



Guidance for Green Star and homestar certification of mixed-use buildings that contain residential areas

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Introduction:

Industry has been calling for a means to achieve a Green Star Design & As Built rating on mixed-use buildings that contain both residential and non-residential uses. Green Star Design & As Built (D&AB) certification typically applies to a whole building due to the eligibility requirements of this certification scheme. It is not suitable for certifying residential areas in Aotearoa New Zealand and Homestar has been developed for this purpose. To certify a whole mixed-use building that contains residential areas there needs to be a means of applying both Homestar and Green Star within that building. This document provides guidance around the application of these two certification tools within these types of developments.

Although mixed-use buildings can be used to identify any building with two or more different uses, this guidance document solely uses the term for identifying a building that contains residential with one or more non-residential uses.

This guide specifically deals with Green Star D&AB NZv1.0 and Homestar version 5.0. Homestar version 4 is being phased out in early 2023 and has therefore not been considered. This guide will be updated to reflect Green Star D&AB NZv1.1. For projects working to v1.1, please [contact us](#).

This guide addresses the alignment of rating levels within mixed-use building projects looking to target both Green Star D&AB NZv1.0 and Homestar v5. It presents the association between the different tool credits and provides guidance on which requirements need to be applied where, and identifies where pre-defined innovations can and cannot be applied.

This documentation is intended for guidance purposes only. Where a project team has any uncertainties around the application of Homestar and Green Star within their mixed-use building, they should contact the NZGBC team for more information.

Why is the Green Star D&AB eligibility important?

The eligibility for a Green Star D&AB rating has a ‘Spatial Differentiation’ requirement as follows:

- To meet the Spatial Differentiation criterion, the project must be clearly distinct. Only distinct projects are eligible for assessment; project components are not eligible.
- Shared building services (such as HVAC plant or water treatment) or amenities (such as waste rooms or bicycle facilities) do not affect the building’s eligibility for Green Star assessment.
- Sub-tenancies are considered part of the fitout and cannot be excluded from the rating.

These eligibility requirements ensure that it is clear to those outside of the project which areas are certified, and which areas are not. Meeting these criteria usually requires a Green Star D&AB rating to be sought for a whole building, unless it is clear there is a distinct delineation between the Green Star and non-Green Star parts of the building. A building with a podium retail area with tower residential above could fulfil this requirement as the non-residential part of the building is visibly distinct from the residential part by the change in building form between the two areas. Most mixed-use buildings built in Aotearoa New Zealand would not meet this requirement and therefore a compliance pathway needed to be developed. Projects will be able to use the guidance within this document regardless of the proportion of non-residential to residential areas within the mixed-use building being certified. If you are unsure as to how this eligibility requirement impacts your project please contact the NZGBC team.

Unlike Green Star D&AB, Homestar certifications apply to individual units, so there is no whole building eligibility requirement for Homestar on multi-unit residential areas.

How should this guide be used?

Guidance provided in this document is intended only for Green Star and Homestar certifications of mixed-use buildings that contain residential areas. There is no requirement for the size and/or ratio of residential and non-residential areas that must be achieved to be able to target Green Star D&AB certification in a mixed-use building containing residential areas. This is not a Submission Guidelines document or Technical Manual and so should be read in conjunction with the Green Star D&AB NZv1.0 Submission Guidelines and the Homestar v5 Technical Manual.

This document has been developed as a guide and is therefore not prescriptive. Where project teams find the credit criteria are not suitable for their project or they are unsure of the application then they should submit a Technical Question to the NZGBC.

How was this guide developed?

The guidance within this document was developed through the engagement of a selection of industry experts who have a good understanding of both Green Star and Homestar rating tools. The engagement process began with discussions around identifying the correct pathway and led to workshops to develop the detail. At key stages in the process two key member organisations looking to use the guide were asked for feedback.

Several pathway options were considered. The pathway deemed to be the best solution was agreed because:

- It recognises that residential and non-residential areas have very different requirements and as such Green Star D&AB and Homestar are very different tools. It was agreed this pathway keeps Homestar requirements predominantly for residential areas and Green Star requirements predominantly for non-residential area, and for building-wide and site-wide applications.
- It builds on existing tools without applying a whole new set of requirements that the industry would need to learn.
- It means residential units will be able to target Homestar ratings. Homestar ratings are already well known in the property industry. It is considered that a Green Star rating for residences would be confusing in Aotearoa's market.

The outcome of this solution is that it will require mixed-use buildings to apply for two certifications (Homestar and Green Star D&AB). Streamlining would be available on credits that are applied building-wide or site-wide and these should typically be presented for certification review within the Green Star submission, but need not be included in the Homestar submission.

The GBCA has a multi-unit residential tool that was considered as part of this investigation. However, Homestar is already being used for multi-unit residential projects in Aotearoa New Zealand, it is specific to this market and to housing, and has been developed to sit well above our building codes. Homestar has become a recognised and established rating tool for all housing typologies, providing consistency that enables comparison between dwellings for potential buyers.

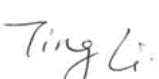
If you have any suggestions or feedback related to this guide please contact us at greenstarnz@nzgbc.org.nz.



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Rating alignment

In order to maintain the integrity of the Green Star rating, the following rating alignment must be applied by project teams for mixed-use buildings:

- For any project looking to achieve a 4 star Green Star then a 6 star Homestar must be achieved for all residential areas of the building.
- For any project looking to achieve a 5 star Green Star then a 7 star or an 8 star Homestar must be achieved for all residential areas of the building.
- For any project looking to achieve a 6 star Green Star then a 9 star or a 10 star Homestar must be achieved for all residential areas of the building.

