NABERS

The Rules

Indoor Environment for Offices

Version 3.0 — September 2025

NABERS is administered by the New South Wales Government.

Cover photo: Modern architecture within the La Défense skyline, a major European business hub.

Published by

New South Wales Government

4 Parramatta Square

12 Darcy Street

Parramatta NSW 2150

PO Box A290

Sydney South NSW 2000

T: (02) 9995 5000 (switchboard)

T: 131 555 (environment information and publications requests)

TTY: 133 677 then ask for 131 555

Speak and Listen users: 1300 555 727 then ask for 131 555

Email: nabers@environment.nsw.gov.au

Website: https://www.nabers.gov.au/

Published September 2025

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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 Indoor Environment 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.

The purpose of this document is to give clear requirements for **Assessors** when they are evaluating the performance of offices across **Indoor Environment Quality (IEQ) parameters** with the goal of providing a NABERS rating. (In the context of this document, 'offices' are understood as being workplaces primarily used for administrative, clerical and similar information-based activities.)

This document contains **Rules** for **Assessors** conducting an Indoor Environment for Offices rating and provides the assessment framework as follows:

a) Determining sampling floors and locations, see Chapter 4.

b) Conducting **Occupant Satisfaction Surveys**, see Chapter 5.

c) Conducting a site visit, see Chapter 6.

d) Assessing thermal services, see Chapter 7.

e) Assessing **indoor air quality**, see Chapter 8.

f) Assessing acoustics, see Chapter 9.

g) Assessing lighting, see Chapter 10.

h) Assessing office layout, see Chapter 11.

In addition to the **Rules**, an **Assessor** is to make use of relevant **rulings** and the **NABERS rating input form**. A list of the documentation required in relation to this document is given in Chapter 12.

These **Rules** will supersede *NABERS The Rules — Indoor Environment for Offices v2.0, September 2021.*

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**.

Assessments for an accredited rating must comply with the version of the **Rules** and any relevant **Rulings** current on the day the rating application is lodged to NABERS, unless—

a) the **National Administrator** has specifically approved otherwise in writing; or

b) the assessment is conducted under the terms of a NABERS Commitment Agreement which specifies an earlier version of 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**. All written correspondence is required as evidence and should be collected prior to lodging the rating.

1.4 How to use this document

1.4.1 Overview

A NABERS Indoor Environment for Offices rating is calculated by comparing **Indoor Environment Quality (IEQ) parameters** in five different categories:

a) Thermal services.

b) Indoor air quality.

c) Lighting.

d) Acoustics.

e) Office layout.

Under the NABERS rating system, the number of stars awarded to an office is calculated by benchmarking these **parameters** and comparing them against buildings of the same category, using 12 months of actual data.

The **parameters** measured within each category vary depending on whether it is the Base Building, Whole Building or Tenancy that is being assessed.

1.4.2 Formatting conventions and referencing

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 — Indoor Environment for Offices*. Other **Rules** documents mentioned in the text are distinguished from the present document by the inclusion of their title.

Text appearing **teal** 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

The following changes have been included in this current version:

a) Revised minimum equipment requirements for measuring: **Particulate Matter (PM10)**, **Formaldehyde, Total Volatile Organic Compounds (TVOCs)** and **carbon monoxide**.
b) Revised time windows for collecting samples for: carbon dioxide, **Particulate Matter (PM10)** and acoustics.
c) Clarified rules for determining rating periods.
d) Clarified Level 2 audit evidence requirements for several sections of the **Rules.**
e) Improved **Rules** based on feedback received from **Assessors** and **Auditors**.

A detailed list of the main changes made between this version and the previous version, is given in Appendix H.

1.6 Related documents

The following documents have been referenced within these **Rules**:

a) *NABERS The Rules — Energy and Water for Offices*, v5.2, 2025.

b) *NABERS Annual Monitoring Data Collection Spreadsheet.*

c) ANSI/ASHRAE 55-2020: *Thermal Environmental Conditions for Human Occupancy.*

d) ISO 7226:1998, *Ergonomics of the thermal environment — Instruments for measuring physical quantities*.

e) ISO 16000-3:2001, *Determination of formaldehyde and other carbonyls, Part 3: Active sampling method*.

f) ISO 16200-1:2000, *Workplace air quality sampling and analysis of volatile organic compounds by solvent desorption/gas chromatography, Part 1: Pumped sampling method.*

g) ISO 17025, *General requirements for the competence of testing and calibration laboratories, 2017.*

h) Building Owners and Managers Association (BOMA), *Method of Measurement,* 1989 or 2017.

i) Building Owners and Managers Association (BOMA), *Method of Measurement (Net Rentable Area),* 1985 or 2017.

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

Assessors must use the latest version of NABERS Rules and **Rulings** that have been referenced within this document.

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**.
accuracy	The degree to which the result of a measurement conforms to the actual value. **Example:** If an instrument had an accuracy of ± 3 %, a reading of 50 ppm means the true value is between 48.5 ppm and 51.5 ppm.
air temperature	A measure of how hot or cold the air is, generally expressed in degrees Celsius (°C). This can be measured indoors (**space temperature**) or measured outdoors (ambient temperature).
air speed	A measure of air movement in a space, expressed in m/s.
ambient sound	A measure of noise in the space, expressed in the 'A' scale or dBA.
Assessor	An accredited person authorised by the **National Administrator** to conduct NABERS ratings.
Auditor	A person employed by or contracted to the **National Administrator** to perform audits of NABERS rating applications.
average floor area	The total **occupied** office area divided by the number of **occupied** office floors.
calibration	The process of ensuring equipment is measuring accurately when compared to a manufacturer's standard or specification.
carbon monoxide (CO)	A colourless, odourless, toxic gas that is the product of incomplete combustion and is measured in ppm.
component	An individual portion of each rating **parameter** assessed which is either measured or collected from the **Occupant Satisfaction Survey** and forms part of the final score for the **parameter**. **Example: Carbon monoxide** is a **component** of **indoor air quality**.
equilibrate	Allowing time for measuring equipment to reach an equilibrium with the surrounding space for accurate and representative readings.

