



The Rules

Energy for warehouses and cold stores

Version 1.0 — August 2022



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1 Introduction

1.1 General

The National Australian Built Environment Rating System (NABERS) is a performance-based rating system managed by the National Administrator.

NABERS ratings are expressed as a number of stars, as follows:

NABERS rating	Performance comparison
6 stars ★★★★★★	Market leading building performance
5 stars ★★★★★	Excellent building performance
3 stars ★★★	Market average building performance

An accredited NABERS energy or water rating is awarded when the National Administrator certifies a rating completed by an Assessor. The National Administrator may independently audit the rating and assist in resolving complex technical issues.

This document contains Rules for Assessors conducting an energy rating for warehouses and cold stores facilities as follows:

- Site gross lettable area, see Chapter 5.
- Refrigerated spaces volume, see Chapter 6.
- Rated hours, see Chapter 7.
- Non-refrigerated areas, see Chapter 8.
- Full-time equivalent workers, see Chapter 9.
- Annual turnover ratio, see Chapter 10.
- Minimum energy coverage, see Chapter 11.
- Documentation requirements for accredited ratings, see Chapter 12.

These Rules provides guidance for Assessors where such systems are present.

1.2 Interpretation of the Rules and Rulings

These Rules are to be read in conjunction with the respective NABERS Rulings as they apply to the specific building type. Rulings are used to address specific issues that may arise after the publication of the Rules.

Note: Rules texts are amended as required by additional Rulings which are published on the NABERS website at www.nabers.gov.au.

Where a conflict between these Rules and existing Rulings is present, the requirements of the Rulings take precedence over the Rules.

1.3 Situations not covered by the Rules

Assessors must comply with these Rules unless prior approval has been sought and approved by the National Administrator.

Where appropriate, Assessors may contact the National Administrator to propose an alternative methodology, outlining the circumstances and rationale. Prior approval for use is required and may be granted conditionally, on a case-by-case basis and at the National Administrator's discretion.


Procedures not contained within these Rules may only be used for a particular rating with prior written approval from the National Administrator. Approval to use the same procedure must be sought from the National Administrator each time it is proposed to be used. Approval is entirely at the discretion of the National Administrator.

1.4 How to use this document

The term "Rules" refers to a body of works produced by NABERS that specify what must be examined, tested and documented when an Assessor conducts a rating. Wherever the term is used in this document from Chapter 3 onwards, it refers to this document, *NABERS The Rules — Energy for warehouses and cold stores*. Other Rules documents mentioned in the text are distinguished from the present document by the inclusion of their title.


Text appearing **dark green** and **bold** is a defined term. Defined terms can be found in Chapter 2 of these Rules or in the terms and definitions chapter of the respective Rules document.

The following formatting conventions may appear in this text:

 Important requirements and/or instructions are highlighted by an information callout box.

Note: Text appearing with a grey background is explanatory text only and is not to be read as part of the Rules.

Example: Text appearing with a green background is intended to demonstrate a worked example of the respective Rules section or Ruling section.

 This is a documentation requirement callout box.

1.5 What is new in this version

This is the first version.

1.6 Related documents

The following documents have been referenced within these Rules:

NABERS Ruling — On-site Renewable Electricity Generation Systems, v1.1, May 2021

NABERS Ruling — Shared Services and Facilities, v1.0, March 2022

NABERS The Rules — Metering and Consumption, v1.3, July 2021

NABERS The Rules — Thermal Energy Systems, v1.0, August 2021

The Property Council of Australia (PCA), *Method of Measurement: Commercial*, 1997 (2008 reprint)

2 Terms and definitions

This chapter lists the key terms and their definitions that are integral to the proper use of this document.

Term	Definition
acceptable data	Data which meets the applicable accuracy and validity requirements of these Rules.
acceptable estimate(s)	<p>The values derived from an estimation method permitted by these Rules in place of incomplete or uncertain data.</p> <p>Estimates that do not satisfy the above specifications are deemed unacceptable and cannot be used in the rating.</p>
annual turnover ratio	A metric to determine the intensity of activities in a warehouse. It is calculated as the annual product throughput divided by the maximum inventory level.
Assessor(s)	An accredited person authorised by the National Administrator to conduct NABERS ratings.
Auditor	A person contracted to the National Administrator to perform audits of NABERS rating applications.
cold room(s)	<p>A refrigerated room or building designed for storage of goods in the temperature range between -20 °C and 0 °C.</p> <p>Note: Blast freezers that are not sub-metered and have a temperature set point below 0°C can be treated as cold rooms.</p>
cool room(s)	A refrigerated room or building designed for storage of goods in the temperature range between 0 °C and 15 °C.
conditioned area(s)	<p>A non-refrigerated area is classified as a conditioned area if the following occurs:</p> <ul style="list-style-type: none">a) The space has any heating, ventilation, air-conditioning (HVAC) and cooling services designed to control the temperature to ensure comfort conditions for either human occupation or product quality.b) HVAC services operate at least 60 days in a year.c) Space is part of the rated area.d) Energy usage associated with the space is downstream of the rated metered consumption.

Term	Definition
	Note: This definition excludes cold room and cool room areas.
embedded network	<p>A private electricity network that is connected to the parent electricity network or “grid”.</p> <p>Note: Most buildings in Queensland, South Australia and Western Australia use embedded networks for supplying facility tenants and base building systems.</p>
end use(s)	A purpose or activity (or a group of related purposes or activities) that energy is used for.
full-time equivalent (FTE) workers	<p>The equivalent number of workers who work at a warehouse for 38 h per week.</p> <p>Note: The Rules do not require the exact nature of employment (e.g. casuals, independent contractors or working variable hours) to be disclosed.</p>
gross lettable area (GLA)	The area of a warehouse facility defined using the measurement standard for rated area.
heating, ventilation and air-conditioning (HVAC)	Any system that is used for heating, ventilating or conditioning the air in an enclosed space.
metering system(s)	<p>A system of one or more devices providing an individual measurement.</p> <p>Note: For further information, refer to <i>NABERS The Rules — Metering and Consumption</i>.</p>
measurement standard for rated area	The standard used for determining the gross lettable area (GLA) of a rated premises, as specified in PCA, <i>Method of Measurement: Commercial</i> .
NABERS rating input form	<p>The rating input form provided by NABERS for use by Assessors in the calculation of accredited ratings.</p> <p>Note: For NABERS ratings for warehouses and cold stores, this is available on the NABERS Perform application.</p>
National Administrator	<p>The body responsible for administering NABERS, in particular the following areas:</p> <ul style="list-style-type: none"> a) Establishing and maintaining the standards and procedures to be followed in all aspects of the operation of the system.

Term	Definition
	<p>b) Determining issues that arise during the operation of the system and the making of ratings.</p> <p>c) Accrediting Assessors and awarding accredited ratings in accordance with NABERS standards and procedures.</p> <p>The functions of the National Administrator are undertaken by the NSW Government.</p>
non-conditioned area(s)	Any part of site GLA that is neither a cold room, cool room nor conditioned area.
non-refrigerated area(s)	The area in the non-refrigerated space. This can include conditioned area and/or non-conditioned area.
non-refrigerated space(s)	Any part of the premises being rated that is not identified as a refrigerated space.
occupied	A space within the GLA of the premises that is leased and being actively used as a warehouse facility, including use as a warehouse support facility.
operational area(s)	Any part or whole of rated area that is not a refrigerated space with distinct operational hours.
operational hours	<p>The weekly number of hours when an operational area is in operation by full-time equivalent workers.</p> <p>Note: Operational hours are only considered for non-refrigerated areas. HVAC plant operating times are not the same as operational hours.</p>
operational period	The number of days per year that the refrigeration system at the rated premises is in operation.
potential error	<p>The total of all acceptable estimates (including assumptions, approximations, and unverified data) included in the rating assessment. The NABERS rating input form automatically calculates the potential error based on the data provided.</p> <p>Note: Unless specifically stated in the Rules, all acceptable estimates contribute to the potential error.</p>
rating period	The 12-month base period for the rating, requiring at least 12 continuous months of acceptable data upon which the rating is based.
rated premise(s)	The building or building section to be rated.

Term	Definition
refrigerated area(s)	The area in the refrigerated space. This can include conditioned area and/or non-conditioned area.
refrigerated space(s)	Any space within the rated facility that is occupied by a cold room or a cool room.
Rules	Authoritative document produced by the National Administrator that specifies what must be covered by an Assessor in order to produce a rating.
Ruling(s)	An authoritative decision by the National Administrator which acts as an addition or amendment to the Rules.
site rated area	The sum of all GLA within the rating less any area exclusions.
supervisory control and data acquisition (SCADA)	A control system that allows a site to control its industrial processes and operations.
utility	<p>An organisation or company that holds a licence to retail electricity, gas or water, and that sells energy or water as its primary business. This definition excludes the following:</p> <ul style="list-style-type: none"> a) Landlords which on-sell electricity or water where they neither hold a licence nor have an exemption deemed valid by the National Administrator for needing a licence. b) Third party contractors, such as meter reading providers.
validity period	The post-certification period during which the rating is valid for up to 12 months.
warehouse facility	<p>Buildings or part of a building where goods are stored and distributed as the main function.</p> <p>A warehouse facility could include the following areas:</p> <ul style="list-style-type: none"> a) Non-conditioned area. b) Conditioned area. c) Cold room. d) Cool room. e) Other supporting facilities, e.g. offices, mail rooms.
warehouse operational survey (WOS)	A survey of the staff, managers or supervisors responsible for operational areas in the rated premises, conducted in accordance with the Rules.
warehouse support facility	A part of the site GLA, including areas that directly support the operation of the warehouse facility.

Term	Definition
	<p>A warehouse support facility could include the following areas:</p> <ul style="list-style-type: none">a) Offices.b) Café and canteen that is for the exclusive use of the rated premises.c) Back of house area, including plantrooms and switch rooms.

3 Key concepts and procedures

3.1 General

As part of a NABERS rating system, **Rules** provide requirements within the specific rating tools. These **Rules** apply to any building type eligible for a NABERS rating using the NABERS energy rating tools.

