbc.org.nz/Attachment?Action=Download&Attachment_id=44672

¹³ WorldGBC. 2019. Bringing embodied carbon upfront. https://www.worldgbc.org/sites/default/files/WorldGBC_Bringing_Embodied_Carbon_Upfront.pdf

Green Star has been proven to reduce construction and demolition waste to landfill by 70-90% in projects targeting the waste reduction credits.

Procuring more sustainable government projects

The New Zealand Government's Construction Procurement Guidelines include sustainable construction guidelines¹⁴ and whole-of-life guidelines¹⁵ that require project teams to incorporate sustainable building practices such as using sustainable construction materials, minimising construction waste and minimising energy and water consumption. In 2020, the procurement rules were further strengthened and now also include the requirement to consider embodied carbon in government building projects.¹⁶

Industry

9. *how to design and build to optimise material use, reuse, and recovery*

The Green Star and Homestar rating tools recognise and reward optimal material use, reuse, recycling, and diversion of waste from landfill. The rating tools and the guidance and best practice benchmarks within them are developed in consultation with experts from industry, academia and government.

Green Star

There are multiple credits within the Green Star tool that focus on reducing waste. Two credits focus on this issue solely, these are:

- Construction and Demolition Waste
- Operational Waste

The Construction and Demolition Waste Credit rewards projects that reduce construction waste going to landfill by reusing or recycling building materials. This credit can either be achieved by minimising the total amount of waste sent to landfill when compared against a typical building, or diverting a significant proportion of waste from going to landfill. To date, Green Star projects with built certification have diverted 73.6% of waste from landfills around Aotearoa.

There are other credits within Green Star that reduce waste through encouraging other sustainable practices. The Materials category focuses on the selection of lower-impact materials. However, reduction in waste to landfill can be a by-product of this category through:

- Minimisation of waste through efficient design and materials selection.
- The consideration of waste minimisation across the entire project life cycle.
- The use of materials with high levels of recycled content, or the selection of reused products and materials.

¹⁴ New Zealand Procurement. 2019. Sustainable construction: Construction procurement guidelines. <https://www.procurement.govt.nz/assets/procurement-property/documents/sustainable-construction-construction-procurement.pdf>

¹⁵ New Zealand Procurement. 2019. Whole-of-life: Construction procurement guidelines. <https://www.procurement.govt.nz/assets/procurement-property/documents/whole-of-life-construction-procurement.pdf>

¹⁶ New Zealand Government. 16 September 2020.

Importantly, minimising waste and implementing plans to ensure all waste is being separated and subsequently diverted can be achieved by all projects if planned from the early design stage. A range of Green Star projects have already shown leadership and innovation in this space.

The Operational Waste credit recognises projects that implement waste management plans and/or are designed to encourage the re-use, upcycling, or conversion of waste into energy, and stewardship of items to reduce the quantity of outgoing waste.

The Life Cycle Impacts credit takes a wider view of embodied carbon, material use and waste reduction.

This credit has points available where a whole-of-building, whole-of-life (cradle-to-grave) life cycle assessment (LCA) is conducted for the project and a reference building. Alternatively, a project can reduce its life cycle impacts through building reuse and design of key structural systems:

- Life Cycle Impacts – Concrete: encourages the use of recycled aggregate, recovered concrete aggregate, or secondary aggregate
- Life Cycle Impacts – Steel: encourages reduction of the mass of steel framing used/mass of steel reinforcement used when compared to standard practice.
- Life Cycle Impacts – Building Reuse: rewards façade reuse (one point for 50% (by area), or two points for 80%). This credit rewards structure reuse where existing major structure is retained (one point for 30% (by mass), two points for 60%).

Green Star case study: 22 Boulcott Street, Wellington

22 Boulcott Street, with a 5 Star Green Star certification, is a showcase for reducing waste. It's a contemporary, energy-astute commercial building that has been redeveloped from two disjointed tower blocks.