Term	Definition
formaldehyde (CH_2O)	A colourless organic compound measured in ppb or ppm. It can be found in combustion sources and used in pressed wood products such as particle board, medium density fibreboard (MDF) and certain textiles, foams and glues.
horizontal illuminance	Lighting measurements collected on the horizontal plane, measured in lux (lx). **Note:** These measurements are taken flat on the desk to measure light falling on the desk rather than in front of a computer monitor which records light in the vertical plane.
indoor air quality	A broad term used to describe the pollutants which are present within the indoor environment, and which have an impact on the **Indoor Environment Quality**. Pollutants include— a) carbon dioxide; b) **carbon monoxide**; c) **particulate matter**; d) **formaldehyde**; and e) **Total Volatile Organic Compounds (TVOCs)**.
Indoor Environment Quality (IEQ)	The quality of a building's environment in relation to the health and wellbeing of those who occupy space within it. **Note:** **IEQ** is determined by many factors, including the layout of the space, lighting, **air quality**, thermal conditions and noise levels.
mean radiant temperature (MRT)	A measure of the average temperature of surfaces surrounding an elected point with which it can exchange thermal radiation. **MRT** can be calculated using the following formula from ISO 7726:1998: $$MRT = \left[(T_g + 273)^4 + \frac{1.10 \times 10^8 \times v^{0.6}}{\varepsilon D^{0.4}}(T_g - T_a)\right]^{1/4} - 273$$ Where: T_g = Globe temperature (°C) T_a = Air temperature (°C) v = Air velocity (m/s) ε = Emissivity of the globe (usually 0.95 for a matte black globe) D = Diameter of the globe (m), typically 0.15 m **Note:** The globe temperature is measured in degrees Celsius using a black globe thermometer.

Term	Definition
measurement standard for rated area	The standard used for determining the **Net Lettable Area (NLA)** of a **rated premises**, as set out in— a) The Property Council of Australia (PCA), Method of Measurement: Commercial, 2008 (1997 reprint); b) Building Owners and Managers Association (BOMA), Method of Measurement, 1989 or 2017; or c) Building Owners and Managers Association (BOMA), Method of Measurement (Net Rentable Area), 1985 or 2017.
NABERS rating input form	The rating input form provided by NABERS for use by **Assessors** in the calculation of accredited ratings. For NABERS Indoor Environment for Offices ratings, this is in the NABERS Rate application.
National Administrator	The body responsible for administering NABERS, in particular the following areas: a) Establishing and maintaining the standards and procedures to be followed in all aspects of the operation of the system. b) Determining issues that arise during the operation of the system and the making of ratings. c) Accrediting **Assessors** and awarding accredited ratings in accordance with NABERS standards and procedures. The functions of the **National Administrator** are undertaken by the NSW Government.
Net Lettable Area (NLA)	The floor area, determined in accordance with the **measurement standard for rated area**, of spaces that can be used as offices within the **rated premises**. **Note:** This is essentially the space within the permanent walls of the building, but excluding spaces for— a) public access and use (including stairs, escalators, lift lobbies and passageways); b) building mechanical, air conditioning, electrical and other utility services; and c) staff and cleaning facilities (including toilets, tea rooms, and cleaners' cupboards). The **Assessor** should refer to the relevant **measurement standard for rated area** documents for a definitive list of inclusions and exclusions.
occupants	Refers to those people normally occupying the building as part of a working day.

Term	Definition
occupied	A space within the **NLA** of a building that— a) for Base Building ratings – is ready for occupation; b) for Tenancy ratings – is ready for occupation and being actively used as an office, including use as an **office support facility**; and c) for Whole Building ratings – is ready for occupation and either being actively used as an office (this includes use as an **office support facility**) or undergoing fitout works.
Occupant Satisfaction Survey (OSS)	A survey conducted by an independent organisation completed by **occupants** of an office building or tenancy. It assesses occupant satisfaction in relation to **Indoor Environment Quality** factors.
office	A workplace primarily used for administrative, clerical and similar information-based activities, including the associated **office support facilities**. **Note:** For reasons of readability, this term is not highlighted throughout this document.
office floor area	The area of an office or tenancy measured in m^2 which is used to determine the number of sampling locations for a NABERS Indoor Environment for Offices rating.
office support facility	A space not dedicated to administrative, clerical or similar information-based activities but which— a) is an adjunct to an office used primarily to provide supporting facilities or services to the office or its **occupants**; and b) is exclusively for the use of office tenants; and c) occupies a space which is fit for office use. This includes facilities for reception, meetings, training, filing and storage, IT and other office equipment, tenant-installed kitchenettes and staff amenities. It can also include child care, refreshment, recreation, and exercise facilities, as long as they for the exclusively for the use of office tenants.
parameter	Comprised of individual measured **components** (e.g. air temperature and **relative humidity**) which form a larger section of the rating, the score of which is used to calculate the final star rating. **Note:** Thermal services and acoustic comfort are individual **parameters** in the rating.
plant room	The room(s) housing air handling units, boilers, main switchboards etc.