3.2 Eligibility criteria

A building is considered eligible for a NABERS rating if all of the following eligibility criteria are met:

- a) *Premises type*: During the **rating period**, the **rated premises** was used as a **warehouse facility**. The **rated premises** must either be a whole building, a group of buildings, or part of a building in a multi-tenancy building.

Large format retail premises, self-storage facilities, and facilities with on-site processing or manufacturing as a primary purpose are not eligible as warehouses.
- b) *Premises consumption data*: Less than 80 % of the site **GLA** has been excluded due to lack of consumption data, see Section 5.4.2.
- c) *Premises energy coverage*: The minimum energy coverage for the premises type is met.
- d) *New premises and major refurbishments*: New premises, or premises undertaking major refurbishments, are eligible for a NABERS rating as soon as 12 months of data is available for the **rating period**, or 12 months after occupancy certificates as defined by the respective jurisdiction are issued.
- e) *Minimum site **gross lettable area***: The site **GLA** is at least 650 m². This was the smallest premises used to develop the rating tool.

Note: Industrial sites that function primarily to manufacture or transform goods from one state to another should not be rated using this tool, e.g. pet food manufacturing or any metal casting or forging.

The warehouses and cold stores rating tool is primarily targeted at facilities with logistics and distribution functions. As such, the energy associated with transforming goods from one state to another is not part of the rating's minimum energy coverage.

A NABERS rating is based on a 12-month **rating period**. Once certified, the rating is valid for 12 months from the certification date (the **validity period**).

For further information on ratings, see Appendix A.

3.3 Rating period

A NABERS rating is based on a 12-month **rating period**. Once certified, the rating is valid for a further 12 months after the **rating period** — this is called the **validity period**.

It takes time for the **Assessor** to complete a rating. Therefore 120 days is given to lodge the rating after the end of the **rating period**. Ratings lodged after the 120 days will have a reduced **validity period** to ensure all ratings are based on current data.

The **Assessor** must respond to all questions from the **National Administrator** within 10 working days to avoid impacting the validity of the rating.

Assessors may submit a NABERS energy rating and NABERS water rating for the same premises as a combined rating application. When submitting a combined rating application, both ratings must have the same **rating period**.

For more information on the **rating period**, **validity period** and time limits for submission, see Appendix A.

3.4 Standards for acceptable data and estimates

3.4.1 General

An assessment for an accredited NABERS energy for warehouses and cold stores rating must be based on the **acceptable data** or **acceptable estimates** specified in the **Rules** (including applicable **Rulings**) or as directed by the **National Administrator**.

Data and estimates must be of an acceptable standard. The decision process for determining **acceptable data** and **acceptable estimates** in Sections 3.4.2 and 3.4.3 below must be followed, except where another process is specifically allowed by a provision of these **Rules**.

Note: Specific procedures related to standards for **acceptable data** and **acceptable estimates** in individual sections of these **Rules** take precedence over the standards in Section 3.4.2 and 3.4.3 below. Where specific procedures are followed, the requirement for compliance with Sections 3.4.2 and 3.4.3 is deemed to be satisfied.

3.4.2 Acceptable data

If accurate and verifiable **acceptable data** is available, it must be used. Where a section of the **Rules** allows more than one type of data source to be used and no particular priority is given, the following order of preference applies:

- a) Data obtained directly by the **Assessor**.
- b) Data provided by a third party without a significant interest in the operation or performance of the building or its equipment (such as an energy or water **utility**), including one of the following:
 - 1) Documents or other records provided by a third party which can be verified by the source, e.g. **utility** bills.

- 2) Documents or other records which cannot be independently verified but whose authenticity and accuracy is attested to by a credible and responsible person without a conflict of interest.
 - 3) Written information provided by a credible and responsible person, which includes their full name, position and contact details.
 - 4) Verbal information provided by a credible and responsible person (including their full name, position and contact details), and recorded in writing by the **Assessor**.
- c) Data provided by the owner commissioning the rating, or a third party with a significant interest in the operation or performance of the building or its equipment (such as a facility manager, technical contractor or equipment supplier), including one of the following:
- 1) Documents or other records provided by a party to an agreement or transaction which can be verified by another party to the same agreement or transaction, e.g. contracts or other legal agreements.
 - 2) Documents or other records which cannot be independently verified but whose authenticity and accuracy is attested to by a credible and responsible person without a conflict of interest.
 - 3) Verbal information provided by a credible and responsible person (including their full name, position and contact details), and recorded in writing by the **Assessor**.

3.4.3 Acceptable estimates

If **acceptable data** is not available, estimates (including assumptions, approximations and unvalidated data) can be used if they are deemed to be **acceptable estimates** in accordance with these **Rules**.

Acceptable estimates must total to no more than $\pm 5\%$ of the overall rating greenhouse gas emissions or water consumption, as calculated when using the **NABERS rating input form**. Where they are greater than 5 %, the building cannot be rated until sufficient **acceptable data** and/or **acceptable estimates** have been obtained.

3.5 Site visits

3.5.1 General

For every rating application, **Assessors** must conduct an on-site visit to inspect the **rated premises**. The purpose of the on-site visit is as follows:

- a) Become familiar with the layout, services and features of the **rated premises**.
- b) Confirm that documentation provided for the assessment is accurate, complete and up-to-date.
- c) Check that all required spaces have been included in the GLA calculation.
- d) Check for inclusions in and exclusions from energy and water coverage (as appropriate).
- e) Check floor configuration.

- f) Visit plant rooms to ensure that all relevant equipment is covered under the meters included in the rating.
- g) Resolve any other issues that arise.

An **Assessor's** inspection of the **rated premises** is expected to include a physical check of the servicing arrangements provided to the **rated premises**.

There may be circumstances where access to all or part of the premises is refused due to safety or security concerns. If this occurs, the **Assessor** must explain why they could not access these spaces, and fully document this in the **NABERS rating input form**. Any known impacts on the quality of the information obtained for the assessment must also be fully described, e.g. an **acceptable estimate** has been used in the absence of verified data.

3.5.2 Delegating site visit to another Assessor

Where an **Assessor** cannot undertake an on-site visit to inspect the **rated premises**, **Assessors** may delegate this task to another **Assessor** accredited specifically for **warehouse facility**.

The **Assessor** lodging the rating is responsible for the accuracy of the data. The **Assessor** must obtain and retain all the evidence required to prove their assumptions for auditing purposes, in accordance with the documentation requirements specified in Chapter 12.

3.5.3 Situations where site visit cannot be conducted or delegated

Where there are significant difficulties visiting the site, the **Assessor** cannot conduct an on-site visit or cannot delegate this task to another **Assessor**, guidance must be sought from the **National Administrator** prior to submission of the rating application.

3.6 Documentation and record-keeping

3.6.1 Required documentation

An assessment may be based on copies of original documents such as **utility** bills, signed leases and other records, as long as the **Assessor** is satisfied that they are, or can be verified to be, true and complete records of the original documents or files. Access to original documents is preferred if they are available. Partial copies of original documents must be sufficient to identify the original document including date, title and file name.

3.6.2 Record-keeping for auditing purposes

Assessors must keep all records on which an assessment is based.

The records kept by **Assessors** must be to such a standard that it would be possible for another **Assessor** or an **Auditor** to accurately repeat the rating using only the documents provided. This includes records of assumptions and all information and calculations used as the basis for **acceptable estimates**. The records kept must be the actual documents used for the assessment or verifiable copies. Summaries or other derivative documents that quote the original source documents are not acceptable, even if prepared by the **Assessor** from original documents.

Digital copies of documents are considered acceptable in all cases.

Records must be kept for seven years from the date the rating application was lodged and be made available for audit on request.

Note: **Assessors** remain responsible for ratings they have conducted, even if they move companies.

A list of the usual documentation for a rating is presented in Chapter 12, however, additional documentation may also be required to permit an **Auditor** to accurately repeat the rating using only the documents provided.

3.7 Alternative methodologies

Assessors may be required to use alternative methodology for obtaining or interpreting data for an assessment where standard methods outlined in the NABERS **Rules** cannot be applied. At a minimum, the alternative methodology must be one of the following:

- a) Equivalent to the preferred method in terms of its results, accuracy and **validity**.
- b) Acceptable in place of the preferred method, subject to the data resulting from the alternative method being treated as an estimate in accordance with Section 3.4, or other specified conditions on the use of the data.
- c) All alternative methodologies must be approved by the **National Administrator** prior to use. For further information, the **Assessor** should contact the **National Administrator**.

4 Rating process

4.1 General

In NABERS energy for warehouses and cold stores, the following rating inputs are required for a rating (see Table 4.1):

- Rated **conditioned area**.
- Rated **non-conditioned area**.
- Rated hours.
- Rated **cold room** volume.
- Rated **cool room** volume.
- Number of **full-time equivalent (FTE) workers** or **annual turnover ratio**.

Table 4.1: Rating process overview

Rated area	Refrigerated and non-refrigerated spaces		Refrigerated space volumes	Non-refrigerated area breakdown	Operational hours	FTE workers (Option 1)	Annual turnover ratio (Option 2)
Rated area	Refrigerated spaces	Cold room area	Rated cold room volume (adjusted by operational period)	N/A	N/A	Number of FTE workers	Annual turnover ratio
		Cool room area	Rated cool room (adjusted by operational period)				
	Non-refrigerated spaces		N/A	Rated conditioned area (adjusted by occupancy days)	Rated hours		
				Rated non-conditioned area (adjusted by occupancy days)			

4.2 Rating input process

The **rating process** is as follows:

- a) *Step 1*: Determine the rated area for the site, see Chapter 5.
- b) *Step 2*: For the **refrigerated space**, determine the area and rated volume for **cold rooms** and **cool rooms**, respectively, see Chapter 6.
- c) *Step 3*: For the **non-refrigerated space**, determine the **operational hours** for different **operational areas**, see Chapter 7.
- d) *Step 4*: For the **non-refrigerated space**, determine the rated **conditioned area** and rated **non-conditioned area**, see Chapter 8.
- e) *Step 5*: Determine either the **FTE workers** (see Chapter 9) or the **annual turnover ratio**, see Chapter 10.