Certification process

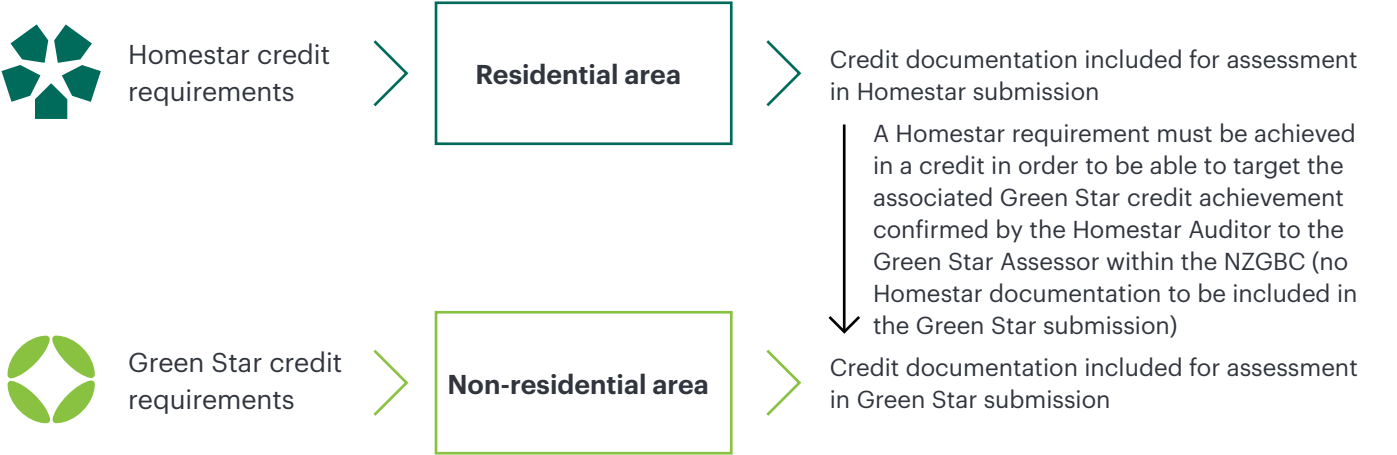
As the Green Star and Homestar certifications are inherently linked within a mixed-use development, the timing of the design and construction of the residential and non-residential areas in relation to each other impacts the certification process. Where the staging of the residential and non-residential areas is similar then the certification process will typically be as shown in the diagram below. Where the residential and non-residential areas are being designed and constructed in very different programmes, please [contact the NZGBC](#) to discuss how the certification process will work.



Associated credit requirements

The table below details the credit requirements where the following associations occur:

Linked: There is some alignment with the aim and/or requirements between the Green Star D&AB and Homestar credits. Green Star requirements must still be applied to non-residential areas and Homestar requirements to residential areas but linking requirements are also applied in order to achieve the Green Star rating of the whole building. These linking requirements include certain points under the Homestar credit that must be achieved in order to be able to target the Green Star credit.



Optional crossover: There is some alignment with the aim and/or requirements between the Green Star D&AB and Homestar credits. There are two different pathways project teams can apply these credits:

- The separate pathway where the Green Star requirements are applied to the non-residential and Homestar to the residential. There is no requirement to target the associated Homestar credit under the Homestar certification where the Green Star credit is targeted (or vice versa) under the Green Star certification, except where there are mandatory requirements that must be met under that respective tool.

OR

- The combined pathway where the same (Green Star) requirements are applied to both residential and non-residential areas.

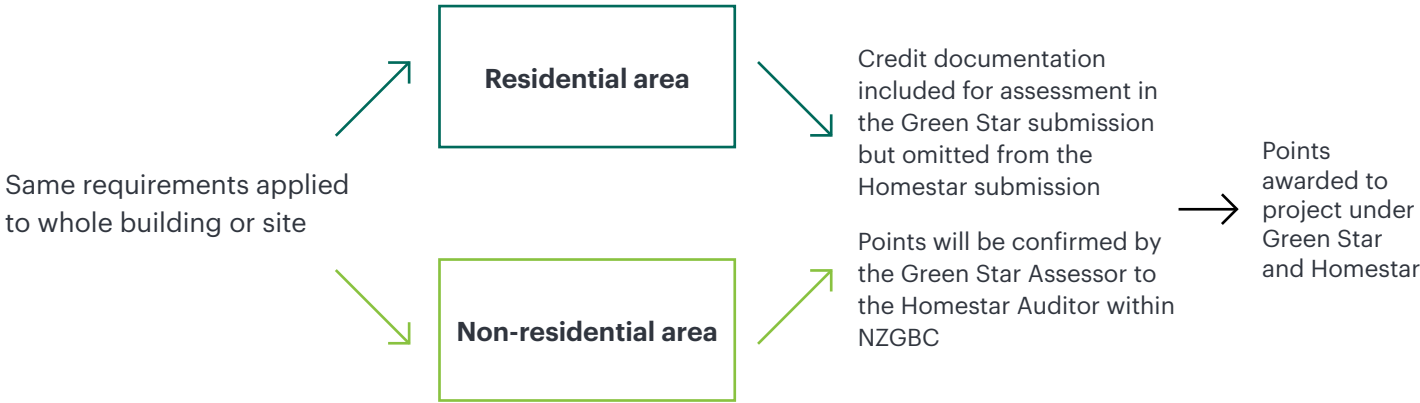
Separate Pathway



OR

through the Direct Crossover pathway presented below.

Direct crossover. One set of requirements must be applied to the whole project i.e. building-wide or site-wide. For most credits where direct crossover occurs the Green Star requirements take precedent. Some credits may have additional or alternative requirements however, so please refer to the following table for details.



GREEN STAR D&AB CREDIT	HOMESTAR V5 CREDIT	REQUIREMENTS
1 Green Star Accredited Professional	EN6: Responsible Contracting	Linked 0.5 points are available to target under EN6 where a GSAP is a member of the construction team.
2 Commissioning and Tuning: 2.3 Building Commissioning 1 point is available where comprehensive pre-commissioning and commissioning activities are performed for all nominated building systems.	HC3: Ventilation Ventilation system commissioning – 1 point Mandatory requirement for 8 star Homestar and above.	Linked Where 1 point is being targeted under the Green Star D&AB 2.3 Building Commissioning credit 1 point must be achieved for ventilation system commissioning under Homestar v5 HC3 Ventilation credit. Where the residential area contains a centralised ventilation system then this credit can be applied as a Direct Crossover and the Green Star commissioning requirements can be applied to achieve both the Green Star point and Homestar point.
3 Adaptation and Resilience		Opportunity for Innovation under Homestar