Term	Definition
particulate matter (PM_{10})	Airborne particulate matter less than 10 µm in diameter, which are inhalable.
rated premises	The building or building section to be rated.
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.
rating scope	The scope of the rating – either Base Building, Whole Building or Tenancy.
real-time	Refers to measurements that are recorded (data-logged) at the same time as an air **sample** is collected.
relative humidity	The quantity of water in the air as a percentage of the total quantity of water that the air can hold at a given temperature.
resolution	The ability to be able to separate values reliably. Instrument resolution is the smallest possible separation that an instrument can resolve. **Note:** If an instrument can measure to the nearest 1 ppm, then the resolution is 1 ppm.
Rules	Authoritative document produced by the **National Administrator** that specifies what must be covered by an **Assessor** in order to produce a rating.
Ruling	An authoritative decision by the **National Administrator** which acts as an addition or amendment to the **Rules**.
sample	A single portion of air collected so as to provide a representation of the entire air in the locality of the sampling.
sample collection plan	Document showing the location where **samples** are to be collected in the building.
space temperature	A measure of how hot or cold the indoor air is, generally expressed in degree Celsius (°C).
Total Volatile Organic Compounds (TVOCs)	Carbon-hydrogen containing compounds measured in ppb or ppm that easily transform from a solid to a gas at normal ambient temperatures. Sources in an office include the following: a) Paints, paint strippers, and other solvents. b) Wood preservatives. c) Aerosol sprays. d) Cleansers and disinfectants.

Term	Definition
	e) Moth repellents and air fresheners.
validity period	The post-certification period during which the rating is valid for up to 12 months. **Note:** See Appendix A for further details.
ventilation effectiveness	Measure of air changes and removal of pollutants as demonstrated by the difference between the indoor carbon dioxide and outdoor carbon dioxide readings.

3 Key concepts and procedures

3.1 Rating scope

3.1.1 Base Building ratings

A Base Building rating covers the indoor environment of all office spaces within a building and measures **parameters** that are under the control of the landlord or Base Building.

The **IEQ parameters** assessed from the quantitative measurements include—

a) thermal services;

b) **indoor air quality**; and

c) acoustic comfort.

3.1.2 Whole Building ratings

A Whole Building rating covers all factors included in Tenancy and Base Building ratings, including inputs from both the building and its **occupants**.

The **IEQ parameters** assessed from the quantitative measurements and an **Occupant Satisfaction Survey** include—

a) thermal services;

b) **indoor air quality**;

c) acoustic comfort;

d) lighting; and

e) office layout.

3.1.3 Tenancy ratings

A Tenancy rating covers the indoor environment of offices within a space **occupied** by a single tenant and under the control of that tenant. The quality of the indoor environment is primarily impacted by office activities and operation.

The **IEQ parameters** assessed from the quantitative measurements and an **Occupant Satisfaction Survey** include—

a) **indoor air quality**;

b) acoustic comfort;

c) lighting; and

d) office layout.

3.2 Parameters assessed

3.2.1 General

There are five **parameters** assessed in NABERS IE ratings—

a) thermal services;

b) **indoor air quality**;

c) acoustic comfort;

d) lighting; and

e) office layout.

3.2.2 Parameter weightings for each rating scope

NABERS IE ratings weigh the individual **IEQ parameters** based on their importance to **occupant** health and comfort, as shown in Table 3.2.2.

Table 3.2.2: Weighting of indoor environment parameters to the overall rating

IEQ parameter	Weighting based on occupant health and comfort		
	Base Building	Whole Building	Tenancy
Thermal services	40 %	30 %	N/A
Indoor air quality	40 %	30 %	40 %
Acoustic comfort	20 %	15 %	25 %
Lighting	N/A	15 %	25 %
Office layout	N/A	10 %	10 %

3.2.3 Parameter components for each rating scope

Each indoor environment **parameter** is broken down into multiple different **components**, as shown in Table 3.2.3. These components are weighted within each **parameter**. For detailed weightings for each **component** within each rating **parameter**, see Appendix E.

Table 3.2.3: Indoor environment parameters assessed for each rating scope

IEQ parameter	Component	Base Building	Whole Building	Tenancy
Thermal services: *Spot measurements*	**Space temperature**	☑	☑	
	Mean radiant temperature	☑	☑	

	Air speed	☑	☑	
	Relative humidity (mechanically ventilated)	☑	☑	
	Outdoor **air temperature** (naturally ventilated)	☑	☑	
Thermal services: *Annual monitoring*	Annual **space temperature** records (hourly data)	☑	☑	
Indoor air quality	Carbon dioxide	☑	☑	☑
	Carbon monoxide	☑	☑	
	Particulate matter (PM_{10})	☑	☑	☑
	Total Volatile Organic Compounds (TVOCs)		☑	☑
	Formaldehyde		☑	☑
Acoustics	Sound level	☑	☑	☑
Lighting	**Horizontal illuminance**		☑	☑
Occupant Satisfaction Survey	Thermal comfort (Whole Building only), **indoor air quality**, acoustics, lighting and office layout		☑	☑

3.3 Rating period

3.3.1 General

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

Because some rating scopes use different types of data, such as annual data and spot measurements, the rating period must be determined using Table 3.3.1.

Table 3.3.1: Determining the rating period

Type of IE rating	Data required
IE rating with spot measurements only	Where the assessment uses spot measurements only (e.g. no annual data is used), then the **rating period** ends on the date the last spot measurement was collected.
IE rating with annual data	Where the assessment uses spot measurements and annual data, then the start date and end date of the annual data determines the **rating period**. The spot measurements may fall anywhere within the 12-month **rating period**, with a preference for it to be in the last 2 months.

⚠ Effective from 12/10/2025, **Assessors** must use the rules of each NABERS rating tool (Energy, Water, Indoor Environment) to determine its **rating period**. Previous requirements from *NABERS The Rules — Indoor Environment for Offices v2.0*, for aligning IE **rating periods** with other current NABERS ratings (Energy or Water) have been withdrawn.