Note: In NABERS energy for warehouses and **cold stores**, either the number of **FTE workers** or the **annual turnover ratio** at the **rated premises** can be used to describe the intensity of the site's activity.

The **annual turnover ratio** option is designed for automated sites, while the option of using the number of **FTE workers** is designed for a more manual work site.

5 Site gross lettable area

5.1 General

In NABERS energy for warehouse and cold stores, the rated area is used as a basic index for the size and extent of the facilities present at the **rated premises**. The rated area is the site's **gross lettable area (GLA)** modified to exclude certain areas.

 For further documentation requirements, see Section 12.2.

5.2 Process overview

The process for determining the **site rated area** must be in accordance with Table 5.2.

Table 5.2: Determining site rated GLA

Step	Task	Reference
1	Determine site GLA .	Section 5.3
2	Identify area exclusions.	Section 5.4
3	Calculate rated area.	Section 5.5

5.3 Site GLA

The **GLA** of the **rated premises** must be verified by the **Assessor** to have been determined in accordance with the **measurement standard for rated area**, using one of the following methods:

- Reference to a third-party survey or to lease documentation that is explicitly based on the **measurement standard for rated area**.
- Reference to a third-party survey or to lease documentation that is explicitly based on superseded documents considered to be the equivalent of the **measurement standard for rated area**.
- Reference to lease documentation that does not explicitly reference the **measurement standard for rated area**, but that has been verified by the **Assessor** to be **GLA**.
- Direct measurement from current plans or scaled prints, measured to the **measurement standard for the rated area**.
- Site measurements verified by the **Assessor** to have been taken in accordance with the **measurement standard for the rated area**.

Note: Outdoor spaces must not be included in site **GLA**.

Regardless of the method used to determine the site **GLA**, the **Assessor** must ensure that the information accurately reflects the configuration of the **rated premises** and its uses during the **rating period**.



For further documentation requirements, see Section 12.2.1.

5.4 Area exclusions

5.4.1 Non-warehouse GLA

Where the **Assessor** identifies that the site **GLA** includes **non-warehouse facilities**, the following should be conducted in sequence:

- a) **Step 1:** Determine the area that is not a warehouse or **warehouse support facility**.
- b) **Step 2:** Exclude the area that is not a warehouse or **warehouse support facility**.



For further documentation requirements, see Section 12.2.2.

5.4.2 Area without consumption data

Where **acceptable data** or **acceptable estimates** of the energy consumption for an area are not available for reasons beyond the control of the **Assessor** or customer, the area must be excluded from calculation of the rated area.

Examples of area exclusions include the following:

- a) When **utility** bills for energy consumption within the minimum energy coverage cannot be obtained for areas within buildings that do not have an **embedded network**.
Situations where this may occur include the following:
 - 1) When tenants have left the building and cannot be contacted to obtain energy bills.
 - 2) When the tenants refuse to provide required energy bills, and these tenants cannot be obligated to do.
- b) When the **utility** is unable to provide the necessary data to cover the minimum energy coverage for the area.
- c) When a non-**utility metering system** is unable to provide the data necessary to cover the minimum energy coverage for the area and estimates were above the 5 % **potential error** allowance.



For further documentation requirements, see Section 12.2.3.

5.4.3 Contiguous offices larger than 5,000 m²

Any office areas that directly support the operation of the **warehouse facility** should be included in the site **GLA**.

For offices that do not directly support warehouse operation, the **Assessor** can choose to either fully include or exclude the area and associated energy consumption of the office space within the site **GLA**, if the following requirements are met:

- a) Offices that do not directly support operation of the **rated premises** (such as offices with regional administrative or corporate functions).
- b) Total contiguous office area is less than or equal to 5,000 m².
- c) Total contiguous office area is less than or equal to 50 % of the total site **GLA**.

Where the **Assessor** identifies that the site **GLA** includes any contiguous office area that is larger than 5,000 m² or 50 % of total site **GLA**, regardless of whether the office provides direct support to warehouse operation or not, the entire office area must be excluded. The energy consumption of the excluded office area is not part of the minimum energy coverage.



For further documentation requirements, see Section 12.2.2.

Example 1: A **warehouse facility** in South Australia has a total site **GLA** of 50,000 m². This site **GLA** includes a regional office with a total **GLA** of 4,000 m². There are two levels in the regional office which have the following areas:

- a) *Ground level:* Operations offices, cafeterias and amenities.
- b) *Level 1:* State operations office area and a suite of meeting rooms.

In this example, it is unclear whether the whole regional office, or part of the regional office, provides direct support to the operation of the **warehouse facility**. However, since the total **GLA** of the regional office is less than 5,000 m², the **Assessor** includes all of the office area and its associated energy consumption.

Example 2: A **warehouse facility** in Queensland has a total site **GLA** of 45,000 m². This site **GLA** includes a regional office with a total **GLA** of 6,000 m². There are two levels in the regional office which have the following areas:

- a) *Ground level:* Operations offices, cafeterias and amenities.
- b) *Level 1:* State operations office area and a suite of meeting rooms.

In this example, it is unclear whether the whole regional office, or part of the regional office, provides direct support to the operation of the **warehouse facility**. However, since the total **GLA** of the regional office is more than 5,000 m², the **Assessor** needs to exclude all of the office area and its associated energy consumption.

5.5 Rated area

The rated area of the premises is calculated by subtracting the areas to be excluded from the site **GLA**.

6 Refrigerated spaces volume

6.1 General

Refrigerated spaces are benchmarked based on the volume of each type of **refrigerated space**. The bigger the volume of the space, the higher the benchmark emissions.

Cold rooms and **cool rooms** must be identified separately due to the difference in their energy intensities.

Note: Where a **warehouse facility** does not have any **refrigerated spaces**, the **cold room** volume and **cool room** volume rating inputs will be set to 0 m³. This is a common situation for warehouses that only have **conditioned** and **non-conditioned areas**.



For further documentation requirements, see Section 12.3.

6.2 Process overview

The process for determining **refrigerated areas** and calculating the rated **cold room** and **cool room** volumes must be in accordance with Table 6.2.

Table 6.2: Determining rated cold room and cool room volumes

Step	Task	Reference
1	Identify cold rooms and cool rooms in the rated premises .	Section 6.3.1
2	Determine area of each cold room and cool room .	Section 6.3.2
3	Measure height of each cold room and cool room .	Section 6.3.3
4	Calculate volume of each space from the area and height.	Section 6.3.4
5	Adjust for any time periods when the cold room or cool room was not operational to give the rated volume.	Section 6.4

6.3 Area, height and volume of each refrigerated space

6.3.1 Identify cold rooms and cool rooms

In NABERS energy for warehouses and cold stores ratings, **cold rooms** and **cool rooms** must be identified separately. The Assessor must survey the **rated premises** for the presence of **cold rooms** and **cool rooms**.

A **refrigerated space** is classified as a **cold room** if the refrigeration system was operating during the whole or part of the **rating period** and the temperature setpoint of the space is between -20°C and 0°C.

A **refrigerated space** is classified as a **cool room** if the refrigeration system was operating during the whole or part of the **rating period** and the temperature setpoint of the space is between 0°C and 15°C.



For further documentation requirements, see Section 12.3.1.

6.3.2 Determining area of each cold room and/or cool room

The total **cold room** and **cool room** area must be verified by the **Assessor** to have been measured in compliance with the **measurement standard for the rated area**, by one of the following methods:

- a) Reference to a third-party document, such as survey or lease documentation.
- b) Direct measurement of the area from current scaled plans or scaled prints.

Regardless of the method used to determine the **cold room** and **cool room** area, the **Assessor** must ensure that the information accurately reflects the configuration of the **rated premises** and its uses during the **rating period**.

Where the **Assessor** is unable to provide documentary evidence that the direct measurement is based on scaled plans or prints, the **cold room** and **cool room** area must be included in the **potential error** measurement.

Note: Direct site measurements to determine **cold room** and/or **cool room** area is not recommended due to work, health and safety concerns in low temperatures. **Assessors** should check with the **National Administrator** if the **potential error** is exceeded due to lack of third-party documentation or scaled drawings.



For further documentation requirements, see Section 12.3.2.

6.3.3 Determining height of each cold room and/or cool room

The height of each space must be verified by the **Assessor**, by one of the following methods (listed in order of preference):

- a) Direct measurement of the height from current to-scale site section drawings showing the height of the **cold room** and/or the **cool room**.

- b) Direct measurement on site. Site direct measurement by the **Assessor** subject to site's WHS requirements and approvals.
- c) A list of areas and associated volumes for **cold rooms** and **cool rooms** provided by a credible and responsible person (including their full name, position and contact details), and verified by the **Assessor** independently on site.

Where the **Assessor** is unable to provide documentary evidence of height, the **cold room** and **cool room** height must be included in the **potential error**.



For further documentation requirements, see Section 12.3.3.

6.3.4 Calculating volume of each cold room and/or cool room

The volume of each **refrigerated space** is calculated by multiplying the area by the height.

6.4 Adjustments for operational period

If the **cold room** or **cool room** did not operate for the full duration of the **rating period**, the **Assessor** must determine the number of days that the space was not in operation.

The **operational period** is confirmed using the following methods (listed in order of preference):

- a) Reference to site operational manuals or documentation that specifies the **operational period** for the particular **cold room** or **cool room**. The **operational period** must be independently verified by the **Assessor** during site visit; e.g. by sighting a refrigeration system controller graphic or **SCADA** system displaying the programmed schedule.
- b) Written confirmation of the **operational period** provided by a credible and responsible person, including their full name, position and contact details.

The proportion of the **rating period** during which each **cold room** or **cool room** was operational is used as an adjustment factor when determining the **cold room** or **cool room** volume.

Note: If there is uncertainty about the volume or closure periods of any **cold room** or **cool room**, the **Assessor** can use **acceptable estimates**, and they will contribute to the **potential error** measurement.

Example: A **cold room** is not operational over winter for 130 days across a **rating period** of 365 days. Therefore, it was only in operation for 235 days. The rated volume for this **cold room** is obtained by multiplying the volume by the factor 235/365.



For further documentation requirements, see Section 12.3.4.