During construction, 4644 tonnes of construction waste was diverted from landfill. This represents 90% of construction and demolition waste diverted, including 3084 tonnes of concrete recycled.

Construction company, McKee Fehl, says its project and site teams worked closely to integrate Green Star goals into day-to-day processes. Waste was managed by a group of staff to ensure collection, sorting of materials and packaging integrated naturally into everyday housekeeping processes.

Green Star case study: BNZ Centre Christchurch

The BNZ Centre Christchurch achieved a 5 Star Green Star Office Interiors certification and an outstanding 95% diversion of waste from landfill. This resulted in 6.66 tonnes being diverted from landfill.

Green Star case study: Waterfront Theatre

Located in the heart of Wynyard Quarter's innovation precinct, ASB Waterfront Theatre is a thriving hub of arts and culture and the home of Auckland Theatre Company. 5 Star Green Star rated under a custom rating tool developed specifically to target the features of a theatre, the project significantly reduced waste to landfill.

Construction company, Hawkins, "employed high standards of waste and environmental management during the demolition and construction phases" and used "durable and, where appropriate, environmentally friendly materials".

The project achieved 90% diversion of its total waste. The key to this was significantly reducing waste at the construction stage. 3176 tonnes of total waste were produced, 2860 tonnes of this from demolition.

10. tools available for residential builders to reduce waste

Homestar is a holistic tool to rate a home's performance and environmental impact. A 10 Homestar rating recognises world leading standards for design, construction and efficiency in operation. A 6 Homestar rating recognises a home that has been built at or above the current standards set by the New Zealand building code, dependent on location across Aotearoa.

There are two waste specific credits within Homestar that aim to reduce the amount of waste going to landfill. Like Green Star, these credits focus on minimising construction waste and waste generated during occupancy. Under Homestar these credits are called:

- Construction Waste Minimisation
- Household Waste Minimisation

The Construction Waste Minimisation credit can reward projects with up to 5 points for homes that demonstrate the following:

- A Site Waste Minimisation Plan implemented and adhered to in accordance with Resource Efficiency in Building Related Industries (REBRI) guidelines.
- Meeting targets for limiting landfill/cleanfill waste. This ranges from 20kg per m² to under 10kg per m² or when waste diversion of 60% or more is achieved. This credit focusses builders on **designing out** waste.
- On site waste sorting is included in the Site Waste Minimisation Plan, with a minimum of three sorting stations.

These waste minimisation targets are achievable in the main urban centres around the country. However, further support is needed in regional and rural areas to achieve these goals. We recommend assistance from local councils to assist waste management providers with providing accurate reporting of diversion streams. Additionally, performing on site waste sorting increases the value of recyclable materials and increases payback.

Homestar case study: Rimu Street, Maeroa, Hamilton

Kainga Ora are using Homestar to significantly drive down waste to landfill. Kainga Ora achieved a 6 Homestar built rating for a 16-dwelling development in Kirikiriroa Hamilton.

These homes were built with accessibility in mind and have a community feel, centred around a communal green space. All the homes were built with high levels of insulation and thermally broken, low-e glass windows to make sure they are warm and efficient for the tenants.

The development achieved high levels of waste diversion – upwards of 80% for the whole project, an impressive feat in a regional centre.

Homestar case study: Barnard Street, Wellington

As a sustainable design expert at Stephenson & Turner, Karl Wakelin wanted to build a comfortable home that also provided a case study for what he preaches at work every day. The impressive 19-month project was documented by TV3's Grand Designs, with the three-bedroom home becoming Wellington's first to receive a 9 Homestar rating.

In undertaking the project himself, Karl was able to carefully manage construction waste, diverting 87% from landfill.

“The nature of the site meant that we didn’t want to carry anything down that hill that we had to take back out again. Everything is quite modular so we didn’t have many offcuts of plywood or anything like that. We just did a conscientious job of tracking everything. We reused any concrete or rocks, anything heavy – we used that in drainage.”