Spot measurements may only be used once for a single rating application.

In addition to the requirements outlined in Table 3.3.1, spot measurements must be collected within four (4) weeks of completing the **Occupancy Satisfaction Survey** for Whole Building and Tenancy ratings.

3.3.2 Time allowed for assessment

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**. The **validity period** of a rating cannot extend past 485 days from the end of the **rating period,** to ensure all ratings are based on current data.

Ratings lodged after the 120 days will have a reduced **validity period** that cannot extend past 365 days from the end of the **rating period**.

More information on the **rating period**, **validity period** and time limits for submission can be found in Appendix A.

3.3.3 Newly built or major refurbishments

New buildings or buildings subject to major refurbishment may begin the **rating period** for a NABERS assessment when one of the following requirements is met:

a) The entire building is fit for occupation and is at least 75 % occupied.

b) It has been at least two years since the certificate of occupancy (or equivalent) was issued.

3.4 Standards for acceptable data and estimates

3.4.1 General

An assessment for an accredited NABERS Indoor Environment for Offices rating must be based on the **acceptable data** specified in the **Rules** (including applicable **Rulings**) or as directed by the **National Administrator**.

Data must be of an acceptable standard. The decision process for determining **acceptable data** in Section 3.4.2 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** in individual sections of these **Rules** take precedence over the standards in Section 3.4.2 below. Where specific procedures are followed, the requirement for compliance with Section 3.4.2 is deemed to be satisfied.

3.4.2 Acceptable data

All data from all sources used in assessing the office premises must be taken within the same **rating period** as determined in Section 3.3. These data sources include:

a) Annual monitoring records of **space temperature**.

b) **Occupant Satisfaction Surveys**.

c) On-site measurements.

d) Results of laboratory analysis.

3.5 Site visits

3.5.1 General

For every rating application, **Assessors** must conduct a site visit to inspect the **rated premises**. Requirements for completing the site visit are determined as per Chapter 6.

3.5.2 Situations where a site visit cannot be conducted or delegated

There may be circumstances where access to 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**. If there are known impacts on the quality of the information obtained for the assessment (e.g. several **occupied** floors could not be sampled) then these must also be fully described.

It is the responsibility of the customer to provide sufficient access to the premises to allow a rating to be undertaken. The **National Administrator** should be contacted for assistance in situations where restrictions on carrying out a site visit are outside the control of both the **Assessor** and the customer (e.g. if travel can't be undertaken because of a declared natural disaster event).

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. 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 an 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 equivalent to the preferred method in terms of its results, accuracy and validity.

All alternative methodologies must be approved by the **National Administrator** prior to use. For further information, please contact the **National Administrator**.

4 Sampling floors and locations

4.1 General

In order to ensure a fair comparison between spaces or buildings of different sizes, a NABERS Indoor Environment for Offices rating must take into account—

a) a representative number of floors to be sampled; and

b) the sampling locations per floor.

The **office floor area** determines both the number of sampling locations and the number of floors to conduct on-site measurements.

Note: The rated area from a NABERS Energy or Water rating for the premises may be used to determine the **office floor area** for a NABERS IE rating. Refer to *NABERS The Rules — Energy and Water for Offices*.

For documentation requirements, see Section 12.2.

4.2 Process overview

The process for determining the sampling floors and locations is as per Table 4.2.

Table 4.2: Process overview

	Step	Reference
1	Determine the **office floor area**.	4.3
2	Determine the number of **occupied** floors.	4.4
3	Calculate the number of— a) floors to be sampled; and b) **samples** per floor.	4.5
4	Select sampling floors.	4.6
5	Select sampling locations.	4.7
6	Prepare a **sample collection plan**.	4.8

4.3 Determine the office floor area

4.3.1 General

To determine the representative number of **samples**, the size of a building or tenancy is considered both in terms of—

a) the **occupied office floor area**; and

b) the number of floors used as office space.

4.3.2 Office floor area for Base Building and Whole Building ratings

For Base Building and Whole Building ratings, the **office floor area** must include all office spaces (including **office support facilities**) in the building.

For vacant spaces and spaces which are not used as offices, see Section 4.3.6.

For documentation requirements, see Section 12.2.1.

4.3.3 Office floor area for Tenancy ratings

For Tenancy ratings, the **office floor area** must include all office spaces (including **office support facilities**) in the building that are used together by the tenant as an interrelated group of facilities to accommodate its business. This condition applies regardless of whether—

a) the office spaces are on one or more floors;

b) the spaces are occupied on the basis of one or more leases or other agreements; and

c) those leases or agreements are nominally held by one or more associated entities on behalf of the tenant.

Facilities are not included in such an interrelated group if they are—

1) physically distinct;

2) managed independently;

3) presented or branded distinctly; or

4) independent of one another for services.

4.3.4 Multiple building versus single building ratings

A rating must only include one complete building. For precinct buildings or office parks where there are several buildings located at the same address, each building must be rated separately regardless of whether they are—

a) dependent on one another for services (e.g. share a central plant);

b) managed jointly; or

c) presented or branded as one premises.

The following list must be consulted in cases where it is unclear whether there is a single or multiple buildings present. A majority of the following features is evidence of a single building:

1) A common entry point for **occupants**.
2) Interconnected access or the potential for interconnected access between areas.
3) Central shared provision of the common services, such as heating and cooling.
4) Capacity to be offered to a tenant as one building.
5) Single owner.
6) Buildings constructed at the same or within a short period of time of each other (within 2 years) and the original design allowed for the additional construction.
7) Potential for Disability Discrimination Act (DDA) compliant travel horizontally between the buildings without using basement, car park or **plant rooms**.
8) Single public street address (i.e. the address the building is known publicly by).
9) Single LOT number.
10) A reasonable person would assume it is one building.