7 Rated hours

7.1 General

In NABERS energy for warehouses and cold stores ratings, the weekly operating hours is a variable which impacts the energy consumption in a facility. The weekly operating hours must be correctly determined to calculate the rated hours and to allow for fair comparison.

The **Assessor** only needs to identify the rated hours for **non-refrigerated areas**.



For further documentation requirements, see Section 12.4.

7.2 Process overview

The process for determining the rated hours must be in accordance with Table 7.2.

Table 7.2: Determining rated hours

Step	Task	Reference
1	Divide non-refrigerated areas into different operational areas .	Section 7.3.2
2	For each operational area , conduct a warehouse operational survey (WOS) .	Section 7.3.3
3	Calculate the rated hours.	Section 7.3.4

7.3 Determining rated hours

7.3.1 Non-refrigerated area

The **Assessor** must determine the area of **non-refrigerated areas** on the premises.

7.3.2 Operational areas

Operational areas are a group of areas that have the same **operational hours**. **Non-refrigerated areas** must be divided into **operational areas** in order to account for differing **operational hours** across the **non-refrigerated area**.

Operational areas will need to be identified in discussions with site personnel and/or with reference to site plans and descriptions of activities undertaken within the warehouse. Where multiple **operational areas** are identified, the **Assessor** should determine the **GLA** for each **operational area** using one of the methods listed under Section 5.3.

Note: The **non-refrigerated area** in a **rated premise** does not need to be further separated into smaller **operational areas** if all the **non-refrigerated area** has the same **operational hours**.



For further documentation requirements, see Section 12.4.1.

7.3.3 Conducting warehouse operational survey

7.3.3.1 General

Once all **operational areas** are identified, the **Assessor** conducts a **WOS** to determine the hours for each **operational area**. The hours of operation is primarily associated with worker activity in a space.

7.3.3.2 Standard for acceptable data

For each **operational area**, a **WOS** must be completed by a manager or supervisor who works in the **rated premises** and has specific knowledge of the worker shifts and occupancy levels in each space. The **WOS** template is provided in Appendix B.

A **WOS** must be completed for the following:

- a) Each **operational area**.
- b) Each distinct period where the hours of operation or the number of shifts in an **operational area** changed during the **rating period**.

A **WOS** is invalid if one of the following occurs:

- 1) Survey does not verify that the source of information is an operations manager or workforce manager responsible for managing work shifts over the full course of the **rating period**.
- 2) Survey has missing or ambiguous data. This includes omitting the name, position or contact number of the manager who provided the information; the date range applying to the survey; or failing to clearly identify the **operational area**.


Preference is given to a **WOS** directly completed and signed by the manager or supervisor of the space. However, documentation provided by an **Assessor** resulting from interaction with the manager or supervisor of the space is also acceptable.

Note 1: The **WOS** is only required for the **non-refrigerated area**. In most cases, warehouse supporting facilities, such as adjacent offices, can be considered to have the same operating hours as the general warehouse and/or **cold stores**. They do not need to be surveyed separately.

In cases where offices are adjacent to **cold stores** and serve as supporting facilities, the shift hours of the **cold stores** are valid for the offices.

In cases where offices are supporting facilities for warehouses and **cold stores** with different shift hours, the offices must be surveyed separately.

Note 2: When an **operational area** includes both a **conditioned area** and a **non-conditioned area**, they need to be entered on separate lines in the **NABERS rating input form** although they belong to the same **operational area** with one **WOS**.

 For further documentation requirements, see Section 12.4.2.

7.3.4 Average operating hours

An **Assessor** may estimate the average **operating hours** for an **operational area** if a **WOS** cannot be completed.

Operating hours estimated under this method are **acceptable estimates** and must be added to the **potential error**.

 For further documentation requirements, see Section 12.4.3.

7.3.5 Rated hours

The **rated hours** for the **warehouse facility** are the area-weighted average of the weekly **operational hours** from the **WOS** of all **operational areas**.

Once the **Assessor** has entered the **operational area** and **operational hours** in the **NABERS rating input form**, the **rated hours** will then be automatically calculated.

8 Non-refrigerated areas

8.1 General

For NABERS energy for warehouses and cold stores, the **non-refrigerated area** needs to be divided into **conditioned area** and **non-conditioned area**.

Conditioned area represents the portion of the **GLA** that is provided with air-conditioning services by mechanical plant, while the **non-conditioned area** represents the portion of the **GLA** that does not have any air-conditioning services at the **rated premises**. These figures are used to provide a meaningful comparison among sites that provide different service coverage to the **rated premises**.

Conditioned area is part of the **non-refrigerated area**, and it excludes **refrigerated areas** (**cold room** and **cool room areas**) calculated in Section 6.3.2. This chapter therefore only applies to the area of the site that is not refrigerated.

Note: Where a **warehouse facility** does not have any **conditioned area**, the **conditioned area** rating input should be set to 0 m².



For further documentation requirements, see Section 12.5.

8.2 Process overview

The process for determining the rated **conditioned area** and the rated **non-conditioned area** must be in accordance with Table 8.2. The rated **conditioned area** is then automatically calculated.

Table 8.2: Determining rated conditioned area and rated non-conditioned area

Step	Task	Reference
1	Determine rated site GLA .	Chapter 5
2	Exclude any cold room and cool room areas.	Section 8.3
3	Determine rated conditioned area .	Section 8.4
4	Determine rated non-conditioned area .	Section 8.5

8.3 Exclude cold and cool room areas

After determining the area of any **cold** and **cool rooms** located in the premises in accordance with Section 6.3.2, the **Assessor** must then exclude these **refrigerated areas** from the rated site **GLA** before determining the rated **conditioned area** and **non-conditioned area**.

8.4 Determining rated conditioned area

8.4.1 General

In NABERS energy for warehouses and cold stores ratings, the impact of air-conditioning services is accounted for through determining the **conditioned area**.

A **non-refrigerated area** is classified as a **conditioned area** if the following occurs:

- a) Space has any **heating, ventilation, air-conditioning (HVAC)** and cooling services designed to control the temperature to ensure comfort conditions for either human occupation or product quality.
- b) **HVAC** services operate at least 60 days in a year.
- c) Space is part of the rated **GLA**.
- d) Energy usage associated with the space is downstream of the rated metered consumption.

The **Assessor** must survey the **rated premises** for the presence of rated **conditioned areas**.

Example: If **HVAC** services in a space are only conditioned for a total of 40 days during the **rating period**, the affected area is considered to be non-conditioned.



For documentation requirements, see Section 12.5.1.


8.4.2 Determining conditioned area

The **conditioned area** must be verified by the **Assessor** to have been measured in compliance with the **measurement standard for rated area**, by one of the following methods (listed in order of preference):

- a) Reference to a third-party document, such as survey or lease documentation.
- b) Direct measurement of the area from current scaled plans or scaled prints.
- c) Site measurements verified by the **Assessor** identifying the **conditioned area**.

Regardless of the method used to determine the **conditioned area**, the **Assessor** must ensure that the information accurately reflects the configuration of the **rated premises** and its uses during the **rating period**.


Where the **Assessor** is unable to provide documentary evidence in accordance with the documentation requirements, the **conditioned area** must be included in the **potential error** measurement.

 For documentation requirements, see Section 12.5.2.

8.4.3 Adjustment for unoccupied spaces

Occupation days are used as adjustment factors to calculate the rated **conditioned area**. For NABERS energy for warehouses and cold stores ratings, the number of occupation days for the **conditioned area** is the number of days the space was **occupied** and used as warehouse and or **warehouse support facilities**.

If the **conditioned area** has different occupation days for different areas, the **conditioned area** must be split so the occupation days can be entered separately.

 For documentation requirements, see Section 12.5.3.

8.5 Determining rated non-conditioned area

8.5.1 General

In NABERS energy for warehouses and cold stores ratings, the **non-conditioned area** needs to be determined in addition to **conditioned area** to account for the associated emission.

8.5.2 Determining non-conditioned area

The **non-conditioned area** must be verified by the **Assessor** to have been measured in compliance with the **measurement standard for rated area** by one of the following methods, listed in order of preference:

- a) Reference to a third-party document, such as survey or lease documentation.
- b) Direct measurement of the area from current scaled plans or scaled prints.
- c) Site measurements verified by the **Assessor** identifying the **non-conditioned area**.


Regardless of the method used to determine the **non-conditioned area**, the **Assessor** must ensure that the information accurately reflects the configuration of the **rated premises** and its uses during the **rating period**.

Where the **Assessor** is unable to provide documentary evidence in accordance with the documentation requirements, the **non-conditioned area** must be included in the **potential error** measurement.

8.5.3 Adjustment for unoccupied spaces

Occupation days are used as adjustment factors to calculate the rated **non-conditioned area**. For NABERS energy for warehouses and cold stores, the number of occupation days for the **non-conditioned area** is the number of days the space was **occupied** and used as warehouse and/or **warehouse support facilities**.

If the **non-conditioned area** has different occupation days for different areas, the **non-conditioned area** must be split so the occupation days can be entered separately.


 For documentation requirements, see Section 12.5.3.

9 Full-time equivalent workers

9.1 General

In NABERS energy for warehouses and cold stores ratings, the potential impact of site activity intensity is accounted for by determining the number of **full-time equivalent (FTE) workers**.

The number of **FTE workers** includes both permanent full-time employees as well as other employment arrangements such as casuals, independent contractors or shift workers with variable hours.

 For documentation requirements, see Section 12.6.

9.2 Process overview

The process for determining the number of **FTE workers** must be in accordance with Table 9.2.

Table 9.2: Determining number of FTE workers

Step	Task	Reference
1	Determine number of full-time workers.	Section 9.3.2
2	Calculate number of non-full-time workers to FTE workers .	Section 9.3.3
3	Calculate rated FTE workers .	Section 9.3.4

9.3 Determining number of FTE workers

9.3.1 General

NABERS energy for warehouses and cold stores ratings recognises the impact of full-time, part-time and casual workers as well as workers with variable hours on the intensity of site activities. The number of **FTE workers** is the sum of the number of full-time workers and the number of full-time equivalents for non-full-time workers.

Note: Drivers who operate between warehouses are not included in the calculation of **FTE workers** in NABERS energy for **warehouses** and cold stores.

