

Summary of Homestar Innovations Reviewed

Tuesday, 21 March 2023

This table includes innovation applications that have been approved for your reference. Please note, innovation submissions will be reviewed by the NZGBC regardless of whether the innovation targeted has been approved in the past. Some innovation points are approved or declined under a specific circumstance and the comments and required documentation may not be applied to other projects. Please submit for innovation points prior to project submission.

Number	Innovation Name	Points	Description	Comments	Design Rating Submission Requirements	Built Rating Submission Requirements
2	Integrated roof PV tiles	1	Roof tiles with integrated PV generation. These replace the need for traditional roof tiles and have an amorphous silicon topping.	Integrated roof tiles are not deemed to be widely transferrable at this point because of cost, however they are an innovative solution for New Zealand.	Drawings / specification showing inclusion in the project	Photo showing PVs integrated into the roof
3	Information Sharing	1	Sharing of design and build information	To qualify, the information must be presented in an easily transferable manner, such as a user-friendly website/blog with a good level of detail on how aspects of the design can be repeated. In one case, the house in question is going to be used an open home on weekends, for a period of 2 years.	Design & Details on website, blog etc.	
4	Exterior Wall Framing	1	Double framing system allowing for extra insulation, reducing thermal bridging and providing a clear space for services	This is an innovative design solution. While thermal properties of building elements are already accounted for in EHC-6, the material savings and conduit improvements of this design are useful and worthy of promoting for other projects.	Drawings / specification showing inclusion in the project	Photo showing system during the build process
5	Real-time Performance Monitoring	1	Real-time monitoring of key home metrics (solar, water use, energy use etc.)	Monitoring of energy use and performance metrics alone provides limited transferable information. However this innovation will be approved if data (at least 12 months' worth) is accompanied with analysis and useful interpretation.	Drawings / specification showing inclusion in the project	Report describing the energy monitoring system, analysis of at least 12 months of data and interpretation with respect to improving/maintaining performance levels in homes
10	Trombe wall	1	A trombe wall is a specifically designed, heavy mass situated and coloured in order to absorb energy from the sun during the day and release this energy during the night.	Size and orientation needs to be adequate. This should be backed up with appropriate calculations or modelling.	Drawings / Specification showing inclusion in the project	Photo showing system during the build process

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13	Hot water drain heat exchangers	1	Heat exchangers installed in shower drains to use waste water to pre-heat cold water	Applicant did a lot of research. This is a smart, very low maintenance and proven technology; research has shown that very appropriate for hostels etc.	Drawings / Specification showing inclusion in the project	Photo showing system during the build process
15	Carpet tiles in a residential setting	1	Using replaceable carpet tiles or segments instead of large, carpet rolls, allowing for the replacement of smaller sections of carpet.	The applicant did a lot of research into the energy consumption of carpet production. While carpet tiles are now common practise in commercial settings, this is innovative for a residential setting.	Drawings / Specification showing inclusion in the project	Photo showing the carpet tiles in the dwelling
16	Timber Framing Junction	1	A new approach to the way that timber framing junctions are constructed. The use of Gib Ezybrace reduces the amount of timber framing required and allows increased thermal performance by allowing the installation of insulation at junctions.	This approach has been deemed to a) save timber resources and therefore save money, b) allow insulation to more areas and less thermal bridging (although the exact building performance increase may only be minor), c) saves time and has other practical benefits.	Drawings / Specification showing inclusion in the project	Photo showing system during the build process
17	Peak energy demand reduction	1 or 2	Sungenie Solar system that includes 10kwh battery array to enable dwelling to come off the main electricity grid during peak demand hours in the morning and evening.	It was determined that a 50% peak energy demand reduction should be awarded 1 point and that a 100% demand reduction should be awarded 2 innovation points. The original project demonstrated a 50% peak energy demand reduction.	Drawings / Specification showing inclusion in the project and calculations showing % of peak demand designed to be offset.	Photo showing system in place and screen shots of monitoring system showing offset of demand.
19	Integrated natural systems – stormwater and ecological management	1	The project will be installing filtration system on the roof. EPSock is a filtration system designed to be installed in a building's guttering and downpipe systems to mitigate contamination of storm water falling on the roof before it reaches the council systems.	In the STE-1 Credit under Homestar version 4, the aim stated as: 'To encourage and recognise houses/sites that reduce the stormwater run-off from building and hard surfaces, in order to mitigate flooding, pollution and stream erosion'. However there are no existing Homestar benchmarks measuring the amount of pollutants associated with stormwater falling on a dwelling's roof. As such the use of EPSock would exceed the benchmarks and current requirements noted in the Homestar Technical Manual.	Specifications of stormwater treatment devices, design details about stormwater treatment devices, documents that demonstrate no retention is required on site or project is contaminated.	As is for Design Rating