GREEN STAR D&AB CREDIT	HOMESTAR V5 CREDIT	REQUIREMENTS
4 Building Information: 1 point is available where comprehensive operations and maintenance information is developed and made available to the facilities management team, and relevant and current building user information is developed and made available to all relevant stakeholders.	LV2: Occupant Amenities Home User Guide – 1 point	Linked Where 1 point is being targeted under the Green Star D&AB 4 Building Information credit, 1 point must be achieved for providing a Home User Guide under Homestar v5 LV2 Occupant Amenities.
6 Metering and Monitoring: 6.1 Metering To qualify for this credit, it is a minimum requirement that accessible metering be provided to monitor building energy and water consumption, including all energy and water common uses, major uses and sources. The metering is to be accurate and to inform energy consumption practices and reduce wasted energy.	EF3: Water Use Metering not required but does improve efficiency of water use in Water Calculator.	Direct crossover with additional guidance Where 1 point is being targeted under the Green Star 6.1 Metering credit energy and water metering of the residential areas must be included for each individual dwelling and commons areas (internal and external). Where common areas are shared then metering can be combined for residential and non-residential. Where services are shared metering must be configured to allow the split between residential and non-residential uses to be determined.
7 Responsible Construction Practices: 7.1 Environmental Management Plan To qualify for this credit, it is a minimum requirement that environmental impacts are managed during construction by implementing a best practice environmental management plan. 7.2 Environmental Management System 1 point is available where the responsible party for the site has a formalised approach to planning, implementing and auditing is in place during construction, to ensure conformance with the EMP.	EN6: Responsible Contracting A contractor on site holds any one of the following accreditations or registrations from the list below (0.25 points) OR The contractor holds ISO14001 certification that covers the construction of the dwelling (0.5 points): ✔ Enviro-Mark NZ Gold Standard or above ✔ Resene Eco Decorator ✔ EcoSmart Electrician ✔ IAONZ accreditation ✔ Homestar Practitioner ✔ Homestar Assessor	Direct Crossover between 7.1 and 7.2 and EN6 Green Star requirements take precedence. 1 point is awarded under EN6 where 1 point is achieved under 7.2 Environmental Management.

GREEN STAR D&AB CREDIT	HOMESTAR V5 CREDIT	REQUIREMENTS
7.3 High Quality Staff Support 1 point is available where high quality staff support practices are in place that: ✔ Promote positive mental and physical health outcomes of site activities and culture of site workers, through programs and solutions on site; and ✔ Enhance site workers’ knowledge on sustainable practices through on-site, off-site, or online education programs.	An Environmental Management Plan (EMP) is in place for the construction or renovation works in accordance with the Homestar template OR The contractor holds ISO14001 certification that covers the construction of the dwelling. – 0.5 points Maximum of 1 point available in total on this credit.	Opportunity for Innovation for 7.3 High Quality Staff Support under Homestar
8 Operational Waste: 8A Performance Pathway: Specialist Pan 1 point is available where a waste professional prepares and implements an Operational Waste Management Plan (OWMP) for the project in accordance with best practice approaches and this is reflected in the building’s design.	LV3: Eco-friendly Living, Eco-Living Checklist – 1 point out of 3 Integrated, dedicated internal bins for separating rubbish and recycling and food bins. Communal facilities to sort and store rubbish, recycling and food waste separately and away from pests, for collection by waste removal operator. AND The development is part of a community, commercial or local authority composting service. Maximum of 1 point available in total on this part of the credit.	Direct Crossover Green Star requirements take precedence, but food waste/ organics collection must be included for residential areas. The Performance Pathway must be used to show compliance for GS credit 8 for mixed-use buildings. The 1 point would be awarded under Homestar credit LV3 Eco Living checklist where the 1 point is achieved for GS credit 8. For the remaining 2 points under credit LV3 for Safety Checklist, the Homestar requirements must be applied to the residential areas.
13 Indoor Pollutants 13.1 Paints, adhesives, sealants and carpets 1 point is available where at least 95% of all internally applied paints, adhesives, sealants and carpets meet stipulated ‘Total VOC Limits’, or, where no paints, adhesives, sealants or carpets are used in the building.	HC7: Healthy Materials 1) 80% of applied coatings by volume (L) within the interior of the dwelling meet the VOC limits as specified by a NZGBC-recognised IAQ scheme or eco-label. – 1 point 2) 80% of floor coverings by area covered (m²) within the interior of the dwelling meet the VOC limits as specified by a NZGBC-recognised IAQ scheme or eco-label. – 1 point	Optional Crossover These credits can either be targeted separately (meeting Green Star requirements for non-residential and Homestar for residential) or project teams have the option to streamline through targeting the Green Star credit for the whole building (residential and non-residential areas).

GREEN STAR D&AB CREDIT	HOMESTAR V5 CREDIT	REQUIREMENTS
13.2 Engineered wood products 1 point is available where at least 95% of all engineered wood products meet stipulated formaldehyde limits or no new engineered wood products are used in the building.	3) All engineered wood used in shelving and cabinetry doors and carcasses and any other exposed engineered wood surfaces within the interior of the dwelling meet the VOC limits as specified by a NZGBC-recognised IAQ scheme or eco-label. – 1 point 4) 80% of adhesives and sealants by volume (L) used within the interior of the dwelling meet the VOC limits as specified by a NZGBC-recognised IAQ scheme or eco-label. – 1 point	Where the Green Star credit is applied to the whole building then where 1 point is achieved in credit 13.1 then 3 points are awarded under credit HC7 for applied coatings, floor coverings and adhesives and sealants. Where 1 point is achieved under 13.2 then 1 point is awarded under credit HC7 for engineered wood.
15 GHG Emissions	EF4 Energy Use	Linked Linking between these credits is set by the mandatory Green Star and Homestar rating requirements, i.e.: ✔ For a 4 star Green Star the mandatory minimums for credit 15 must be achieved and the mandatory minimum for 6 star Homestar EF4 must be achieved. ✔ For a 5 star Green Star the mandatory minimums for credit 15 must be achieved and the mandatory minimum for 7 star Homestar EF4 must be achieved. ✔ For a 6 star Green Star the mandatory minimums for credit 15 must be achieved and the mandatory minimum for 9 star Homestar EF4 must be achieved. Where energy modelling of the whole building is carried out the non-residential areas and residential areas must be clearly defined. Non-residential areas must be modelled in accordance with the Green Star Energy Consumption and Greenhouse Gas Emissions Calculation Guide and residential areas in accordance with the Homestar Modelling Protocol. Homestar points under EF4 are awarded based on the specific energy use per dwelling, not the average energy use of the dwellings.