Where **Assessors** are unsure if buildings should be separated for rating purposes, they should contact the **National Administrator** and provide an assessment against the features listed above (Section 4.3.4). The **National Administrator** reserves the right to determine what is considered a majority of features on a case-by-case basis.

4.3.5 Calculate the office floor area

The method for calculating the **office floor area** is as per Table 4.3.5. Any **office floor area** exclusions are adjusted as per Section 4.3.6. Compliance to the **measurement standard for rated area** is not required.

Table 4.3.5: Calculating office floor area

Rating type	Calculation method
NABERS IE for Offices Base Building or Whole Building rating	The **office floor area** can be calculated using any of the following— a) the rated area from a current NABERS Energy rating (Base Building or Whole Building); b) **NLA** for the building specified within an official report, such as a company's annual report; c) Gross Floor Area (GFA); or d) tenancy stack diagrams.
NABERS IE for Offices Tenancy rating	The **office floor area** can be calculated using any of the following— a) the rated area from a current NABERS Energy rating (Tenancy);

	b) general information from the tenant's lease about the **NLA** of the space; or c) measurement of the tenancy office area.

4.3.6 Exclusions to the office floor area

Spaces that have not been used as an office (or an **office support facility**) or are vacant at the time spot measurements are conducted may be excluded from the **office floor area** calculation. This ensures that the **office floor area** is based on actively used office spaces to provide a fair comparison.

4.4 Number of floors

4.4.1 General

Both of the following must be determined:

a) The total number of floors in the building or tenancy.

b) The number of floors currently used as office space (**occupied** floors).

For documentation requirements, see Section 12.2.1.

4.4.2 Determining the number of occupied office floors

At the time spot measurements are collected, the **Assessor** must visually check each floor/space to verify that it is **occupied** (or vacant), and if **occupied** that it is being used as an office. This verification must be conducted on all floors, not just the floors where samples are collected on the sampling day.

Occupied floors exclude ground floor lobbies and floors dedicated to **plant rooms**.

Occupied floors may not equal the number of floors in the building. A floor that has part plant and part **occupied** space is considered a full floor.

4.4.3 Determining the number of floors to assess

The **office floor area** and the number of **occupied** office floors determine the number of floors from which **samples** must be collected. See Table 4.4.3.

Where the **office floor area** and the number of **occupied** floors results in a different number of floors to sample, the higher number of floors must be sampled.

Where the number of floors required for sampling is greater than the number of **occupied** floors in the building, advice must be sought from the **National Administrator**.

Table 4.4.3: Identifying the number of occupied floors to assess

Occupied office floor area (m^2)	Occupied office floors (number)	Number of occupied floors to be sampled
≤ 2,000	≤ 3	1

≤ 5,000	≤ 8	2
≤ 10,000	≤ 15	3
≤ 20,000	≤ 25	4
≤ 40,000	≤ 35	5
> 40,000	> 35	6

Note: The number of floors required is calculated automatically in the **NABERS rating input form**.

4.5 Number of samples per assessed floor

4.5.1 General

The number of sampling points to be collected on each assessed floor must be determined.

4.5.2 Determining the number of samples per assessed floor

The number of sampling points collected are determined by the **average floor area** across the building as per Table 4.5.2. The **average floor area** is the total **occupied** office area divided by the number of **occupied** office floors.

Where the premises requires a greater number of floors to be sampled than there are **occupied** floors (as determined in Section 4.4.3), the **National Administrator** may require an increased number of **samples** to be taken per floor.

Table 4.5.2: Identifying the number of samples required per assessed floor

Average floor area (m^2)	Sampling points per floor
≤ 500	2
≤ 900	3
≤ 2,000	4
> 2,000	5

Note: The number of **samples** required is calculated automatically in the **NABERS rating input form**.

4.5.3 Additional sample collection

It is acceptable to collect and use more information than the minimum required if collected in accordance with the **Rules**. This is encouraged as it provides a more comprehensive assessment of the premises.

However, it is not acceptable to obtain more data than the minimum and filter the excess data to bias the results. The **Assessor** must always use all the data obtained, provided that it meets these minimum standards and complies with the **Rules**.

It is strictly forbidden for the **Assessor** or their nominated sub-contractor to take a reading and then take another one based on the results from the first, unless specifically advised in these **Rules** (e.g. an unforeseen loud noise during a sound reading).

4.6 Selecting floors to sample

The specific floors that **samples** are to be collected from must be determined and recorded prior to visiting the site, as determined by Section 4.4.3. This information may be recorded in a **sample collection plan**.

Only floors currently **occupied** as office space may be selected for sampling in the following priority order:

a) The highest rated floor.

b) The lowest rated floor.

c) The floor directly underneath a mid-rise **plant room**.

d) The floor directly above that **plant room**.

e) The floor furthest from any central supply fans and main plant.

f) The floor chosen by the **Assessor** to reflect evenly the use of different HVAC systems within the building or tenancy.

Note: For some **components** or **rating scopes**, it may be acceptable to take measurements on a different floor for that given **component**. Where this is the case, it is specified in the relevant section for that measurement (e.g. acoustics measurements for Base Building ratings may be taken on an unoccupied floor to more accurately assess the contribution of the HVAC and the facade to noise in the space).

The **Assessor** must contact the **National Administrator** for guidance if they are unable to determine the floors to be sampled using the rules above.

For documentation requirements, see Section 12.2.2.

4.7 Location of sampling

4.7.1 General

Assessors must determine sampling locations prior to conducting measurements.