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20	Avoiding O-zone depletion	0.5	All refrigerants and blown insulants will have zero ozone depleting potential and refrigerant leak detection systems are installed to reduce the potential effects of refrigerant leaks and their associated greenhouse gas effects.	Avoiding O-Zone depletion is recognized in the Green Star tool and awarded 1 point. Considering the weighting factor in Green Star tool, 0.5 point is awarded here.	Design specification which claims that zero ozone depleting potential refrigerants and blown insulants will be used for project. Design drawings include refrigerant leak detection systems.	Specification / factsheet of refrigerants and blown insulants, specification / factsheet of refrigerant leak detection systems.
21	Avoiding light pollution	0.5	All building and street lighting on project site has been designed to mitigate night sky effects.	Avoiding light pollution is recognized in the Green Star tool and awarded 1 point. Considering the weighting factor in Green Star tool, 0.5 point is awarded here.	Reports by lighting engineer describing that how external lighting has been designed to mitigate night sky effect. Drawings detailing that external lighting design as supporting documents for avoiding light pollution.	As is for Design Rating
23	Pedestrians and cyclists first – shared streets	1	All the streets and laneways are designed as low speed (30 km/hr) “shared streets” with the purpose of reclaiming them from the dominance of the private motor vehicle.	Low speed limitation of “shared streets” could be a good incentive for people to choose alternative modes of transportation, such as: walking and cycling on site.	Report describes the transport network design which demonstrates the incentive of walking and cycling.	Photos show the speed limit signs of the streets on site.

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24	Travel Management Association	1	An independent organisation has been established to deliver sustainable travel ideas for project by working with businesses, residents and landowners.	For large scale development, an independent organisation that focuses on promoting and developing sustainable transport and travel initiatives is a good practice.	Documents describe the organisation such as vision, objectives, etc. Documents demonstrate the organisation is under operation.	As is for Design Rating
42	Green Wall	1	110m2 of external Green Wall supports increased bio diversity via high density planting of native plants and food for birds and bees	Project must demonstrate benefits of the green wall which may include increased plant density, bio diversity, native planting and birdlife. The size should be at least 100m2 for points to be awarded.	Provide a drawing and/ or specification for the green wall (by supplier) that clearly identify targeted sustainability benefits	Photo of the planted green wall
43	Sustainability Benefits of Pre-fabrication	1	project recognised for prefabrication on site with processes that allow waste to be designed out, minimised and recycled more effectively than when built on site	Projects targeting this innovation must demonstrate how benefits of pre-fabrication are achieved in at least one of the following: minimising / designing out waste, improving building affordability and efficiency, improving build quality, improved moisture control and thermal performance. Contact NZGBC about other sustainability benefits the project achieves through pre-fabrication.	Report outlining specific measurable benefits that points are claiming showing that these either exceed existing Homestar benchmarks not covered in the tool.	As is for Design Rating

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44	Reclaimed Contaminated Land	1	The project is recognised for decontamination and safe encapsulation of contaminants on site during construction on contaminated land as per Green Star ECO-3	To claim this innovation, project must be on land that is classified as contaminated. The project must show that adequate steps have been taken as per Green Star ECO-3 prior to the proposed construction to; (1) decontaminate (including removal, in situ or ex situ remediation) (2) safely encapsulate contaminants on the site (3) mobilise or contain contamination within the site.	Provide compliance documentation as per ECO-3: Site assessment report or contamination report, and signed statement from an environmental specialist that the site has been correctly and appropriately remediated	As is for Design Rating
58	Total Value Analysis			Total Value Analysis is a recognised Innovation Challenge. See Summary of Innovation Challenges.		
59	Water Efficient Appliances			Water Efficient Appliances is a recognised Innovation Challenge. See Summary of Innovation Challenges.		
62	Natural Flow System	1	Instead of a traditional septic tank, the homeowners have elected to use a Natural Flow wastewater treatment system that manages this wastewater on site through a gravity-fed, natural filtration system. This system eliminates the need for pumping out and treatment in an off-site facility, as would typically be required when installing a septic tank, and furthermore eliminates many of the risks associated with a traditional septic retention system.	The request for 1 innovation point for the provision of a Natural Flow system to manage grey and blackwater on site is AWARDED. It is recognised that a system that manages grey water and black water onsite using natural mechanisms and with minimal external power go above and beyond the current Homestar framework, while also having a significant environmental benefit.	Please evidence in the form of drawings and/ or specifications to confirm 1 innovation point.	Please provide evidence that this system was installed at the built rating submission to confirm 1 innovation point.