9.3.2 Determining number of full-time workers

The **Assessor** must obtain records of full-time workers from the human resources department of the business or businesses occupying the facility being rated.

The number of full-time workers must be equal to the total count of workers on the business's records.



For documentation requirements, see Section 12.6.1.

9.3.3 Calculating number of non-full-time workers to FTE workers

A site may have part-time workers and casual workers. The **Assessor** must determine the equivalent number of **FTE workers** for part-time workers, casual or shift workers.

The **Assessor** must obtain records for part-time workers and casual workers from the human resources department showing either the contracted hours or working hours log.

The accepted evidence types include one of the following:

- Records of part-time or casual workers, contracted weekly working hours and the contract start date and end date.
- Annual working hours logs that are used for accounting purposes for each part-time or casual worker.

The method for calculating the number of **FTE workers** is as follows:

$$FTE\ workers = \sum_{i=1}^n \frac{Annual\ total\ working\ hours}{1976}$$

Example 1: A **warehouse facility** is being rated for NABERS energy for warehouses and cold stores. The site contact provides records of 30 part-time workers. The records show the contracted weekly hours are 22.5 h for each part-time worker during the **rating period**.

However, two of the part-time workers only worked 2 weeks at the start of the **rating period**. This means 28 of the 30 part-time workers worked 52 weeks during the **rating period**, and the two other part-time workers worked only 2 weeks.

The **Assessor** used this information to calculate the **FTE workers** as follows:

$$FTEs\ workers\ for\ part - time\ workers = \frac{28 \times 22.5 \times 52 + 2 \times 22.5 \times 2}{1976} = 16$$

Therefore, the rated number of **FTE workers** for these 30 part-time workers is calculated to be 16.

Example 2: For the same **warehouse facility**, the site contact also provides monthly working hours for casual workers. The total working hours during the **rating period** for these casual workers is 39,520 h.

The **Assessor** used this information to calculate the number of **FTE workers** for these casual workers as follows:

$$FTE\ workers\ for\ casual\ workers = \frac{39,520}{1976} = 20$$

Note: If the records of **FTE workers** cannot be obtained, the method outlined in this section using annual working hour logs can also be used to determine the number of **FTE workers**.



For documentation requirements, see Section 12.6.2.

9.3.4 Calculating rated FTE workers

Once the number of full-time workers and the **FTEs** for non-full-time workers have been determined, the rated **FTE workers** is calculated using the following formula:

$$Rated\ FTE\ workers = Full - time\ workers + FTE\ workers\ for\ non - full - time\ workers$$

If data for any of the inputs in the formula above cannot be obtained, the **Assessor** must use “0” as the value in the input.

Example: A **warehouse facility** is being rated for NABERS energy for warehouses and cold stores. The site contact provides a record of all the full-time workers showing that the total number is 55.

The site contact also provides the record of working hours for part-time workers and casual workers. The number of **FTE** part-time and casual workers was calculated to be 36.

Therefore, the rated number of **FTE workers** is calculated to be 91.

10 Annual turnover ratio

10.1 General

In NABERS energy for warehouses and cold stores ratings, the impact of site activity intensity can also be determined through the **annual turnover ratio** as an alternative to **FTE workers**. The annual turnover must be correctly determined to allow for fair comparison. Warehouses with a higher annual turnover will be allocated a higher emissions benchmark, which will mean that for the same star rating they can use more energy.

Note: In NABERS energy for warehouses and cold stores ratings, either **FTE workers** or **annual turnover ratio** can be used to quantify the impact of site activities.

For sites that are highly automated and therefore have less **FTE workers**, **annual turnover ratio** may be a better option to give a more accurate rating outcome than the **FTE workers** option.



For documentation requirements, see Section 12.7.

10.2 Process overview

The process for determining the **annual turnover ratio** must be in accordance with Table 10.2.

Table 10.2: Determining annual turnover ratio

Step	Task	Reference
1	Determine annual product throughput.	Section 10.3.2
2	Determine maximum monthly average inventory level.	Section 10.3.3
3	Calculate annual turnover ratio .	Section 10.3.4

10.3 Determining annual turnover ratio

10.3.1 General

In NABERS energy for warehouses and cold stores ratings, **annual turnover ratio** is calculated using the following data sources:

- Annual product throughput data.

b) Inventory level data.

The annual product throughput data and inventory level data should be for the whole **rated premises**. If there are multiple sets of annual product throughput data and inventory level data for different areas, then the aggregation of these two inputs is used to calculate the **annual turnover ratio**.

Note: NABERS energy for warehouse and cold stores rating tool allows multiple streams of annual product throughput data and inventory level data to be used to calculate the **annual turnover ratio** for the **rated premises**. The units of measurement for the annual product throughput data and inventory level data need to be the same across different streams.

If units of measurement are different, the **Assessor** must contact the **National Administrator** for approval of an alternative method.

10.3.2 Determining annual product throughput

The following requirements for determining annual product throughput data are:

- a) Annual product throughput data must cover the 12-month **rating period**.
- b) Minimum interval recorded for annual product throughput data must be monthly.
- c) Annualised product throughput is calculated as the average of the inbound product throughput and the outbound product throughput as follows:

$$\text{Annual product throughput} = \frac{(\text{Annual inbound product throughput}) + (\text{Annual outbound product throughput})}{2}$$

- d) Unit of measurement (e.g. tonnes, parcels, pallets) used for annual product throughput must be identical to the those used for inventory level data, see Section 10.3.3.

Note: The inbound product throughput data refers to the throughput that is recorded when arriving at the **warehouse facility**. The outbound product throughput data refers to the throughput that is recorded when leaving the **warehouse facility**.

Over a long period of time, the inbound product throughput data and the outbound product throughput data should maintain a balance. Therefore, the average of the inbound data and the outbound data is used for the rating input for the product throughput.

10.3.3 Determining maximum monthly average inventory level

Data for site inventory levels are used to calculate the **annual turnover ratio**.

The **Assessor** must obtain records or documentation from the site to demonstrate the maximum inventory level. The accepted evidence types include the following:

- a) Site documentation showing the maximum inventory level for the **rating period** recorded in the same unit of measurement as annual product throughput.
- b) Written confirmation of the maximum inventory level for the **rating period**, recorded in the same unit of measurement as annual product throughput. This information must be provided by a credible and responsible person, including their full name, position and contact details.

10.3.4 Calculating annual turnover ratio

Annual turnover ratio is calculated using the following formula:

$$\text{Annual turnover ratio} = \frac{\text{Annual product throughput}}{\text{Maximum inventory level}}$$

The **annual turnover ratio** is calculated automatically by the **NABERS rating input form**.

Example: A cold store with two **cold rooms** is being rated for NABERS energy for warehouses and **cold stores**.

The site operations manager provided monthly breakdowns for the inbound product throughput data and outbound product throughput data for 12 months in the **rating period**, and the monthly inventory level across 12-months.

The annualised product throughput during the **rating period** was calculated to be 80,000 pallets. The monthly inventory level data shows that the maximum monthly inventory level was 9,600 pallets during the **rating period**.

In this case, the **annual turnover ratio** calculated by the **NABERS rating input form** is:

$$\frac{80,000}{9,600} = 8.3$$

Therefore, the **annual turnover ratio** is calculated to be 8.3.

11 Minimum energy coverage

11.1 General

Correctly interpreting the scope of energy supply and consumption data is essential to the accuracy of NABERS ratings. The key principles are as follows:

- a) An assessment for an accredited rating must include all sources of external energy supplied to the **rated premises** and must cover all of the energy **end uses** specified for the rating.
- b) **Utility** and non-**utility metering systems** that meet the requirements of *NABERS The Rules — Metering and Consumption* may be used in any combination to achieve the required coverage, subject to the accuracy requirements of Section 3.3.

This chapter is to be read in conjunction with Chapter 3 of *NABERS The Rules — Metering and Consumption*.

Note: For minimum energy requirements in relation to shared services, refer to *NABERS Ruling — Shared Services and Facilities*.



For documentation requirements, see Section 12.8.

11.2 Minimum energy end uses coverage

11.2.1 General

Once the energy sources and their supply points have been determined, **Assessors** must ensure that all the required energy **end uses** (as outlined in this chapter) are covered by the sources and supply points identified in accordance with Chapter 3 of *NABERS The Rules — Metering and Consumption*.

If an **end use** is required to be included in the rating but is not covered by one of the supply points identified, then the **Assessor** must use one of the alternative allowable methods specified in Chapter 7 of *NABERS The Rules — Metering and Consumption* to ensure the minimum energy coverage requirements can be met.

Any exclusion must only cover the specific item being excluded. Exclusions must not cover **end uses** that are supposed to be included as minimum energy coverage. Therefore, every item to be excluded must be assessed separately and the justification for its exclusion included in the documentation.


The **Assessor** must examine available single-line diagrams, electrical circuit schedules and visit the plant rooms to ensure that all relevant equipment is covered under the meters included in the energy rating.

Note 1: Alternative, allowable methods include small **end use** estimations.

For further requirements, refer to Section 7.2.2 of *NABERS The Rules — Metering and Consumption*.

Note 2: For further information on on-site renewable systems, refer to *NABERS Ruling — On-site Renewable Electricity Generation Systems*.

For further information on GreenPower™, refer to Section 4.5 of *NABERS The Rules — Metering and Consumption*.

 For documentation requirements, see Section 12.8.1.

11.2.2 Coverage

11.2.2.1 Multi-building or whole building energy rating

A multi-building or whole building energy rating applies where the **rated premises** is a tenancy or tenancies occupying the whole building or multiple buildings within a precinct.

The required minimum energy coverage is energy consumed in supplying all services to the **rated premises** during the **rating period**. This energy coverage includes the following:

- a) All lighting and power in the **warehouse facility**, such as the following:
 - 1) Warehouse.
 - 2) **Cold room**.
 - 3) **Cool room**.
 - 4) Communal areas.
 - 5) Staff rooms.
 - 6) Foyers.
 - 7) Plant rooms.
 - 8) Common-area toilets.
 - 9) Kitchens.
 - 10) Domestic hot water.
 - 11) Offices as support facilities.
- b) Lifts and escalators.
- c) All air conditioning and ventilation to all areas within the **warehouse facility** (i.e. conditioned warehouse and conditioned support facilities), including the following:
 - 1) Heating.
 - 2) Cooling.