Assessors must inspect the site to verify the locations are appropriate and refine the location (in accordance with the **Rules**). The reasons for refining the selected location must be recorded in the **sample collection plan**.

For documentation requirements, see Section 12.2.2.

4.7.2 Office floor sampling requirements

The **Assessor** should obtain office plans for each tenanted floor to be assessed in order to understand the workstation arrangement or **occupant** seating.

Sampling locations on assessed floors must be determined according to the following specifications:

a) In typical open plan office spaces.

b) One sample must be collected from each perimeter zone, according to the following order of priority:

1) Western or North-western perimeter zone.

2) Northern or North-eastern perimeter zone.

3) Eastern or South-eastern perimeter zone.

4) Southern or South-western perimeter zone.

5) Once perimeter zones are exhausted, the centre zone away from windows.

Measurements along perimeter zones must be taken within 1 m to 3 m of the glazed facade.

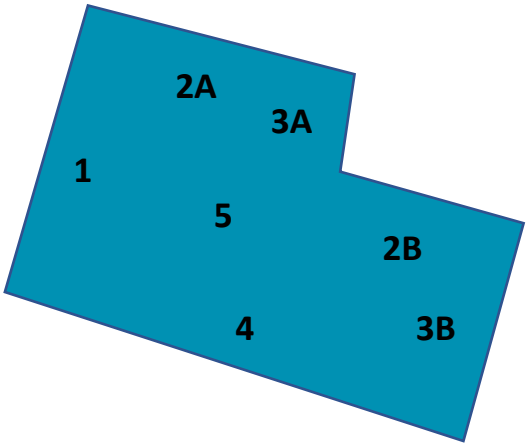
Note: The sampling locations should be near the centre of the facade, so that the position is representative of sunlight exposure to the facade and avoids the corners of the building. See Figure 4.7.2 and the example below.

Sampling locations on assessed floors must not be—

1) in **office support facilities** (such as kitchens, meeting rooms, storage areas); or

2) in fully enclosed offices (unless there is no alternative).

Figure 4.7.2: Example of sampling locations



Example: A freestanding building with no other buildings nearby, glazing on all sides, would have the samples taken in the following order of priority:

a) Location 1 (Western Facade).

b) Location 2A (North – it receives more sunlight than 2B, as 2B is inset and therefore slightly shaded by the building).

c) Location 3B (East – provides a better representation of the whole floor where sample 2A has been selected).

d) Location 4 (South).

e) Location 5 (internal).

If the **Assessor** is unsure of the actual locations of the sampling points, they should seek advice from the **National Administrator**.

4.7.3 Plant room sampling requirements

At least one of the major HVAC systems (i.e. **plant rooms**) which supply the space being assessed must be sampled. Up to four **plant rooms** may be sampled to provide a more accurate reflection of the outside air supplied to the building.

Where there is more than one HVAC system or **plant room** in a building or tenancy, **samples** must be selected in the following priority order:

a) The **plant room** which services a majority of the area being assessed (e.g. for a Tenancy rating, the **plant room** that services the relevant tenanted space);.

b) The **plant room** which serves the assessed space equally (e.g. where there are small **plant rooms** or air intakes on each level, the **plant room** which is an adequate representation of the outside air supplied to the space as chosen by the **Assessor**).

A record of how outside air is provided to the building must be retained in the **Assessor**'s site notes.

Note 1: The quality of the outside air supplied to the building is assessed for mechanically ventilated buildings to determine the efficacy of the plant.

Note 2: Arrangement of plant rooms is typically determined by referring to mechanical drawings, but may also be determined by a thorough site inspection.

Note 3: Depending on the type of building and the type of air-conditioning system, the location of **plant rooms** or air intakes may be located in the ceiling space above the **occupied** floor, in a **plant room** on the floor or in a **plant room** on another floor. For some buildings, the air intake may be located on the roof or outside the building.

4.7.4 Outdoor ambient air sampling requirements

The outdoor ambient **air temperature** must be measured for Base Building and Whole Building ratings in naturally ventilated buildings. This must be taken 1 m to 2 m above the ground near the main pedestrian entrance to the building.

Alternatively, Bureau of Meteorology (BOM) data from the nearest weather station to the building may be used if the BOM weather station—

a) is not more than 20 km away; and

b) has similar topography.

4.8 Sample collection plan

4.8.1 General

A **sample collection plan** must be prepared and retained. This is a critical document that plans the assessment and is used for supervision/auditing purposes. It is also helpful when determining future ratings for the **rated premises**.

Each **Assessor** may develop their own **sample collection plan**. As a minimum, a **sample collection plan** must—

a) state the size and the occupancy of the building;

b) identify whether the building is naturally or mechanically ventilated;

c) identify the floors to be assessed;

d) propose sampling locations;

e) record the actual sampling locations used; and

f) include site notes and/or observations, including the outside air intake.

A template for a **sample collection plan** is provided in Appendix C.

4.8.2 Accuracy of information

The **Assessor** must determine where each **sample** is to be taken, and document it in the preliminary **sample collection plan** prior to visiting the site.

The **sample collection plan** must be adapted where a floor or location is not suitable upon visiting the site, including an explanation why the originally proposed locations were not suitable.

Whilst a client or their representative may advise which spaces are currently leased and in use, it is not permissible for them to make any recommendations or selections with regards to the floors being sampled or the sampling locations.

In instances where a sub-contractor takes the measurements, it remains the **Assessor**'s responsibility to ensure that the sampling locations comply with these **Rules**.

5 Occupant Satisfaction Surveys

5.1 General

This chapter provides requirements where **Occupant Satisfaction Surveys (OSS)** are to be conducted.

This chapter applies to the following rating scopes:

a) Whole Building.

b) Tenancy.