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64	E-bike Provided to Owner	0.5	Each owner will be provided an e-bike upon purchase of the dwelling to encourage owners to use the local cycleways and to avoid driving where possible.	This innovation is awarded as this makes using an e-bike an easy and accessible mode of transport for the new owners, which will reduce car usership. People tend to make choices about their main mode of transport within weeks of moving into a new home and providing e-bikes will increase the chance of the new owners making a sustainable transport choice.	Please provide evidence that these e-bikes will be provided to the owners e.g. Purchase invoice, photo of bikes, inclusion in purchase agreement, confirmation email etc.	As for design rating
66	Deconstruction and Resuse	1	Project exceeds the existing benchmarks for WST-1 by deconstructing the original dwelling onsite and achieving 89.5% diversion rate from landfill for the deconstruction through re-sue in the new building and recycling.	<p>The innovation request for best practice Deconstruction and Reuse of existing dwellings and associated elements on the site of AKD1092 is ACCEPTED for 1 innovation point. It is acknowledged that the inclusion of responsible deconstruction of existing site (reusing or diverting extracted material) as part of waste management during this project exceeds current requirements of WST-1 which only rewards diversion of waste generated during the construction phase.</p> <p>The achieved total construction and demolition waste diversion rate is 88%, meeting but not significantly exceeding the benchmark set by the previous instance of when this innovation was awarded (87%). Therefore this project qualifies for 1 point as awarded in that previous instant.</p> <p>NZGBC notes that an additional point is claimed for relocation and reuse of existing dwellings by Habitat for Humanity. However this additional point is not awarded as this was part of the reuse and diversion initiatives that helped achieve the 88% diversion rate and is therefore already recognised in the awarded 1 point.</p>	SWMP to include the deconstruction phase.	A report detailing waste generated and diversion rates for the deconstruction.

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68	Car Park Minimisation	2	The project demonstrates a reduction in car parking available to residents to encourage more sustainable forms of transport.	<p>1 point may be awarded where the project has demonstrated a 30% reduction in carparking from that typically provided in new developments (the benchmark).</p> <p>2 points may be awarded where the project has demonstrated a 50% reduction in carparking from that typically provided in new developments (the benchmark).</p> <p>Benchmark: The benchmark for new homes is 1 car parking space for every 2 bedrooms provided across the project. The target number of car parking spaces should be calculated by dividing the number of bedrooms in the development by 2, subtracting the appropriate reduction (30% / 50%) and then rounding down to the nearest whole number.</p> <p>These innovation points will only be awarded to projects that achieve 2 points for proximity to key amenities, and 1 point for proximity to public transport services under STE-3 Neighbourhood amenities, and 2 points for STE-4 Cycling.</p>	Reports that include a comparison between the total numbers of car parking spaces provided by the project against the benchmark of 1 carpark for every 2 dwellings. Drawings demonstrate the number of car parking spaces associated.	As for design rating
69	Permanent Ladder Bracket	0.5	<p>The provision of Accumulation of debris can quickly lead to a compromised and overflowing gutter (which can overflow back towards the building when the external edge of the gutter being higher than the internal edge).</p> <p>The provision of permanent roof ladder brackets in the residential setting allows for easy, safe gutter clearing, and helps prevent the accumulation of debris causing water to overflow into the building.</p>	While these are common in commercial buildings, permanent ladder brackets or other fixings for maintenance personnel safety are not common in standalone or terrace dwellings. Having these in place may potentially encourage gutters to be cleaned more often, leading to better stormwater flows and reduced likelihood of flooding/overflows that may cause moisture ingress into the dwelling structure.	Provide a plan which indicates the location(s) of ladder brackets, to confirm that at least 80% of the guttering can be safely accessed with the use of installed brackets (and any sections not accessible must not block the flow path from accessible sections and downpipes).	Provide photos of the ladder brackets installed, along with the plan.