- 3) Heat rejection plant.
- 4) Air distribution and movement.
- 5) Outside air.
- 6) Miscellaneous exhaust, supply or ventilation fans.
- d) Refrigeration plant to all areas within the **warehouse facility**, including the following:
 - 1) Cooling and cooling distribution.
 - 2) Heat rejection plant.
 - 3) Air distribution and movement.
- e) Internal transport that is for the internal operation of the **warehouse facility**, and does not leave the site premises.
- f) Exterior lighting provided to the **warehouse facility**.
- g) Generator fuel where it serves the **warehouse facility**.
- h) Car park ventilation and lighting, where internal or external car parks supports the operation of the **warehouse facility**.
- i) Exterior signage that—
 - 1) is primarily used for identifying or advertising the **warehouse** and **cold store** owner or tenant; or
 - 2) displays the **rated premises**' name, even if unrelated to the **warehouse** and **cold store** owner or lessee.
- j) Sump pits and hydraulic pumping which serve the **rated premises**.
- k) Kitchens, cafes, canteens and other support facilities in communal areas that are for the exclusive use of the staff at the **rated premises**.
- l) Any specialised equipment used to service the **warehouse facility**.

11.2.2.2 Part-building energy rating

A part-building energy rating applies where the **rated premises** is a tenancy within one building that is shared with other tenancies.

The required minimum energy coverage is energy consumed in supplying all services to the **rated premises** during the **rating period**. This energy coverage includes the following:

- a) All lighting and power in the **rated premises**, e.g. warehouse, **cold room**, **cool room**, communal areas, staff rooms, foyers, plant rooms, common-area toilets, kitchens, domestic hot water, and offices as support facilities.
- b) Lifts and escalators for the exclusive use of the **rated premises**.
- c) All air conditioning and ventilation to all areas within the **rated premises** (conditioned warehouse and **conditioned support facilities**), including the following:
 - 1) Heating.
 - 2) Cooling.
 - 3) Heat rejection plant.
 - 4) Air distribution and movement.

- 5) Outside air.
- 6) Miscellaneous exhaust, supply or ventilation fans.
- d) Refrigeration plant to all areas within the **rated premises**, including the following:
 - 1) Cooling and cooling distribution.
 - 2) Heat rejection plant.
 - 3) Air distribution and movement.
- e) Internal transport that is for the internal operation of the **rated premises** and does not leave the boundaries of the **rated premises**.
- f) Exterior lighting provided to the **rated premises**.
- g) Generator fuel where it serves the **rated premises**.
- h) Exterior signage that—
 - 1) is primarily used for identifying or advertising the tenant; or
 - 2) displays the **rated premises**' name.
- i) Kitchens, cafes, canteens and other support facilities in communal areas that are for the exclusive use of the staff at the **rated premises**.
- j) Any specialised equipment used to service the **rated premises**.

11.2.3 Energy use in unoccupied or disused spaces

The energy use of unoccupied or disused spaces (within the scope of the required minimum energy coverage of the rating) must always be included in the rating.

11.2.4 Exclusions

11.2.4.1 General

Energy use may only be excluded from a rating if the following occurs:

- a) Energy is not part of the minimum energy coverage of the rating.
- b) There is a methodology within the Rules that permits the exclusion.
- c) Coverage, accuracy and validation requirements for the metering of the exclusion are met.

The metering for any exclusion must not include any **end uses** that are required under the minimum energy coverage.



For documentation requirements, see Section 12.8.2.

11.2.4.2 Manufacturing

The energy associated with manufacturing does not form part of the minimum energy coverage and is not required to be included.

11.2.4.3 Blast freezers

The energy associated with blast freezers does not form part of the minimum energy coverage and is not required to be included.

Note: The NABERS energy for warehouses and cold stores rating tool excludes the energy consumption for blast freezers. This is because blast freezers transform goods from one state to another. The minimum energy consumption for warehouses and cold stores does not cover any energy associated with transforming goods.

11.2.4.4 External transport

The energy associated with external transport does not form part of the minimum energy coverage and is not required to be included.

Note: This section applies to electric cars that are used outside of the **rated premises**. The energy consumption associated with the electric car charging is not part of the minimum energy consumption.

The energy for internal transport used within the **rated premises** such as electric forklifts must be included in the rating.

11.2.4.5 Non-warehouse facilities

Energy use associated with non-warehouse facilities which are—

- a) not for the direct support of the operation of the warehouse; and
- b) not included in the site **GLA** calculation,

may be excluded from the energy coverage if all of the following conditions are met:

- 1) Energy consumption is not included in the minimum energy coverage for this type of rating.
- 2) Energy consumption is properly metered, and the metering meets the requirements of *NABERS The Rules — Metering and Consumption*.
- 3) Exclusions meet the requirements of *NABERS The Rules — Metering and Consumption* or, for thermal exclusions only, *NABERS The Rules — Thermal Energy Systems*.



For documentation requirements, see Section 12.8.3.

12 Documentation requirements for accredited ratings

12.1 General

The **Assessor** must keep all records on which an assessment is based. Data retained for audit must be in a form which facilitates reviews and makes anomalies easily apparent.

Access to original documents is preferred if they are available. Copies of original documents may be used as evidence as long as the **Assessor** is satisfied that they are, or can be verified to be, true and complete records of the original documents or files.

The information in Sections 12.2 to 12.8 is required for a rating. It is organised based on the divisions of previous chapters, see Chapters 5 to 11. All the required information should be obtained from the premises' owner/manager *before* an on-site visit, and then confirmed during the site visit and subsequent assessment. An on-site inspection helps to verify that the information provided is accurate, current and complete.

Individual ratings may require additional information or documentation depending on the individual circumstances of the **rated premises**.

12.2 Chapter 5: Site gross lettable area

Topic	Requirements	Documentation
12.2.1 Site GLA	Section 5.3	<p><i>Required information</i></p> <p>The Assessor must retain evidence that the site GLA has been correctly calculated and verified. All documentation used as evidence must be determined in accordance with the measurement standard for rated area, otherwise it will contribute to the potential error measurement.</p> <p><i>Documentation examples</i></p> <p>Documentation that can be used as evidence includes—</p> <ul style="list-style-type: none"> a) surveys; b) leases (including information about the measurement standard or equivalent); c) other third-party documentation; d) direct measurement from drawings, plans or prints (to-scale); and e) site measurement verified by the Assessor identifying the rated premises. <p>All of the documentation listed above must be made to/based on the measurement standard for rated area.</p>
12.2.2 Area exclusions	Section 5.4	<p><i>Required information</i></p> <p>The Assessor must retain evidence that the area exclusion has been correctly calculated and verified. All documentation used as evidence must be determined in accordance with the measurement standard for rated area, otherwise it will contribute to the potential error measurement.</p> <p><i>Documentation examples</i></p> <p>Documentation that can be used as evidence includes—</p>

		<p>a) surveys;</p> <p>b) leases (including information about the measurement standard or equivalent);</p> <p>c) other third-party documentation;</p> <p>d) direct measurement from drawings, plans or prints (to-scale); and</p> <p>e) site measurement verified by the Assessor identifying the rated premises.</p> <p>All of the documentation listed above must be made to/based on the measurement standard for rated area.</p>
12.2.3 Area without consumption data	Section 5.4.2	Where either a whole or a part of an area is excluded, full documentation in relation to the space must be retained. Detailed reason(s) why acceptable consumption data or estimates were not available for the rating period must also be given.

12.3 Chapter 6: Refrigerated spaces volume

Topic	Requirements	Documentation
12.3.1 Determining area of each cold room and/or cool room	Section 6.3.1	<p><i>Required information</i></p> <p>The Assessor must retain evidence that the cold rooms and cool rooms have been correctly identified.</p> <p><i>Documentation examples</i></p> <p>To confirm the presence of cold rooms and cool rooms, the following is required in order of preference—</p> <ol style="list-style-type: none"> Reference to a site operational manual or documentation that specifies services for the cold rooms and or cool rooms. The services must be independently verified by the Assessor during site visit, for example by sighting a refrigeration system controller graphic displaying the temperature setpoint or temperature setpoints from SCADA system; or Confirmation of the temperature setpoints provided by a credible and responsible person, recorded in writing by the Assessor with the full name, position, and contact details of the person giving the information.
12.3.2 Determining area of each cold room and/or cool room	Section 6.3.2	<p><i>Required information</i></p> <p>The Assessor must retain evidence that the refrigerated areas have been correctly calculated and verified. All documentation used as evidence must be determined in accordance with the measurement standard for rated area, otherwise it will contribute to the potential error measurement.</p> <p><i>Documentation examples</i></p> <p>Documentation that can be used as evidence includes—</p> <ol style="list-style-type: none"> surveys; leases (including information about the measurement standard or equivalent);

		<p>e) other third-party documentation;</p> <p>f) direct measurement from drawings, plans or prints (to-scale);</p> <p>g) site measurement verified by the Assessor identifying the rated premises; and</p> <p>h) site direct measurement by the Assessor subject to the site's WHS requirements and approvals.</p> <p>All of the documentation listed above must be made to or based on the measurement standard for rated area.</p>
12.3.3 Determining height of each cold room and/or cool room	Section 6.3.3	<p><i>Documentation examples</i></p> <p>To confirm the height of the refrigerated warehouse, one of the following is required (in order of preference):</p> <p>a) Direct measurement of the height from current to-scaled site section drawings showing the height of the cold room and/or the cool room.</p> <p>b) Direct site measurement on-site using laser distance measurement devices. Site direct measurement by the Assessor subject to site's WHS requirements and approvals.</p> <p>c) A list of areas and associated height for cold rooms and cool rooms provided by a credible and responsible person (including their full name, position and contact details), and verified by the Assessor independently on site.</p> <p>The Assessor needs to verify at least 20 % of the total cold room and cool room volume. The tolerance of the volume of each individual room needs to be within +/-10 %. The Assessor must verify different samples for each subsequent rating.</p> <p><i>Guidance on the measurement of height for pitched roof</i></p> <p>Where pitched roof exists, the measurement point of the height shall be the mid-point of the pitched roof, see Appendix C for measurement guidance.</p>