Note: The **OSS** elicits the level of satisfaction with various aspects of the indoor environment that cannot be fully assessed through quantitative measurements. It is used to correlate data with the quantitative measurements taken on-site.

For documentation requirements, see Section 12.3.

5.2 Requirements

5.2.1 General

The **Occupant Satisfaction Survey** must be made available to specified **occupants**. The minimum number of responses must have been received before on-site measurements may be taken. If the minimum number of responses is not received by the return date, the rating cannot proceed.

For documentation requirements, see Section 12.3.1.

5.2.2 Parameters requiring Occupant Satisfaction Surveys

Certain parameters require **Occupant Satisfaction Surveys**, as shown in Table 5.2.2.

Table 5.2.2: Parameters requiring Occupant Satisfaction Surveys

IE Parameter	Base Building	Whole Building	Tenancy
Thermal services		☑	
Indoor air quality		☑	☑

Acoustics		☑	☑
Lighting		☑	☑
Office layout		☑	☑

5.2.3 Process

The steps for conducting the **Occupant Satisfaction Survey** are as follows:

a) Visit the website of the survey providers.

b) Collect the information required by the survey provider. The **Assessor** must provide details such as—

1) building name;

2) number of staff to be surveyed; and

3) number of floors over which surveyed staff are located to the survey provider as part of the setting up of the survey.

c) Liaise with the survey provider to set up the online **OSS** for the Whole Building or Tenancy.

d) Allow at least two weeks between contacting the survey provider and commencing the survey on-site.

e) Determine the number of responses required based on the number of **occupants** in the building or tenancy using the NABERS IE Survey Response Rate Calculator in the **NABERS rating input form**.

f) Distribute the survey by email to all staff in the—

1) building (Whole Building rating); or

2) tenancy (Tenancy rating).

Visitors and temporary staff (staff with a contract of less than 3 months) must not be included in the survey.

Note 1: **Occupants** will complete the survey online at their convenience during the period of time the survey is open. Participation in the survey is voluntary, anonymous and respondents may opt out at any time.

g) Monitor the progress of completed surveys to assess if the minimum number of staff have correctly completed and returned their surveys. Reminders to the **occupants** may be required if the projections indicate that the target is not being met.

h) Allow the survey to be available to staff for up to four weeks from the date the survey is circulated. Close the survey and collate the results for input into the assessment spreadsheet. Survey responses must not be accepted after the close of the survey period.

i) Confirm that a valid return rate of the **OSS** has been achieved at the end of the survey period. A new survey must be conducted if the minimum number of responses has not been met. The new survey must be completed prior to the site visit for data collection.

Note 2: Where possible, the survey distribution should be done by the customer (i.e. group manager) so the recipients see that management is interested in the working environment. This will encourage a better response rate.

It is good practice to have the customer provide some advance notice of the survey to the relevant **occupants** through email and staff meetings. This allows any concerns from the **occupants** to be addressed and encourages a greater participation rate.

To help encourage participation, the customer could consider employing a prize incentive to encourage survey participation. The survey provider can assist with this.

5.2.4 Survey provider information

The following independent survey providers are approved by NABERS to conduct an **Occupant Satisfaction Survey**:

a) Building Occupants Survey System Australia (BOSSA)

   1) The University of Sydney (Australia)
   https://www.sydney.edu.au/architecture/our-research/research-labs-and-facilities/indoor-environmental-quality-lab

   2) University of Technology, Sydney (Australia)
   https://uts.edu.au/engauge-bossa

b) Building Use Studies (BUS) – ARUP (United Kingdom)
https://busmethodology.org.uk

c) Center for the Built Environment (CBE) – The University of California, Berkeley (United States)
https://cbe.berkeley.edu/resources/occupant-survey

d) Sustainable and Healthy Environments (SHE) – The University of Melbourne, Melbourne (Australia)
https://msd.unimelb.edu.au/she/research/she-post-occupancy-evaluation-survey

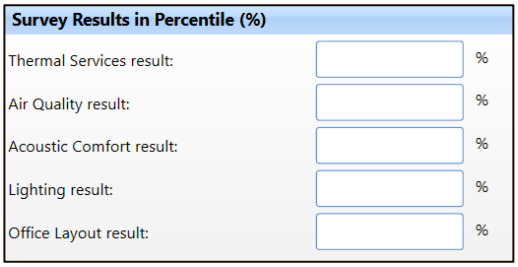
Note: The results are treated as equal between the surveys as all survey providers are available to international users.

5.2.5 Entry into NABERS rating input form

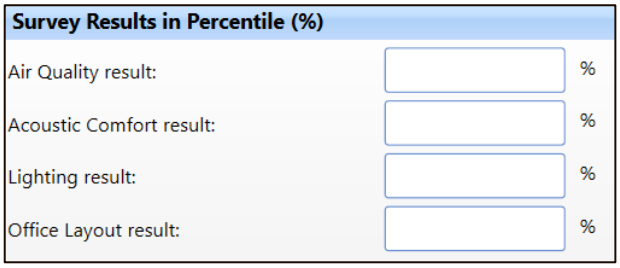
The results from the **Occupant Satisfaction Survey** must be entered in the corresponding Indoor Environment **parameter** fields in the **NABERS rating input form** under 'Occupant Satisfaction Survey' > 'Survey Results in Percentile (%)' as per Figure 5.2.5 below.

Figure 5.2.5: Indoor Environment parameter fields in NABERS rating input form

(a) Whole Building Rating



(b) Tenancy Rating



The results from the **OSS** are combined with the physical results to give an overall score for each measure. These combined scores give an overall star rating for the building.