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71	Continuous Improvements Tracking	1	Developer tracks key metrics over multiple developments and analyses to continually identify and implement efficiencies across their builds.	Such a process has the potential to reduce waste in cost, time and material across projects, thus positively impacting housing affordability, embodied carbon associated with the project and construction waste.	provide an email/letter from the main contractor/developer outlining: 1. what efficiency improvements identified through this tracking process are implemented in this project. 2. how environmental benefits of improvements can be quantified for informing initiatives on future projects.	Same as for design

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80	Ground source heat exchanger	1	<p>Addition of Zehnder ComfoFond-L unit to Zehnder ComfoAir Q600 MHRV unit. The ComfoFond unit is a fluid driven ground source heat exchange that pre-heats or pre-cools the external air before it enters the dwelling. It is attached to the MVHR unit and is controlled using the ComfoAir parameters. The environmental benefits include further energy saving by utilising ground loop and ComfoFond-L unit to increase the air supply temperature in winter and reduce the air supply temperature in summer. This delays the requirement for additional heating or cooling within the home. The ComfoFond is energy efficient with power consumption between 5W-70W. A 200m brine filled ground loop was installed 1.2m beneath landscaping height to access the constant ground temperature. This exceeds the Homestar benchmark for EHC-2 and EHC-3 achieving additional energy efficiency by utilising a ground source heat exchanger in conjunction with the existing MVHR system.</p>	<p>The provision of a Zehnder ComfoFond-L ground source heat exchanger to Zehnder ComfoAir Q600 MHRV unit as a new innovation has been awarded with 1 points considering relevant evidence was provided to prove that the ground loop increases the efficiency of the MVHR system and enhances user comfort by further stabilising the air temperature within the home.</p> <p>The added benefit of some cooling during the summer months through the existing ventilation system further increases comfort and efficiency.</p>		
81	Passive House Retrofit	2	<p>This project demonstrates that an existing building can be retrofitted to Passive House standard and that we can retain heritage while providing an exceptional standard of living for the occupants.</p>	<p>The provision of the first Passive House Low Energy building refurbishment in New Zealand has been awarded 2 points under New Innovation based upon the relevant evidence provided showing that Passive House retrofits are very uncommon. Hence NZGBC is satisfied that Woodford Grace is an innovative project that may encourage and educate similar improvement projects in the future.</p>		

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83	Automation	1	<p>Lutron is a leading home automation system primarily focused on lighting control with integration to other electronic elements of the home. A Lutron fully integrated home allows the occupant to utilise timers, scenes, daylight sensors, sunrise/sunset schedules to manage lighting, heating, security and other electronics. The project has a Lutron HomeWorks system installed where every internal and external light is controlled through the automation system. Additional integration includes entry gate, external blinds, internal blinds, prewire for curtains, pool cover, heaters, heated towel rails, undertile heating in bathrooms, TV's, audio systems and security. The system exceeds the existing benchmark EHC-6 Lighting by fully automating all lighting inside and outside the home. It also exceeds MAN-1 Security by providing enhanced lighting settings specifically relating to security</p>	<p>The provision of automation has been awarded 1 point as New Innovation based upon relevant evidences provided showing the system exceeds the existing benchmark EHC-6 Lighting by fully automating all lighting inside and outside the home. It also exceeds MAN-1 Security by providing enhanced lighting settings specifically relating to security.</p>		

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86	High Quality Staff Support	1	<p>Throughout construction works the project team are planning to implement ongoing high-quality staff support programmes in order to promote positive mental and physical health and wellbeing outcomes for on site staff and to enhance site workers' knowledge on sustainable practices</p> <p>The wellbeing and environmental training programmes planned for the project are outlined in the attached management plan and have been designed by Naylor Love in accordance with the requirements of Credit 7.3 of Green Star – Design & As Built NZv1.0.</p>	<p>The innovation request for provision of high quality staff support during the AKD1092 development is ACCEPTED for 1 innovation point on the provision that provided training includes a session on good onsite waste practices. It is acknowledged that proposed sessions can help both employee wellbeing and dissemination of sustainability knowledge. However onsite waste practices was an omission which NZGBC believes should be included given the impact that worker behaviour can have towards managing a significant impact of construction work on the environment.</p>		<p>For this innovation point to be awarded at built rating, please provide a list of sessions and toolbox meetings actually carried out on site relating to this innovation.</p>
92	EV provision to multi dwellings	1	<p>Future provisioning for EV infrastructure is recognized in a previous innovation challenge for dwelling level provisioning in a garage.) Innovation 1 - with 1 point awarded). In this project with the parking is remote from the dwellings a different approach was needed.By building in a 3 phase distribution network to all carpark spaces the outcome is the same as the recognized innovation.</p>	<p>The provision of EV charging points infrastructure for multi dwellings at car site park is acknowledged as means to encourage low carbon transport (a sustainable approach),which is in line with NZ Low Carbon commitment future plans. Thus 1 innovation point has been awarded. However, NZGBC is interested to understand how sub-metering and billing for individual homeowners will be addressed.</p>		<p>To demonstrate achievement for built rating, NZGBC would require photos of infrastructure clearly showing EV charging points.</p>