GREEN STAR D&AB CREDIT	HOMESTAR V5 CREDIT	REQUIREMENTS
		Green Star points under credit 15 are awarded based on the standard Green Star approach but excluding the energy use of the residential areas. Where the building includes shared areas then the modelling and assessment approach taken for these areas must be discussed with the NZGBC beforehand.
17 Sustainable Transport 17.1 Access by Public Transport Up to 4 points are available based on the accessibility of the site by public transport. 17.2 Reduced Car Parking Provision 1 point is available where there is a reduction in the number of car parking spaces in the proposed building when compared to a standard-practice building. 17.3 Low Emission Vehicle Infrastructure Up to 2 points are available where parking spaces and/or dedicated infrastructure is provided to support the uptake of low-emission vehicles. 17.4 Active Transport Facilities Up to 2 points are available where bicycle parking and associated facilities are provided to regular building occupants and visitors. 17.5 Walkable Neighbourhoods 1 point is available where the project is located conveniently to amenities or the project achieves a specified Walk Score.	LV4: Sustainable Transport 1) Access to cycling and public transport networks – Up to 1 point 2) Cycle parking facilities – Up to 1.5 point 3) Provision of additional sustainable transport amenities – Up to 0.5 point 4) Electric vehicle charging – Up to 1 point LV2: Occupant Amenities Access to amenities – up to 1 point	Optional Crossover for credits 17.1–17.4 and LV4 These credits can either be targeted separately (meeting Green Star requirements for non-residential and Homestar for residential) or project teams have the option to streamline through targeting the Green Star credit for the whole building (residential and non-residential areas). Where the Green Star Prescriptive Pathway is used the non-residential areas must meet the Green Star criteria and the residential areas need to meet the Homestar criteria. Where project teams wish to consider transport for the whole building together then the Green Star Performance Pathway can be used on both non-residential and residential areas. This credit would then be assessed under the Green Star submission and points would be automatically awarded under Homestar LV4 on a pro rata basis, e.g. where 6 out of the 10 points are achieved under credit 17 then 3 points would be awarded out of 5 points under LV4 and LV2 for access to amenities. Direct Crossover for 17.5 and LV2 For 17.5 and LV2, 1 point is awarded under credit LV2 for access to amenities where 1 point is achieved under credit 17.5.



GREEN STAR D&AB CREDIT	HOMESTAR V5 CREDIT	REQUIREMENTS
18 Potable Water 18A Performance Pathway Up to 12 points are available based on the magnitude of the predicted reduction in potable water consumption, when the project is compared against a Reference Building. 18B Prescriptive Pathway Up to 6 points out of 12 are available where it is demonstrated that the building's potable water consumption has been reduced through best practice water saving design features.	EF3: Water Use Dwellings must not exceed the following indoor water consumption in litres per person per day: 6 Homestar – 165L/p/d 7 Homestar – 150L/p/d 8 Homestar – 110L/p/d 9/10 Homestar – 90L/p/d	Linked In general the Green Star requirements should be met for the non-residential areas and Homestar requirements for the residential areas. However, where the point for the Fire Protection System Test Water is targeted under Green Star it must be achieved for the whole building. Where projects include a rainwater tank that supports both residential and non-residential areas then the project team must show compliance under both rating tools. The rainwater tank volume requirement should be calculated for residential areas in the Homestar calculator and non-residential in the Green Star calculator and the volume added together to determine the overall volume of the rainwater tank required. Common outdoor areas should be included in the Green Star calculation. Where projects include a rainwater tank that supports only the non-residential or residential area then the project team would only need to show compliance under the relevant rating tool.
19 Life Cycle Impacts 19A Life Cycle Assessment Up to 7 points are 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. Points are awarded by a reduction in impact compared to a reference building as follows: 30% reduction – 1 point 50% reduction – 2 point 70% reduction – 3 point 90% reduction – 4 point 110% reduction – 5 point 130% reduction – 6 point Up to 4 additional points are available for additional reporting.	EN2: Embodied Carbon One point is awarded for carrying out a full cradle-to-cradle lifecycle assessment of the greenhouse gas emissions associated with products and materials used to construct the home, calculated in accordance with ISO14040 and EN 15978. Points are available as follows: <160% increase on carbon budget, <156kgCO ₂ /m ² – 1 point <120% increase on carbon budget, <132kg CO ₂ /m ² – 2 points <80% increase on carbon budget, <108 CO ₂ /m ² – 3 points <40% increase on carbon budget, <84kg CO ₂ /m ² – 4 points <NZ 1.5°C carbon budget, <60kg CO ₂ /m ² – 5 points	Direct Crossover with additional guidance These credits must be targeted together and the assessment carried out on the whole building. The assessment must be carried out in accordance with the Green Star requirements. Points awarded under the Green Star rating will be based on the whole building being assessed using the comparative reference model approach and points awarded as per Green Star. Under the Homestar rating, the first point for credit EN2 is awarded where a full cradle to gate lifecycle assessment, modules A–D of EN 15978 has been carried out for the whole building.



