Guidance for rating warehouses with Green Star Performance

March 2024 – version 1.0

This supplementary guidance document should be read in conjunction with Green Star Performance v1.2 Submission Guidelines and the Calculator Guides.

Introduction

Green Star Performance is a holistic rating tool for the environmental, social, and sustainability performance of buildings in operation. It works on a points-based system, rewarding different outcome areas including any innovations. The energy and water credit are mandatory under version 1.2 of this tool. This tool can be used for all building types except for houses.

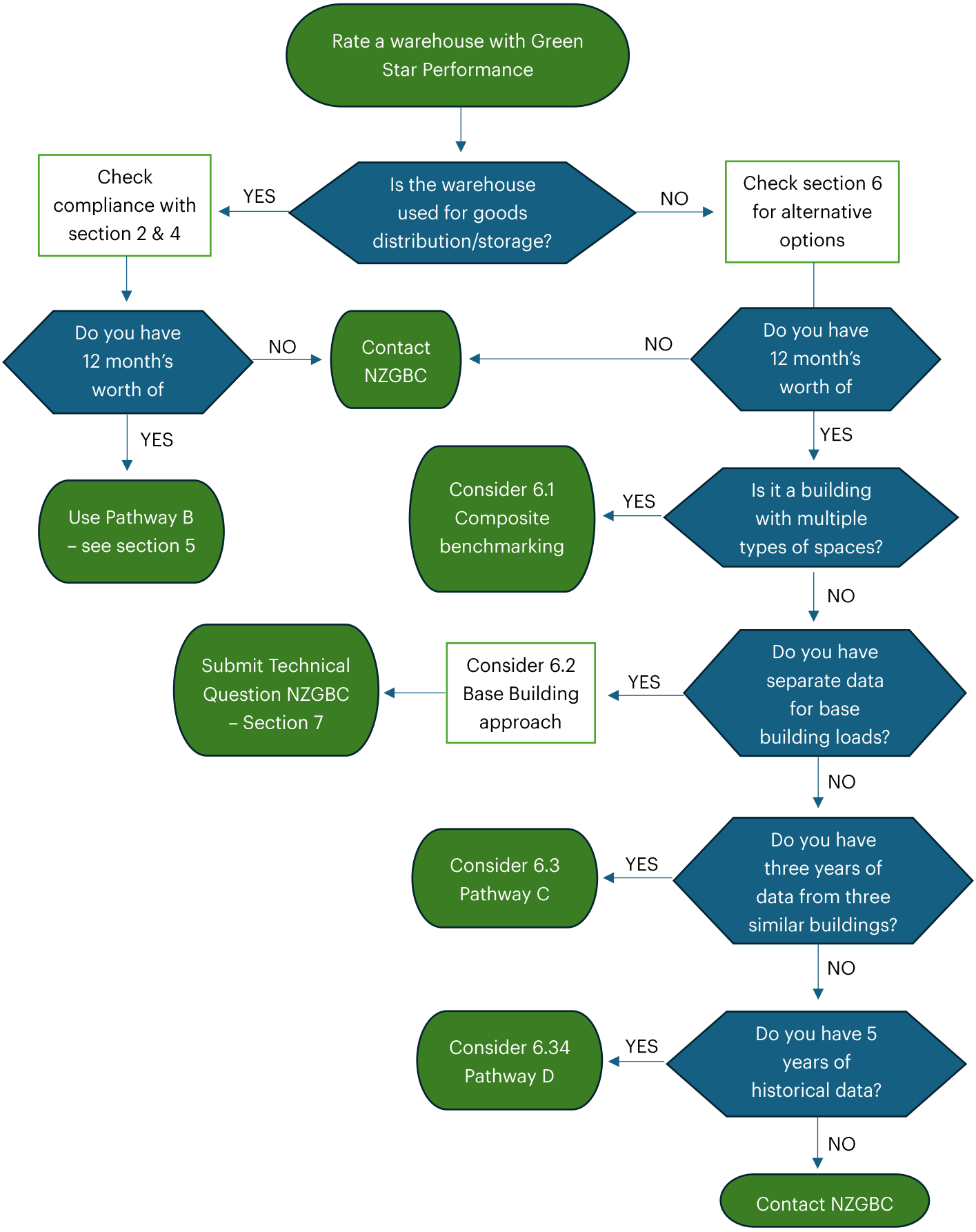
For the energy and water credits, there are four pathways available:

- Pathway A: NABERSNZ rating (currently only available in NZ for rating the energy of office buildings)
- Pathway B: An industry-wide benchmark
- Pathway C: A peer comparison benchmark using three buildings to form a benchmark
- Pathway D: Longitudinal benchmarking, using historical data from the building to create a benchmark

For more information on the different pathways, refer to the submission guidelines.