Some further examples of Homestar projects and details of the waste materials diverted from landfill are below:

Project address (including links)	Waste Diverted (%)	Products Diverted
Rutherford Street, Akd	75%	Wood, wood/steel, brick/concrete, gib
132 Halsey Street, Akd	84%	Steel, gypsum, clean hardfill
60 Minogue Drive, Te Rapa, WKO	70%	Paper, cardboard, timber, concrete, aggregate, bricks
83 Marlborough Avenue, Glenfield, AKD	75%	-
8 Lake Pupuke Drive, AKD	82%	Gypsum, hardfill, woodchip, steel, cardboard
30 Enfield Street, Mount Eden, AKD	59%	Hardfill, timber, plasterboard, metal, cardboard, plastic, polystyrene
Wynyard East-Pavilions, AKD	80%	Steel, cardboard, gypsum, timber, clean hardfill

IMPORTANT

Homestar currently has 5,000 homes a year registering for it. This is due to specification from retirement villages, Kainga Ora, and also encouraged by incentives banks are offering, such as the reductions in interest rate ANZ provides (1% off interest rates for homes that are Homestar) and cash back incentives ASB are providing (\$2,000 for homes that are Homestar).

Where the sector encourages more homes to be built to this standard we can, as a sector really drive change. Homestar Version 5 is being launched 17th August 2020. There is increased emphasis on designing out waste.

Under Homestar V5 for a Design Rating, ensure that the project has outlined, via a marked-up plan or a separate document, strategies integrated into the project to design out waste from major sources of construction waste as per the list below.

The plan must also include a maximum total waste target in kg/m² of GFA and design, product selection, procurement strategies or contractual requirements that focusses on minimising the following waste sources:

- Offcuts from plasterboard, plywood or other interior wall and ceiling linings.
- Offcuts from treated timber used for framing and cladding.
- Packaging and polystyrene waste from purchased product and materials.
- Any other major sources of waste particular to the project (e.g. masonry blocks).

For the Built Rating under Homestar V5, you must provide all the waste records for construction waste generated on site, including the sum total of waste generated (in kilograms).

It is recommended that councils and central Government work to encourage members of the public to specify homes and buildings that are built to above the building code standards, that can reduce environmental impacts for Aotearoa NZ.

11. *the role of materials exchanges*

The concept of materials exchange is not yet widespread in New Zealand, but a few businesses have been established.¹⁷ The circular economy presents significant opportunities for reducing waste, reducing costs, creating jobs and easing pressure on the construction supply chain and warrants investment from government.

12. *the opportunities available to industry for education and technical advice to prevent waste on construction and infrastructure projects*

Industry requires recognised and trusted providers and sources for education and technical advice. Funding is needed to identify opportunities and work with education providers, building companies and other stakeholders across the design, construction, materials and waste industries to facilitate awareness-raising, education and training programmes on aspects of waste minimisation and management such as:

- **Designing out waste and designing for adaptation and deconstruction:** Several feasibility studies (supported by the Ministry of Environment, among others) into designing out waste in treated timber and plasterboard have been undertaken which identified significant opportunities for reducing waste from the design stage of projects. The studies found that is feasible to reduce construction waste by 20-30% through design,¹⁸ and can be as simple as architects designing to the standard sizes of plasterboard and timber, minimising offcuts and material costs.

More investment in education, training and case study development will be vital in raising awareness of the opportunities to design out waste – as well as designing for adaptation and deconstruction – and how to do it.

- **Education and awareness-raising for trades:** A significant barrier to financially viable construction waste recycling is contamination of waste streams. Education and training for managing waste onsite and the importance of avoiding contaminated waste streams will be needed for the construction industry across Aotearoa.

Green Star rewards delivering sustainable education content to site workers (through the Innovation category).