GREEN STAR D&AB CREDIT	HOMESTAR V5 CREDIT	REQUIREMENTS
		<p>Additional points awarded under the Homestar rating are based on the whole building being assessed using the credit EN2 points requirements which is an absolute carbon emissions approach for stages A1–A5, i.e.:</p> <p><160% increase on carbon budget, <156kgCO₂/m² – 1 point</p> <p><120% increase on carbon budget, <132kg CO₂/m² – 2 points</p> <p><80% increase on carbon budget, <108 CO₂/m² – 3 points</p> <p><40% increase on carbon budget, <84kg CO₂/m² – 4 points</p> <p><NZ 1.5°C carbon budget, <60kg CO₂/m² – 5 points</p> <p>There is no linking requirement of points between credit 19 and credit EN2, i.e. project teams do not have to achieve a set number of points in EN2 to be awarded points under credit 19 or vice versa.</p> <p>Where the Life Cycle Impacts pathway is taken (i.e. credit 19B) under the Green Star rating then these requirements apply to the non-residential areas only. There are no associated points available under Homestar when following the Life Cycle Impacts pathway, however projects may be able to target innovation points under the Homestar rating but this must be agreed with the NZGBC before targeting</p>

GREEN STAR D&AB CREDIT	HOMESTAR V5 CREDIT	REQUIREMENTS
20 Responsible Building Materials 20.1 Structural and Reinforcing Steel <p>1 point is available where 95% of the building's steel (by mass) is sourced from a Responsible Steel Maker; and</p> <p>For steel framed buildings, at least 60% of the fabricated structural steelwork is supplied by a responsible steel fabricator/steel contractor.</p> <p>For concrete framed buildings, at least 60% (by mass) of all reinforcing bar and mesh is produced using energy-reducing processing or ECNZ certified.</p> 20.2 Timber <p>1 point is available where at least 95% (by cost) of all timber used in the building and construction works is either certified or reused.</p> <p>20.3 Permanent Formwork, Pipes, Flooring, Blinds and Cables</p> <p>1 point is available where 90% (by cost) of all permanent formwork, pipes, flooring, blinds and cables in a project either PVC free or best practice PVC.</p>	EN3: Sustainable Materials <p>Up to 10 points are available where at least 50% of the material content is reused, eco-preferred or responsibly sourced materials (see Assessment section for definitions) for materials categories as follows:</p> <p>One material category complies – Up to 1.5 points</p> <p>Two material categories comply – Up to 3 points</p> <p>Three material categories comply – Up to 4.5 points</p> <p>Four material categories comply – Up to 6 points</p> <p>Five material categories comply – Up to 7.5 points</p> <p>Six material categories comply – Up to 9 points</p> <p>Seven or more material categories comply – Up to 10 points</p>	Optional Crossover <p>These credits can either be targeted separately (meeting Green Star requirements for non-residential and Homestar for residential) or project teams have the option to streamline through targeting the Green Star credit for the whole building (residential and non-residential areas).</p> <p>Where the Green Star credit is sought for the whole building then points targeted/achieved would be applied to as follows:</p> <p>✔ 1 point in credit 20 = 1.5 points in credit EN3.</p> <p>✔ 2 points in credit 20 = 3.5 points in credit EN3.</p> <p>✔ 3 points in credit 20 = 5 points in credit EN3.</p>
21 Sustainable Products <p>Up to 3 points are available when a proportion of all materials used in the project meet transparency and sustainability requirements under one of the following initiatives:</p> <p>A. Reused Products;</p> <p>B. Recycled Content Products;</p> <p>C. Environmental Product Declarations;</p> <p>D. Third-Party Certification; or</p> <p>E. Stewardship Programs.</p> <p>Points are calculated based on specified benchmarks for the percentage of compliant products used in the project.</p>	EN3: Embodied Materials <p>Up to 10 points are available where at least 50% of the material content is reused, eco-preferred or responsibly sourced materials (see Assessment section for definitions) for materials categories as follows:</p> <p>One material category complies – Up to 1.5 points</p> <p>Two material categories comply – Up to 3 points</p> <p>Three material categories comply – Up to 4.5 points</p> <p>Four material categories comply – Up to 6 points</p> <p>Five material categories comply – Up to 7.5 points</p>	Optional Crossover <p>These credits can either be targeted separately (meeting Green Star requirements for non-residential and Homestar for residential) or project teams have the option to streamline through targeting the Green Star credit for the whole building (residential and non-residential areas).</p> <p>Where the Green Star credit is sought for the whole building then points targeted/achieved would be applied as follows:</p> <p>✔ 1 point in credit 21 = 1.5 points in credit EN3.</p>

GREEN STAR D&AB CREDIT	HOMESTAR V5 CREDIT	REQUIREMENTS
	Six material categories comply – Up to 9 points Seven or more material categories comply – Up to 10 points	<p>✔ 2 points in credit 21 = 3.5 points in credit EN3.</p> <p>✔ 3 points in credit 21 = 5 points in credit EN3.</p>
<p>22 Construction and Demolition Waste</p> <p>This credit includes a minimum requirement that must first be met to qualify for points, and two alternative pathways to demonstrate reductions in waste going to landfill.</p> <p>22.1 Reporting Accuracy</p> <p>The minimum requirement is met where the waste contractors and waste processing facilities servicing the project demonstrate compliance with the Green Star Construction and Demolition Waste Reporting Criteria.</p> <p>22.2A Fixed Benchmark</p> <p>1 point is available where the construction and demolition waste going to landfill is reduced by:</p> <p>✔ Minimising the total amount of waste sent to landfill to less than 15kg/m²GFA.</p> <p>22.2B Percentage Benchmark</p> <p>1 point is available where the construction and demolition waste going to landfill is reduced by:</p> <p>✔ Diverting 70% of waste from going to landfill.</p>	<p>EN4: Construction Waste</p> <p>2. Design Rating</p> <p>Site Waste Management Plan</p> <p>Pre-requisite when any points are being targeted in this credit:</p> <p>Where the contractor is required to prepare and implement a site waste management plan (SWMP) for the entire duration of the project. This should include minimising waste, onsite sorting and waste diversion targets as applicable.</p> <p>Minimising Waste</p> <p>For the Design Rating, the project must outline, 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:</p> <ul style="list-style-type: none"> - 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). <p>Where the total construction waste generated on site is:</p> <p>Less than 25kg/m² of GFA. – 1 point Less than 15kg/m² of GFA. – 2 points Less than 5kg/m² of GFA. – 3 points</p>	<p>Direct Crossover</p> <p>Waste Management and Reporting Accuracy</p> <p>Projects are required to provide a Site Waste Management Plan and meet the Green Star Reporting Accuracy requirements.</p> <p>Waste Diversion</p> <p>✔ Where 50-69% of the total waste generated is reused and/or recycled and/or recovered for the demolition and construction – 1 point is awarded under Homestar.</p> <p>✔ Where 70% or more of the total waste generated is reused and/or recycled and/or recovered for the demolition and construction – 2 points are awarded under Homestar and 1 point under Green Star (a maximum of 1 point is available under Green Star credit 22.2).</p> <p>✔ Where 90% or more of the total waste generated is reused and/or recycled and/or recovered for the demolition and construction – 2 points are awarded under Homestar, 1 point under Green Star and 1 point is available as an innovation under both Homestar and Green Star.</p> <p>A waste minimisation strategy must be implemented that uses design, product selection, procurement and/or contractual requirements to target major construction waste sources.</p> <p>Where the total construction waste generated on site is:</p> <p>✔ Less than 25kg/m² of GFA. – 1 point is awarded under Homestar.</p> <p>✔ Less than 15kg/m² of GFA. – 2 points are awarded under Homestar, and 1 point is awarded under Green Star (a maximum of 1 point is available under Green Star credit 22.2).</p> <p>✔ Less than 5kg/m² of GFA. – 3 points are awarded under Homestar, 1 point is awarded under Green Star credit 22.2 and 1 innovation point under Green Star.</p>