There has been a lot of demand for ways to rate warehouses. In Australia, a range of building types including warehouses have 'Pathway B' benchmarks established for use in rating. These benchmarks are derived from industry data, helping set what an 'average performer' looks like for a particular building type. Buildings are awarded points depending on where it sits in relation to the benchmark.

Pathway B simply requires 12 months' worth of consumption data as opposed to multiple years/building worth of data for the alternative pathways in Green Star Performance. For building owners of logistics warehouse properties, we invite them to use this Pathway B approach.


Rate a warehouse with Green Star Performance
Is the warehouse used for goods distribution/storage?
YES
Check compliance with section 2 & 4
NO
Check section 6 for alternative options
Do you have 12 month's worth of
NO
Contact NZGBC
Do you have 12 month's worth of
NO
YES
Use Pathway B – see section 5
YES
Consider 6.1 Composite benchmarking
YES
Is it a building with multiple types of spaces?
NO
Submit Technical Question NZGBC – Section 7
Consider 6.2 Base Building approach
YES
Do you have separate data for base building loads?
NO
Consider 6.3 Pathway C
YES
Do you have three years of data from three similar buildings?
NO
Consider 6.34 Pathway D
YES
Do you have 5 years of historical data?
NO
Contact NZGBC

1. How was this benchmark developed?

We energy consumption data from 40 buildings which informed two main categories: non-refrigerated and distribution centres.

BECA analysed the data to form the draft benchmarks which went out for testing with stakeholders via a testing calculator. 21 buildings took part in the testing phase with the majority being buildings that were not in the benchmark data.

The results showed a good range of points (from 1 point through to 20 points out of a total of 23 points) which indicated the benchmark is set at the right level.

NZGBC also met with some stakeholders to talk through the development process and testing results. Those conversations confirmed the benchmarks are ready for use. NZGBC is grateful to everyone who has been engaged in this process.

2. What types of warehouses are covered by this benchmark?

The benchmarks can be used for the warehouse-office typology, where the office supports the warehouse operation. If the office is much larger (eg approx. 15% of the total floor area) and includes non-warehouse related functions (eg a large regional or national office), please contact the NZGBC to talk through the best approach.

Non-refrigerated warehouses

These are warehouses that are simply storage/lockup facilities. They would see minimal usage of energy, encapsulating the lower energy users in the warehouse sector.

Typically, the main energy loads in these warehouses would be roller doors and lighting. There may be no office or a very small supporting office. There wouldn't be any significant process loads.

Distribution centres

This is a logistics warehouse where stock moves in and out. There may also be some light processing – eg packing stations, conveyor belts, light modifications to products. There may also be banks of equipment chargers.

Usually, a distribution centre would also have an office that supports warehouse functions.

3. What climate zones can use this benchmark?

A study by BECA recognised that the energy profile of warehouse buildings is relatively similar across New Zealand climate zones, therefore this benchmark can be used for buildings around the country.

Climate factor normalisation is not applicable to this benchmark. End use breakdowns do not need to be entered into the 15B calculator when using this benchmark.

4. What is not covered by the benchmark?

Whole building ratings where it is a:

- Manufacturing warehouses or industrial plant
- Warehouses where the primary function is not logistics operation/storage
- Warehouses used for workshops and food or crop growing
- Any warehouses that have significant process loads
- Warehouse tenancies or parts of warehouses
- Cold stores or temperature-controlled warehouses

Note that this is not a comprehensive list of exclusions. Please contact NZGBC if there are situations which are not listed here which do not fit into the typical building types covered by the benchmark.

Although the Pathway B benchmark cannot be used for some warehouse types, there are some other approaches to rate these warehouses using Green Star Performance.