- **Awareness-raising for better material choices and procurement:** Raise awareness of growing opportunities within the circular economy for procurement and materials specification (e.g. materials exchange platforms). Assist industry to understand the recycling and recovery potential of the materials they use and encourage the use of materials made of recycled products.

¹⁷ See CivilShare, <http://civilshare.co.nz/>, and Excess Materials Exchange <https://www.emenz.co.nz/>

¹⁸ WasteMINZ. 2017. *Designing out waste*. Presentation. <https://www.wasteminz.org.nz/wp-content/uploads/2017/11/Wasteminz-2017-Designing-out-construction-waste.pdf>

- **Investment into investigation and identification:** A nationwide effort to identify and evaluate opportunities for recovery, recycling and processing of waste at local/regional level will be needed for a long-term solution to reducing waste to landfill.

Investigation and identification of opportunities and investment in innovation to find commercially viable end uses for waste products will be equally important. For example, exploring the viability and/or making grants or incentives available for the conversion of boilers and burners from coal to treated wood chip for appropriate businesses and located near waste recovery businesses.

- **Improving waste data:** We cannot reduce what we are not measuring. Accurate data on construction and demolition waste entering landfills will inform targeted policy to reduce this waste stream. NZGBC recognises that this data would be difficult to collect in the near future, but we believe it should eventually be a requirement and be included in the long-term waste strategy.

Ultimately, construction projects should have access to a breakdown of their site-specific waste in future to help them identify where they need to make improvements. The data collected should be publicly available, and a waste data collection framework should be nationally consistent, with clear allocation of council roles and responsibilities. The waste data framework should be carefully designed and account for potential future changes to the levy, and councils must be properly resourced to cover the additional burdens of data collection and enforcement.

See also response to 13. below.

13. *guidance and incentive options for procuring resource-efficient construction projects.*

Incentives and guidance could include:

Effective investment of waste levy revenue: The waste levy is a primary lever in incentivising waste reduction and diversion from landfill. The average house build produces 4-6 tonnes of waste and large commercial buildings can produce thousands of tonnes of waste. Levying waste to landfill improves the economic viability of recycling waste materials and reducing the greenhouse gas emissions of our industry.

If invested well, the waste levy provides a huge opportunity for transforming the construction and waste industries. It will create new opportunities for jobs and innovation and will help close the waste loop.

GBCA believes that priority levels for allocating funds according to the following hierarchy:

1. Projects that aim to prevent the production of waste
2. Projects that reduce waste and promote re-use of materials
3. Projects that focus on recycling and disposal.

The requirement that projects only be part-funded by the fund should be revisited, as well as making it available for a range of uses, including operational procedures and improvements, not just capital projects. Funds should be made available for research projects to encourage innovation.

We need to ensure that the system for distributing funding is agile and responsive to market needs, with a focus on circular economy principles. Currently, it takes too long for levy fund applications to be processed and approved.

Encouraging the use of Green Star and Homestar: Organisations, developers and builders are already voluntarily using Green Star and Homestar for the range of benefits that certification can deliver. As described above, reduction of construction and demolition waste to landfill is encouraged and rewarded within the rating tools in several ways and has shown that it is possible to divert 70-90% of waste from landfill.

Governments can lead by example in using Green Star and Homestar. Not only will this lead to better outcomes for waste for government projects, but government leadership and procurement has a significant impact on upskilling industry, creating opportunities for establishing new practices and products, and encouraging voluntary uptake of rating tools in the private sector. See also response to 8.