GREEN STAR D&AB CREDIT	HOMESTAR V5 CREDIT	REQUIREMENTS
	<p>Onsite Sorting</p> <p>Where a project has implemented onsite sorting of non-contaminated waste streams. This includes hardfill, concrete, metal, plasterboard, untreated timber, treated timber, MDF, cardboard.</p> <p>Onsite sorting of three waste streams. – 0.5 point</p> <p>Onsite sorting of a minimum of four waste streams. – 1 point</p> <p>Waste Diversion</p> <p>Where 50-69% of the total waste generated is reused and/or recycled and/or recovered for the whole construction/refurbishment project (off-site waste sorting is accepted). – 1 point</p> <p>Where 70% or more of the total waste generated is reused and/or recycled and/or recovered for the whole construction/refurbishment project (off-site waste sorting is accepted). – 2 points</p>	<p>Onsite Sorting</p> <p>Where a project has implemented onsite sorting of non-contaminated waste streams. This includes hardfill, concrete, metal, plasterboard, untreated timber, treated timber, MDF, cardboard.</p> <p>Onsite sorting of three waste streams. – 0.5 point is awarded under Homestar</p> <p>Onsite sorting of a minimum of four waste streams. – 1 point is awarded under Homestar, and 1 point is awarded as an innovation point under Green Star</p>
<p>23 Ecological Value</p> <p>Up to 3 points are awarded where the ecological value of the site is improved by the project.</p> <p>The number of points awarded is determined by the Ecological Value Calculator based on a comparison of the condition of the site before and after design/construction.</p>	<p>EN5: Site Water and Ecology</p> <p>Pre-requisite: dwellings targeting any points in this credit may not use the following known heavy metal pollutants:</p> <p>✔ Known heavy metal polluting materials</p> <p>✔ Uncoated zinc galvanised roofing</p> <p>✔ Copper guttering and drainage pipes</p> <p>3) Native planting – Up to 1 point</p> <p>4) Holistic design – 1 point (only available where 0.5 points has been achieved under Stormwater Management and 0.5 under Native Planting)</p>	<p>Direct Crossover</p> <p>Green Star requirements take precedence.</p> <p>The pre-requisite requirement under EN5 must be applied to the whole building.</p> <p>Points achieved under 23 Ecological Value will be applied to Homestar EN5 – 3 Native Planting as follows:</p> <p>✔ 1 point under credit 23 = 0.3 points under EN5 – 3 Native planting.</p> <p>✔ 2 points under credit 23 = 0.7 points under EN5 – 3 Native planting.</p> <p>✔ 3 points under credit 23 = 1 points under EN5 – 3 Native planting.</p> <p>The Holistic design point under Homestar is only available where projects include WSUD within the development and the Homestar requirements have been achieved for this.</p>

GREEN STAR D&AB CREDIT	HOMESTAR V5 CREDIT	REQUIREMENTS
24 Sustainable Sites 24.1 Conditional Requirement: Ecological Protection A Conditional Requirement must be met in order for the project to be eligible for Green Star – Design & As Built rating. To achieve a certified rating the project must not be located on a site of high ecological value. 24.2 Reuse of Land 1 point is available where 75% of the site was previously developed land at the date of site purchase or, for previously owned land, at the project’s Green Star registration date. 24.3 Contamination and Hazardous Materials 1 point is available where the site, or an existing building, was previously contaminated and the site has been remediated in accordance with a best practice remediation strategy.	EN5: Site Water and Ecology Pre-requisite: dwellings targeting any points in this credit may not use the following known heavy metal pollutants: ✔ Known heavy metal polluting materials ✔ Uncoated zinc galvanised roofing ✔ Copper guttering and drainage pipes 2) Brownfield development – 0.5 point	Direct Crossover for credits 24.1 and 24.2 and EN5 Green Star requirements take precedence. The pre-requisite requirement under EN5 must be applied to the whole building. The conditional requirements under 24 Sustainable Sites would need to be achieved on all mixed-use development projects targeting Green Star. Achieving 1 point under 24.2 Reuse of Land would give 0.5 points under EN5 – 1 Brownfield Development. Innovation opportunity for 24.3 under Homestar An innovation point is available under Homestar where the 1 point is achieved for 24.3 Contamination and Hazardous Materials.
25 Stormwater 25.1 Stormwater Peak Discharge 1 point is available where the post-development peak Average Recurrence Interval (ARI) event discharge from the site does not exceed the pre-development peak ARI event discharge. 25.2 Stormwater Pollution Targets 1 additional point is available, where the first point has been achieved and all stormwater discharged from site meets specified pollution reduction targets.	EN5: Site Water and Ecology Pre-requisite: dwellings targeting any points in this credit may not use the following known heavy metal pollutants: ✔ Known heavy metal polluting materials ✔ Uncoated zinc galvanised roofing ✔ Copper guttering and drainage pipes Up to four points are available using one or more of the methodologies below: 1) Brownfield development – 0.5 point 2) Stormwater management – Up to 1.5 points 3) Native planting – Up to 1 point 4) Holistic design – 1 point (only available where 0.5 points has been achieved under Stormwater Management and 0.5 under Native Planting)	Direct Crossover Green Star requirements take precedence. The pre-requisite requirement under EN5 must be applied to the whole building. Points achieved under 25 Stormwater would be applied to Homestar EN5 – – 2 Stormwater management as follows: ✔ 1 point under credit 25 = 0.75 points under EN5 – 2 Stormwater management. ✔ 2 point under credit 25 = 1.5 points under EN5 – 2 Stormwater management. The Holistic design point under Homestar is only available where projects include WSUD within the development and the Homestar requirements have been achieved for this. Where WSUD is implemented an Innovation Challenge is available under Green Star.