5. What do I need to rate?

There will be data and evidence required to form a submission for Green Star Performance. Particularly in the warehouse buildings space, some of that data will need to come from the tenant so it is important to talk them through the purpose and intention around sustainability and rating.

For a list of items required, please refer to the latest *Green Star Performance – Greenhouse Gas Emissions Calculator Guide*

6. Alternative approaches

Green Star Performance v1.2 has a range of mechanisms for measuring and quantifying a building's energy.

6.1 Composite benchmarking

The Green Star Performance 15B calculator has a mechanism built in which allows for several Pathway B benchmarks to be used together – this is useful for mixed use buildings.

For example: a building that has a large national corporate office, a logistics warehouse and a retail component is atypical to a non-refrigerated warehouse or distribution centre so cannot use those benchmarks on its own. However, Green Star

Performance in NZ does have Pathway B benchmarks for offices, retail, and logistics warehouse, so a combination of those benchmarks can be used to establish a composite benchmark. Simply enter in the different areas in each row of the calculator and select the appropriate space type.

This is useful as it allows for the different types of energy profiles present in different parts of the building. Note this only applies if all the different components are joined up as one building (see 'distinct boundaries' in the Green Star Performance definitions). For more information, refer to the 'Mixed use building guidance' in the *Green Star Performance – Greenhouse Gas Emissions Calculator Guide*.

6.2 Whole building vs base building rating

The benchmark is underpinned by data from logistics warehouse buildings, including the tenant operation, so is designed to be used in a whole building approach for a typical logistics operation warehouse.

However, there may be circumstances where it is preferable for the tenant operation to be separated from the landlord provided building for rating purposes. For example, there may be a manufacturing operation or some large refrigeration equipment inside the warehouse. Another reason would be to provide more stability in the rating for the landlord without the rating being dependent on the tenant operation or changes.

In this case, a base building rating approach can be attempted if the tenant loads (particularly process loads) have been submetered so they can be subtracted from the overall energy consumption of the building.

In this case, if rating the base building (only the warehouse shell, lighting, roller doors, etc), then the 'non-refrigerated warehouse' benchmark may be most suitable. NZGBC requests project teams submit a Technical Question to confirm the approach before sending through the submission.

If a 'base building' approach is pursued, industrial buildings have 3 tenant engagement points that can be targeted if the tenant was involved in obtaining necessary information. See the submission guidelines 15.0.4.

6.3 Pathway C – peer comparison pathway

Warehouse buildings in NZ have been using Pathway C to rate portfolios of properties under Green Star Performance. This allows the rated building to be compared to a 'peer group'.

Refer to the Credit 15 Calculator guide for more detail on how to select the peer group and use this pathway.

This pathway requires three years of data from three buildings that are similar to the rated building/s to establish a peer benchmark. The rated building then needs 12 months of consumption data to rate against that benchmark.

6.4 Pathway D – longitudinal benchmarking

For warehouse buildings where there may not be a comparable building or benchmark, Pathway D can be helpful. It uses 5 years of the building's historical consumption data to form a benchmark and points are awarded based on how much the building has reduced consumption over time.

This pathway can also be useful at demonstrating that an energy efficiency initiative (eg refurbishing the building services, installing LED lighting, removing fossil fuels, etc) has created a tangible, benchmarked improvement.

Warehouses using this approach should consider the use of operational variables. Refer to the calculator guide. This might also be an appropriate pathway for manufacturing warehouses for benchmarking a unique building or operation, however you would need some operational data that relates to its energy use.

7. Technical questions

The Technical Question process in Green Star is a formal process to ask a technical or eligibility query to the independent assessors so that they can make a call on whether or not an alternative approach is valid.
If the warehouse you are looking to rate fits into a typical category as per the benchmark, you can go ahead and rate without a Technical Question.

If you have any questions about whether or not a warehouse qualifies, or there are unique circumstances please talk to NZGBC's existing buildings team or contact a Green Star Accredited Professional – Performance.

For particular circumstances, a free Technical Question can be asked to establish eligibility on a technical approach. Eg with composite benchmarking, rating a large office separately etc.

For any further questions on this guidance or warehouse benchmark, please contact Bobby Shen, Senior Manager – Existing Buildings on bobby.shen@nzgbc.org.nz or Alex Goryachev, Senior Technical Coordinator, on alex.goryachev@nzgbc.org.nz .