12.3.4 Adjustments for operational period	Section 6.4	<p><i>Documentation examples</i></p> <p>To confirm the operational period for refrigerated warehouse, the following is required, in order of preference:</p> <ol style="list-style-type: none"> Reference to a site operational manual or documentation that specifies the operational period. The operational period must be independently verified by the Assessor during site visit; e.g., by sighting a refrigeration system controller graphic displaying the operational schedule or operational schedules from SCADA system. Confirmation of the operational period provided by a credible and responsible person (including their full name, position and contact details), and recorded in writing by the Assessor.
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12.4 Chapter 7: Rated hours

Topic	Requirements	Documentation
12.4.1 Operational areas	Section 7.3.2	<p>Operational areas should be measured in accordance with the measurement standard for rated area. The sum of all operational areas should equal to the sum of rated conditioned and non-conditioned areas.</p> <p><i>Documentation examples</i></p> <p>Documentation that can be used as evidence includes—</p> <ol style="list-style-type: none"> surveys; leases (including information about the measurement standard or equivalent); other third-party documentation; direct measurement from drawings, plans or prints (to-scale); site measurement verified by the Assessor identifying the rated premises; and

		f) site direct measurement by the Assessor subject to site's WHS requirements and approvals. All of the documentation listed above must be made to or based on the measurement standard for rated area .
12.4.2 Conducting WOS	Section 7.3.3	For the confirmation of the rated hours under this method, a completed and signed WOS for each operational area and shift must be retained.
12.4.3 Average operating hours	Section 7.3.4	The Assessor must provide the following evidence: a) A WOS cannot be completed for an operational area. b) Average operating hours used are relevant to the operational area.

12.5 Chapter 8: Non-refrigerated areas

Topic	Requirements	Documentation
12.5.1 General	Section 8.4.1	<p><i>Documentation examples</i></p> <p>To show evidence confirming the presence of conditioned areas, the following is required (in order of preference):</p> <ol style="list-style-type: none"> Reference to a site operational manual or documentation that specifies services and the operational schedule of services provided for the conditioned area. The services and the operational schedule must be independently verified by the Assessor during on site visit, e.g. by sighting mechanical services equipment within the conditioned area and the HVAC trend logs. Verbal confirmation of the mechanical services and its operational schedule for the conditioned area provided by a credible and responsible person (including their full name, position and contact details), and recorded in writing by the Assessor.

<p>12.5.2 Determining conditioned area</p>	<p>Section 8.4.2</p>	<p><i>Required information</i></p> <p>The Assessor must retain evidence that the conditioned areas have been correctly calculated and verified. All documentation used as evidence must be determined in accordance with the measurement standard for rated area, otherwise it will contribute to the potential error measurement.</p> <p><i>Documentation examples</i></p> <p>Documentation that can be used as evidence includes—</p> <ul style="list-style-type: none"> a) surveys; b) leases (including information about the measurement standard or equivalent); c) other third-party documentation; d) direct measurement from drawings, plans or prints (to-scale); and e) site measurement verified by the Assessor identifying the rated premises. <p>All of the documentation listed above must be made to or based on the measurement standard for rated area.</p>
<p>12.5.3 Adjustment for unoccupied spaces</p>	<p>Sections 8.4.3 and 8.5.3</p>	<p>Documentation required for adjusting for unoccupied spaces includes the following:</p> <ul style="list-style-type: none"> a) Area that is unoccupied during the rating period. b) Written evidence confirming the number of occupation days. This may include evidence showing that the space was leased and that the space was actively used for warehouse activities.

12.6 Chapter 9: Full-time equivalent workers

Topic	Requirements	Documentation
12.6.1 Determining number of full-time workers	Section 9.3.2	<p><i>Documentation examples</i></p> <p>Documentation that can be used as evidence includes the following:</p> <ul style="list-style-type: none"> a) Records of full-time workers from the human resources department. b) Written confirmation of the number of full-time workers provided by a credible and responsible person (including their full name, position and contact details), and recorded in writing by the Assessor. c) Annual working hours logs that are used for accounting purposes for each full-time worker.
12.6.2 Calculating number of non-full-time workers to FTE workers	Section 9.3.3	<p><i>Documentation examples</i></p> <p>Documentation that can be used as evidence includes one of the following:</p> <ul style="list-style-type: none"> a) Records of part-time or casual workers their contracted weekly working hours, and number of weeks contracted during the rating period. b) Annual working hours logs that are used for accounting purposes for each part-time or casual workers. c) Working hours summary with at least a monthly interval, provided by a credible and responsible person (including their full name, position and contact details), and recorded in writing by the Assessor.

12.7 Chapter 10: Annual turnover ratio

Topic	Requirements	Documentation
12.7.1 Determining annual product throughput	Section 10.3.2	<p><i>Documentation examples</i></p> <p>Documentation that can be used as evidence includes the following:</p> <ul style="list-style-type: none"> a) Records of product throughput data showing both the inbound product throughput and the outbound product throughput — the interval has to be monthly or more granular. The unit has to be the same as the inventory level data. b) Written confirmation of the monthly inbound and outbound product throughput data provided by a credible and responsible person (including their full name, position and contact details), and recorded in writing by the Assessor.
12.7.2 Determining maximum monthly average inventory level	Section 10.3.3	<p><i>Documentation examples</i></p> <p>Documentation that can be used as evidence includes the following:</p> <ul style="list-style-type: none"> a) Records of product inventory data — the interval has to be monthly or more granular. The unit has to be the same as the product throughput data. b) Written confirmation of the inventory level data provided by a credible and responsible person (including their full name, position and contact details), and recorded in writing by the Assessor.

12.8 Chapter 11: Minimum energy coverage

Topic	Requirements	Documentation
12.8.1 Minimum energy end uses coverage	Section 11.2	<p><i>Required information</i></p> <p>For documentation required to confirm minimum energy coverage, refer to Section 9.2.3 of <i>NABERS The Rules — Metering and Consumption</i>.</p>
12.8.2 Exclusions	Section 11.2.4	<p><i>Required information</i></p> <p>The Assessor must retain data regarding any energy consumption that is excluded. This includes calculations and information relating to the energy use of the excluded area which is <u>not</u> predominantly for the operation of the warehouse facility. The Assessor must make reference to the metering and exclusion requirements of other NABERS Rules documents, as appropriate.</p> <p><i>Documentation examples</i></p> <p>Documentation that can be used as evidence includes the following:</p> <ol style="list-style-type: none"> Marked up electrical, gas or water reticulation diagram demonstrating the metering configuration of the excluded area. Assessor notes on the purpose and function of the excluded area, if not for the operation of the warehouse facility.
12.8.3 Non-warehouse facilities	Section 11.2.4.5	<p>For energy consumption in excluded spaces, the following must be retained:</p> <ol style="list-style-type: none"> A comprehensive list of all spaces at the rated premises, whether or not the space is included or excluded from the site GLA calculation. Calculations and information relating to the energy use of spaces which do not directly support the operation of the warehouse facility, with reference to the metering and exclusion requirements of other NABERS Rules documents, as appropriate.

Appendix A Rating period

A.1 Allowance for lodgement

A.2.1 General

A NABERS rating is based on 12 months of **acceptable data**, called the **rating period**. Once certified, the rating is valid for up to 12 months, called the **validity period**.

It can take time for an **Assessor** to complete a rating. Therefore, a period of 120 calendar days is given to lodge the rating after the end of the **rating period**. Ratings lodged after the 120 calendar days will have a reduced **validity period** to ensure all ratings are based on current data.

Sections A.2.2 and A.2.3 provide examples of this principle.

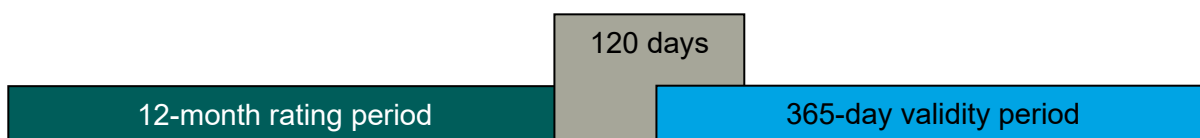
A.2.2 Scenario 1

A NABERS rating is lodged with the **National Administrator** within 120 calendar days of the end of the **rating period**. It will be valid for 365 days from the date of certification, see Figure A.1.2.

Example: The process for date of certification will be as follows:

- The **rating period** is 1 January 2017 to 31 December 2017. The due date is therefore 30 April 2018.
- The **Assessor** lodges the rating on 1 February 2018, and the **National Administrator** certifies it on 5 February 2018. This is before the due date.
- The rating will therefore be valid for 365 days from the date of certification (5 February 2018).

Figure A.1.2: Rating lodged within 120 days of end of rating period



A.2.3 Scenario 2

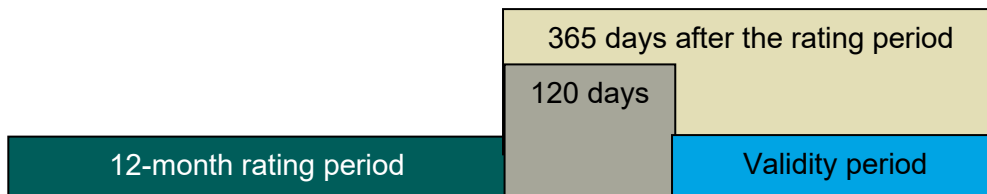
A NABERS rating is lodged with the **National Administrator** more than 120 calendar days after the end of the **rating period**. It will be valid for 365 days from the end of the **rating period**, see Figure A.1.3.

Example: The process for date of certification will be as follows:

- The **rating period** is 1 January 2017 to 31 December 2017. The due date is therefore 30 April 2018.
- The **Assessor** lodges the rating on 1 June 2018, and the **National Administrator** certifies it on 6 June 2018. This is after the due date.

- c) The rating will therefore be valid for 365 days from the end of the **rating period** (31 December 2017).
- d) It will expire on 31 December 2018.