Innovation

The table below lists the innovations available under Green Star and identifies in which areas the requirements need to be applied and also under which tools the innovation points are available. How these innovations apply are typically as follows:

- ✔ Non-residential specific innovations need to be applied to the non-residential areas but not the residential areas. The innovation point would only be available in the Green Star rating not the Homestar rating.
- ✔ Non-specific innovations that could be applied to both non-residential and residential and not already awarded in the Homestar rating need to be applied to both non-residential and residential. The innovation point is available in both the Green Star and Homestar ratings.
- ✔ Non-specific innovations that could be applied to both non-residential and residential but are already awarded in the Homestar rating need to be applied to both non-residential and residential. The innovation point is only available in the Green Star rating.

Note that this section does not investigate Innovation Challenges, which are already clearly identified as available under Green Star, Homestar or both on the NZGBC’s website.

Where targeted under Green Star the following credits could be targeted as an innovation under Homestar where applied site-wide:

- ✔ 3 Adaptation and Resilience
- ✔ 5 Commitment and Performance
- ✔ 7.3 High Quality Staff Support
- ✔ 16 Peak Energy Demand Reduction
- ✔ 24.3 Contamination and Hazardous Materials

2 COMMISSIONING AND TUNING

Exceeding Green Star Benchmarks – Supplementary or Tenancy Fitout Systems Review

One (1) additional point may be awarded where project teams and building owners carry out a comprehensive services and maintainability review of supplementary or tenancy fitout systems, in addition to all nominated base building systems as outlined in credit 2. This review must be undertaken to ensure the design and function of such systems are properly integrated with base building systems.

Applicable to the non-residential areas only. The innovation point would only be available in the Green Star rating and only for projects where the non-residential area has a GFA of at least 500m² or 50% (whichever is greater).

2 COMMISSIONING AND TUNING

Market Transformation – Soft Landings Framework

One (1) additional point may be awarded where the building is designed, built, commissioned, and tuned by adopting a ‘Soft Landings’ approach. For information on how to implement a ‘Soft Landings’ approach, please see [here](#).

Applicable to the non-residential areas only. The innovation point would only be available in the Green Star rating and only for projects where the non-residential area has a GFA of at least 500m² or 50% (whichever is greater).

2 COMMISSIONING AND TUNING

Exceeding Green Star Benchmarks – Building Air Permeability

One (1) point will be awarded where an air permeability test is carried out in accordance with the guidance in the D&AB Submission Guidelines. Up to an additional two (2) points are awarded where building air permeability rates meet the requirements outlined in table 2.2.1 in the D&AB Submission Guidelines.

Applicable to the whole building. However as this is already awarded in the Homestar tool the innovation points would only be available in the Green Star rating

13 INDOOR POLLUTANTS

Exceeding Green Star Benchmarks – Ultra Low VOC Paints

One (1) additional point may be awarded where over 50% of paints (by volume) specified in the building have a maximum TVOC content of 5g/L. This must be verified by one of the approved paint test methods.

Applicable to the non-residential areas only if using the Separate Pathway (Optional Crossover) or applicable to both non-residential and residential areas where using the Direct Crossover Pathway. The innovation point would only be available in the Green Star rating as ultra-low VOC paints are common in residential areas.

13 INDOOR POLLUTANTS

Innovation Challenge – Indoor Plants

One (1) additional point may be awarded where indoor plants are evenly distributed across the nominated area and are regularly maintained. One or more plants with a soil area of at least 500cm² (0.05 m²) are required per 10m² of nominated area (primary spaces).

Applicable to the non-residential areas only. The innovation point would only be available in the Green Star rating and only for projects where the non-residential area has a GFA of at least 500m² or 50% (whichever is greater).

13 INDOOR POLLUTANTS

Exceeding Green Star Benchmarks – Mattresses (health and hospitality projects only)

One (1) additional point may be awarded where 95% of all mattresses that are to be supplied to the building meet the GreenGuard emission criteria for bedding as per the Submission Guidelines.

Applicable to the non-residential areas only. The innovation point would only be available in the Green Star rating and only for projects where the non-residential area has a GFA of at least 500m² or 50% (whichever is greater).

14 THERMAL COMFORT

Innovative Technology or Process – Individual Comfort Control

One (1) additional point is available where the project has open plan work spaces (such as offices or education facilities), has achieved either the first or second ‘Thermal Comfort’ point, is mechanically ventilated, and meets the following requirements for individual thermal comfort control.

The individual comfort control system must allow control over at least one of the following:

- ↗ Air velocity;
- ↗ Temperature (whether radiant or from direct air temperature); or
- ↗ Air direction.

Applicable to the non-residential areas only. The innovation point would only be available in the Green Star rating and only for projects where the non-residential area has a GFA of at least 500m² or 50% (whichever is greater).

15 GREENHOUSE GAS EMISSIONS

Innovative Technology or Process – Onsite Renewable Energy

Up to 2 points are available where onsite renewable energy systems contribute to the reduction of greenhouse gas emissions by at least 5% (1 point) or 10% (2 points).

Applicable to the non-residential and residential areas. However as this is already awarded in the Homestar tool the innovation points would only be available in the Green Star rating.