Incentivising sustainable building practices: Local councils can lead by example with their own assets and procurement as well as incentivising sustainable building practices and the use of Green Star and Homestar in the private sector in a range of ways:

- Prioritise, streamline or provide extra support in the consent process for buildings and homes with Green Star or Homestar ratings.
- Reducing the costs associated with the consent process for buildings and homes with Green Star or Homestar ratings.
- Reducing the number building inspections required if a building achieves a 6 Homestar Built rating or higher.
- Include information about sustainable building and home design, Green Star and Homestar in council design manuals and guidelines, and on council websites.
- Include information about Green Star and Homestar certifications on property files and LIM reports.
- Provide trained advisers that can help homeowners, home designers, builders and industry professionals to understand how to reduce the environmental impact of buildings, including waste.
- awareness-raising and developing incentives for building structure and façade reuse (rather than complete demolition).
- awareness-raising and developing incentives for deconstruction of buildings so that materials may be salvaged, reused, sent for recycling/processing with less contamination.

For more information, please see **Appendix A** - Sustainable Homes – Options for Councils.

NZGBC welcomes the opportunity for discussion of the points made above and our detailed response in the enclosed submission. More information about Green Star and Homestar is available at nzgbc.org.nz.

Please do not hesitate to contact me if there is any further information we can provide, or to arrange further consultation. We look forward to working with the New Zealand Government on developing a comprehensive strategy for reducing Aotearoa's construction and demolition waste.

Yours sincerely

A handwritten signature in black ink, appearing to read 'A. Eagles', written in a cursive style.

Andrew Eagles, Chief Executive Officer
NZ Green Building Council

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Appendix A - Ten steps councils can take for a resilient low carbon future

30 January 2018

This week, droughts were declared in Otago and Southland, joining those already in the lower North Island and the Mainland's West Coast. Although perhaps many of our media outlets haven't mentioned climate change when reporting our sizzling summer, it's pretty difficult for me, and many of you, I'm sure, not to think about it right now.

Top climate scientist Professor James Renwick of Victoria University said recently that "what we've seen this summer is very consistent with climate change". Our councils and local authorities have hugely important roles in the fight to tackle climate change pollution.

And, in a major new initiative, they're starting to fill those roles. In a new policy document, the heads of New Zealand's local governments have promised to:

- Lead the conversation with the public and stakeholders on how to address the local impacts of climate change
- Develop local strategies for adaptation action
- Incorporate climate change considerations into long term planning, infrastructure and funding decision making processes
- Take steps to ensure its activities contribute to a reduction of green house gas emissions

And they have also called on central Government to address the risks, challenges and opportunities of climate change. What does this mean for us? Well, homes and buildings produce 20% of New Zealand's climate change pollution.

If we get our built environment right we are well on the way to adapting to our changing climate reducing the costs and impacts of floods, overheating and water shortages. Policy documents like this are useful.

But here are also a number of key steps that councils could and should take right now. So here is my top ten list of the steps councils can take to incentivize better buildings using their regulatory, financial and education options.

Regulatory options

1) Reduced cost (fees) for consenting buildings.

2) Provide greater flexibility on height restrictions to buildings that have Green Star – this is what Hamilton City Council offers.

3) Enable greater density for homes built to Homestar – this is what Queenstown Council are looking to do in their plan.

4) Provide greater consenting support to applicants undertaking projects with a 6 Homestar rating or higher.

Financial policy

5) Reduced development contributions for sustainable buildings or homes – this is what Wellington City Council has in their Development Contributions Policy.

Education

6) Where a Homestar rating has been achieved, include this information in the property file.

7) When a LIM report is requested, include information on the Homestar rating (or if a building - Green Star).

8) Publish data on buildings that achieve Homestar (or if a building - Green Star) accreditation to raise awareness.

Councils taking the lead

9) Councils own buildings – Council could rate their own existing buildings using Green Star Performance - this is what Auckland council is doing.

10) Water provider - The water provider, in some cases, council could reduce the Infrastructure Growth Charge for homes or buildings that verify they are water efficient using Green Star or Homestar – this is what we are discussing with some water providers.

The policy options outlined here are within the remit of councils, and the benefits to New Zealanders are significant. It's time for councils to get cracking to ensure our built environment delivers the future New Zealanders deserve.