Figure A.1.3: Rating lodged after 120 days from end of rating period



A.2 Allowance for responses

A.2.1 General

The **Assessor** are given 120 days after the **rating period** to lodge ratings with the **National Administrator**. The **Assessor** should allow 10 working days within this 120-day period for a response from the **National Administrator**. The **National Administrator** then allows a further 10 working days for the **Assessor** to respond to any queries that arise from quality assurance checks before certification.

When the **Assessor** is required to provide clarification multiple times, this must be done within the allowable 10 working days period.

If the **Assessor** has not responded adequately to all queries and the rating has not been certified within 120 days of the end of the **rating period** + 10 working days, the rating will only be valid for up to 365 days from the end of the **rating period**. This does not include the time taken by the **National Administrator**.

Section A.2.2 provides an example of this principle.

A.2.2 Scenario

A NABERS rating is lodged with the **National Administrator** one day before the lodgement due date (120 days from the end of the **rating period**). Depending on how quickly the **Assessor** responds to clarifications, the rating will either be valid for 365 days from the date of certification or 365 days from the end of the **rating period**.

Example: The process for date of certification will be as follows:

- a) The **rating period** is 1 January 2017 to 31 December 2017. The due date is therefore 30 April 2018.
- b) The **Assessor** lodges the rating on 29 April 2018, 119 days after the end of the **rating period**.
- c) The **National Administrator** responds on 3 May 2018 requesting further clarification. The **Assessor** must provide adequate clarification by 14 May 2018 (120 days from the end of the **rating period** plus 10 working days) for the rating to be valid for 365 days from the date of certification.

- d) If the **Assessor** responds on the 8 May 2018, the rating will be certified and valid until the 8 May 2019.
- e) If the **Assessor** does not respond with clarification until the 30 May 2018, the rating will only be valid until 365 days from the end of the **rating period** and therefore will expire on the 31 December 2018.

A.3 Adjusting rating period

After the rating has been lodged, the **Assessor** may require the **rating period** to be changed. The **rating period** may only be adjusted by a maximum of 62 days from the first lodgement. A new rating will need to be created if the **Assessor** would like to adjust the **rating period** by more than this initial timeframe.

Note: A rating is required to comply with the **Rules** that are current at the time of lodgement. **Assessors** are advised to seek advice and request a **Ruling** (if needed) prior to lodging ratings that may require one.

A.4 Lodging successive ratings

A.2.3 General

For a building which already has a current rating, there are two options to complete another rating of the same type, i.e. replace or renew.

Note: The **Assessor** will be prompted to select “replace” or “renew” when creating a rating. This selection can be changed just before the rating is lodged but not after.

A.2.4 Option 1: Replace

The replace option allows the new certified rating to replace the existing rating immediately upon certification.

There will be loss of the existing rating’s remaining **validity period**. This option may be chosen if the new rating is better than the existing rating, see Figure A.4.2.

Figure A.4.2: Existing rating replaced by new rating



A.2.5 Option 2: Renew

The renew option allows the new certified rating to begin its **validity period** immediately after the existing rating **validity period** expires. This option is often chosen when a site is most concerned with maximising the **validity period**.

As ratings are based on current data, the new **validity period** cannot not exceed 485 days (i.e. 365 days + 120 days) from the end of the **rating period**. To ensure the new rating maximum **validity period** is achieved, the **validity period** must start within 120 days after the end of the **rating period**.

Section A.2.6 provides an example of this principle.

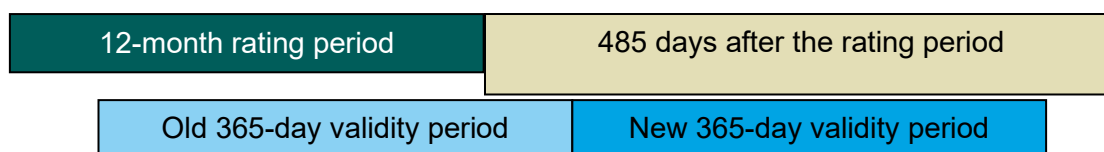
A.2.6 Scenario 1

A NABERS rating is lodged with the **National Administrator** and the renew option has been selected. The new rating begins its **validity period** within 120 days after the end of the **rating period**, see Figure A.4.4.

Example: The process for date of certification will be as follows:

- The current rating's **validity period** expired 31 December 2017.
- The **rating period** is 1 October 2016 to 30 September 2017 for the renewal rating.
- The **Assessor** lodges the renewal 1 November 2017 and it is certified by the **National Administrator** 7 November 2017.
- The **validity period** for the renewal will be 1 January 2018 to 31 December 2018.

Figure A.4.4: Validity period for new rating begins once old rating expires and new validity period is 365 days



If the new rating's **validity period** begins more than 120 days after the end of the **rating period**, the validity will be reduced as the **validity period** will exceed 485 days from the end of the **rating period**.

Note: An expired rating can be renewed. The **validity period** will begin on the date of certification, rather than the date the previous rating expired.

Section A.2.7 provides an example of this principle.

A.2.7 Scenario 2

A NABERS rating is lodged with the **National Administrator** and the renew option has been selected. The new rating begins its **validity period** over 120 calendar days after the end of the **rating period**, see Figure A.4.5.

Example: The process for date of certification will be as follows:

- The current rating's **validity period** expired 31 December 2017.
- The **rating period** is 1 August 2016 to 31 July 2017 for the renewal rating.
- The **Assessor** lodges the renewal 1 November 2017 and it is certified by the **National Administrator** 7 November 2017.

- (d) The **validity period** for the renewal will be 1 January 2018 to 28 November 2018, 485 days after the end of the **rating period**.

Figure A.4.5: Validity period for new rating begins once old rating expires and new validity period is less than 365 days



Appendix B Warehouse operational survey

Note: The following form must be completed by a manager or supervisor who works in the **rated premises** and has specific knowledge of the worker shifts and occupancy levels in each nominated **operational area**.

At least one form must be printed and completed for each **operational area** and kept on file for auditing purposes.

The questions in this survey are aimed at determining, for the **rating period** shown below, the average number of hours per week in the **operational area** described.

This information is only used to assess the energy consumption and greenhouse gas performance of the **rated premises** relative to how many hours it is used.

Operational area:

Rating period: DD/MM/YYYY to DD/MM/YYYY

Name of manager/supervisor:

Position:

Location of staff under your supervision:

What are the typical days of work within the area?

How many shifts on a typical day within the area?

	Shift 1	Shift 2	Shift 3
What is the start time of the shift? ¹			
What is the end time of the shift? ²			

-
- 1 When offices are surveyed separately, the start time of the shift means when 20 % (i.e. 1 in 5) of people have arrived within the area.
- 2 When offices are surveyed separately, the end time of the shift means when there are approximately 20 % (i.e. 1 in 5) of people remaining in the area.

Describe any working periods outside these typical hours
(e.g. “4 h one Saturday each month” or “a total of 50 h at
the end of the financial year”):

Do all the answers above apply for the
whole rating period (shown at top)?

If not, what period do the answers apply to?

Please give alternative responses for the
rest of the rating period:

Signature of manager/supervisor:

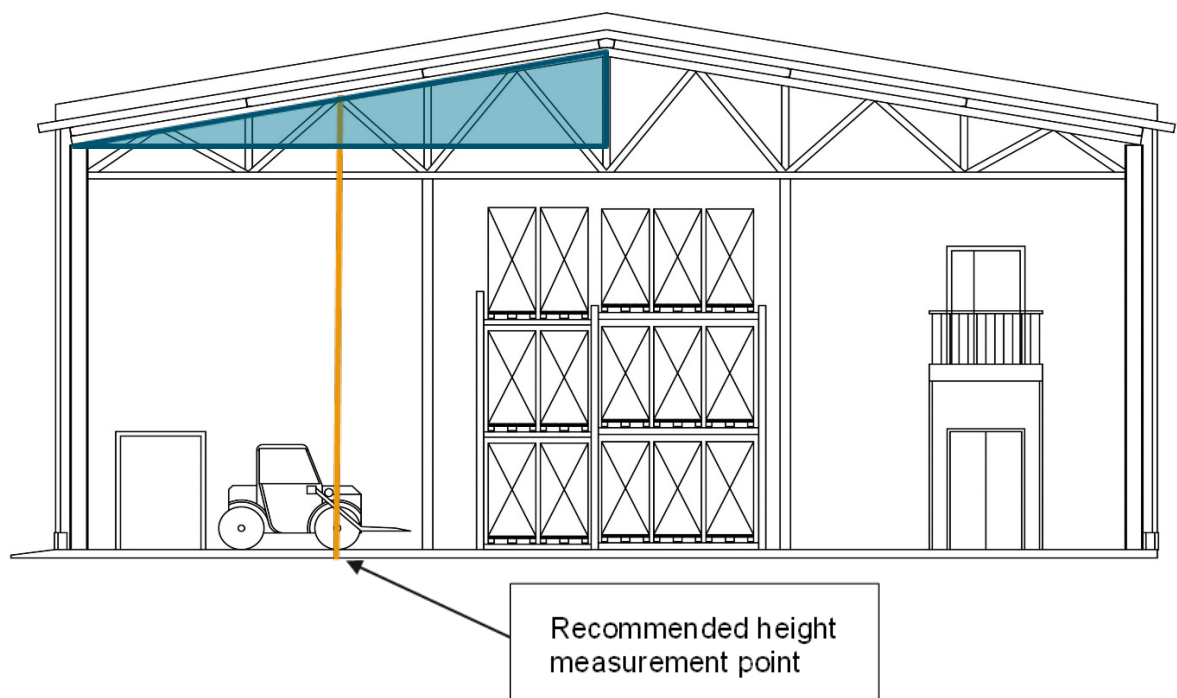
Date:

Appendix C Pitched roof height measurement guide

The height of the **cold room** or **cool room** needs to be measured or verified by the **Assessor** during the on-site visit.

Where a pitched roof exists, the measurement point of the height shall be the mid-point of the pitched roof slope, see Figure C. Where a roof is of a more complex shape, the **Assessor** may use the average of the maximum and minimum roof heights.

Figure C: Pitched roof height measurement



Contact us

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