15 GREENHOUSE GAS EMISSIONS

Innovative Technology or Process – BIPV

One (1) point available where Building Integrated Photovoltaic (BIPV) systems contribute to the reduction of greenhouse gas emissions by at least 15%. This point can be awarded in addition to the ‘Onsite Renewable Energy’ points highlighted above.

Applicable to the whole project. The innovation point would be available in both Green Star and Homestar ratings.

15 GREENHOUSE GAS EMISSIONS

Innovation Challenge – Net carbon zero buildings

An Innovation Challenge for projects seeking net zero emissions in scope 1, scope 2, and scope 3 is available for project teams. For more information, please contact NZGBC Green Star team.

Applicable to the whole project. The innovation point would be available in both Green Star and Homestar ratings.

15 GREENHOUSE GAS EMISSIONS

Market Transformation - Passive Design

Projects that achieve more than 15 points through passive design or without energy generation or the purchase of offsets in the ‘Greenhouse Gas Emissions’ credit can claim an Innovation point.

Applicable to the non-residential areas only. The innovation points would be available in the Green Star rating and only for projects where the non-residential area has a GFA of at least 500m² or 50% (whichever is greater).

17 SUSTAINABLE TRANSPORT

Improving on Green Star Benchmarks – No new car parks on site

One (1) point will be awarded where no new car parking is provided on-site, unless it was a regulatory requirement. This applies regardless of who operates the car parking, even if it’s operated by an external party. If new car parking is present on-site, even if it is commercially operated, this Innovation point cannot be claimed.

Applicable to the whole project. The innovation point would be available in the Green Star rating and in the Homestar rating where projects would otherwise be required to provide parking.

18 POTABLE WATER

Innovative Technology or Process - Heat rejection systems in equipment requiring process cooling (Prescriptive Pathway 18.B)

One Innovation point is available where water use from process cooling in medical, laboratory, or industrial equipment, is at least 10% of the building’s total water consumption. In such a case, an innovation point can be achieved if:

- ✔ 95% of the water requirement for once-through cooling of equipment requiring process cooling is sourced from non-potable water; OR,
- ✔ All equipment requiring process cooling uses cooling systems other than once-through cooling systems.

This innovation point is deemed ‘Not Applicable’ where the project does not contain equipment requiring process cooling.

Applicable to the non-residential areas only. The innovation points would be available in the Green Star rating and only for projects where the non-residential area has a GFA of at least 500m² or 50% (whichever is greater).

18 POTABLE WATER

Innovation Technology or Process – Passive Design

One Innovation point is available for projects that use passive water treatment systems (such as vegetation to treat water passively) to achieve at least one point in the Potable Water Calculator.

Applicable to the non-residential areas and/or the residential areas. The innovation points would be available on the areas achieving the requirement (Green Star, Homestar or both).

18 POTABLE WATER

Improving Green Star Benchmarks – Discharge to sewer

One Innovation point is available for a 90% or greater reduction in flow to sewer as determined by the Potable Water Calculator.

Applicable to the non-residential areas only. The innovation point would only be available in the Green Star rating and only for projects where the non-residential area has a GFA of at least 500m² or 50% (whichever is greater).

19A LIFE CYCLE ASSESSMENTS

Exceeding Green Star Benchmarks – Comparative Life Cycle Assessment

One (1) Innovation point is awarded where the cumulative impact reduction as defined within the credit is increased by 20% to a total of 150%. An additional 20% improvement is rewarded with a second point.

Applicable to the whole building. The innovation points would only be available in the Green Star rating.

19B.1 LIFE CYCLE IMPACT - CONCRETE

Sustainable Sourcing of Concrete Aggregates

The NZGBC invites project teams submit innovation submissions for the sustainable sourcing of concrete aggregates for use in permanent landscaping, backfill and hardfill applications.

Applicable to the whole project. The innovation point would be available in both Green Star and Homestar ratings.

21 SUSTAINABLE PRODUCTS

Exceeding Green Star Benchmarks – Product Transparency and Sustainability

One (1) Innovation point is awarded where the percentage of compliant products is increased by 3% to 12%. A further 3% improvement is rewarded with a second point.

Applicable to the whole project where the Green Star credit criteria are used for the whole project. The innovation point would be available in both Green Star and Homestar ratings.

22 CONSTRUCTION AND DEMOLITION WASTE

Improving on Green Star Benchmarks

One (1) additional point is available where the construction and demolition waste going to landfill meets a fixed benchmark of 5kg of waste per square meter of gross floor area (GFA) or at least 90% of the waste generated during construction and demolition has been diverted from landfill.

Applicable to the whole project. The innovation point would only be available in the Green Star rating as this is already awarded in the Homestar tool.

25 STORMWATER

Innovation Challenge - Water Sensitive Urban Design

Project teams may develop an Innovation Challenge that demonstrates that the criteria of the credit have been exceeded by employing Water Sensitive Urban Design principles.

Applicable to the whole project. The innovation point would only be available in the Green Star rating as this is already awarded in the Homestar tool.

25 STORMWATER

Exceeding Green Star Benchmarks – Stormwater Pollution Targets

Up to two additional points may be awarded where projects can demonstrate achieving Pollution Reduction Targets from column B (1 point) or C (2 points) as stated in Table 25.1.

Currently, the use of biological treatment systems is generally considered the only viable method of achieving compliance with the Pollution Reduction Targets of column C. Where a treatment train that does not contain biological treatment is being used to achieve the Pollution Reduction Targets in column C, independently verified performance certification is required to show that the equipment is capable of achieving those targets.

Applicable to the whole project. The innovation point would be available in both Green Star and Homestar ratings.

27 MICROBIAL CONTROL

Innovative Technology or Process – Microbial Control in Warm Water Systems

A project team may claim one (1) Innovation point where it is demonstrated that warm water systems have also been designed to manage the risk of microbial contamination. This may be done in association with operational practices that are to be implemented, as long as there are also design features that facilitate the achievement of the aim of the credit.

Project teams must contact the NZGBC prior to making this Innovation claim, as compliance requirements have to be developed in collaboration with the project team.

Applicable to the whole building. The innovation point would be available in the Green Star and Homestar ratings.

Questions?
Feedback?

Contact us
www.nzgbc.org.nz