6 Site visit

6.1 General

NABERS IE Accredited **Assessors** must ensure all **samples** are taken according to the **rating scope** undertaken.

This chapter provides requirements for the site visit in relation to—

a) general timings and locations;

b) the use of sub-contractors; and

c) the sampling equipment required.

Note: The site visit is a key part of a NABERS IE assessment where a majority of the data used for the rating is collected. It is essential to plan out the sampling strategy prior to the site visit.

Timings and location of sampling equipment may vary between **rating scopes**.

For documentation requirements, see Section 12.4.

6.2 Process overview

The process for conducting a site visit is as per Table 6.2.

Table 6.2: Process overview

	Step	Reference
1	Plan the site assessment by collecting required documentation such as the **office floor area** and plan a sampling strategy.	4.3
2	Conduct a site inspection at the appropriate time, taking into account the following: a) The timing of the **OSS** (for Whole Building and Tenancy ratings). b) The normal operation of the HVAC system. c) The requirements for spot **samples**.	6.3 6.4
3	Conduct measurements as required for each **component**, ensuring the equipment used meets the requirements and is sited correctly at each sampling location.	6.5

6.3 Site inspection

6.3.1 General

Assessors must inspect the premises in order to:

a) Become familiar with the layout of the floors and assess which floors are acceptable for conducting measurements (e.g. confirming the number of occupied floors);).

b) Confirm that documentation provided for the office floor area and occupancy is accurate, complete and up-to-date;.

c) Verify that the measurement strategy developed from building and/or office plans are still valid (confirming two-thirds occupancy of sampling floors), marking up the plans to show final sampling locations;.

d) Verify the sampling locations are appropriate and refine the locations;.

e) Conduct on-site measurements at required times (e.g. morning and afternoon); and,.

f) Resolve any other issues that arise.

An **Assessor**'s inspection must include a physical check of all floors used for sampling to confirm the tenanted office space is at least two-thirds **occupied** at the time of assessment. The sampling locations must be marked on a floor plan.

For documentation requirements, see Section 12.4.1.

6.3.2 Use of another NABERS IE Accredited Assessor to undertake the site inspection

Only NABERS IE Accredited **Assessors** may undertake the site inspection for a NABERS IE rating. The **Assessor** may delegate this task to another Assessor, who is also accredited for NABERS IE if they cannot physically conduct the site inspection.

The **Assessor** submitting the rating is responsible for the accuracy of the data and must—

a) ensure that the inspection is conducted in accordance with the **Rules**; and

b) retain all the evidence required to prove their assumptions for auditing purposes.

6.3.3 Use of a non-Assessor to undertake site inspection

The **Assessor** may sub-contract some or all of the on-site measurements to a third-party organisation specialising in **IEQ** assessments. This is acceptable if the third-party conducting the measurements is—

a) A NABERS IE Accredited **Assessor**; or

b) A qualified indoor environment professional with any of the following certifications or qualifications:

1) Certified Air Quality Professional (CAQP) | CASANZ.

2) Council-Certified Indoor Environmentalist (CIE/C) | IAQA.

3) Certified Occupational Hygienist (COG) | AIOH.

4) Engineer listed in the National Engineering Register (NERG) | EA.

The **Assessor** submitting the rating is responsible for the accuracy of the data and must—

1) ensure that the inspection is conducted in accordance with the **Rules**; and
2) retain all the evidence required to prove their assumptions for auditing purposes.

6.4 Timing of the site inspection

6.4.1 Conducting measurements after an Occupant Satisfaction Survey

For Whole Building and Tenancy ratings, the quantitative site measurements must be conducted after completion of a valid **Occupant Satisfaction Survey**.

On-site measurements must be fully completed within four weeks from the completion of a valid **OSS**. The office layout and condition must not change between the completion of a valid **OSS** and the completion of the on-site measurements.

6.4.2 Operational requirements

Where there is a HVAC system in the building, this system must be operational for the full day of the assessment during normal operating hours and be operating as it normally would on that day.

The HVAC system must not—

a) be started earlier or later than any typical day during the season; or
b) have any manual overrides or special sequences used, such as night flushes or economy cycles which may 'clean out' the spaces.

The **Assessor** must find records of starting times and operating **parameters** to ensure that this is the case.

Measurements of **occupied** areas must be done with the HVAC system operating for at least one hour prior to the start of measurements.

For documentation requirements, see Section 12.4.1.

6.4.3 General timing criteria for spot measurements

All spot measurements collected must reflect the 'normal' working environment and be collected at times representative of the use of the space.

Sampling collection must not take place during unusual events or reduced occupancy. This is to ensure that ratings are reflective of the actual building performance. Periods during which sampling may not take place include the following:

a) Times of reduced occupancy, such as during school holidays, public holidays or planned maintenance works that close sections of buildings to **occupants**.
b) Times where external construction occurs adjacent to building air intakes.
c) Periods of contamination in cooling towers or systems (e.g. mould outbreak).
d) Within five working days of—
    1) chemical cleaning of the HVAC system;

2) extreme climatic events comprising—

   i) storms adequate to cause flooding in the vicinity of the building; or

   ii) large bushfires; or

3) following water damage (from within or externally to the building) prior to full drying and remediation.

Measurements must be assessed during a standard working day, which is 9.00 am to 5.00 pm Monday to Friday, unless otherwise specified.

Parameters that are influenced by **occupants** may only be assessed during normal occupancy hours of 9.00 am to 12.30 pm and 2.00 pm to 5.00 pm Monday to Friday (e.g. carbon dioxide).

Some measurements may be taken slightly outside working hours (e.g. Base Building acoustic measurements and **carbon monoxide**) and are specifically noted in the relevant component. A summary of sampling times required by these **Rules** is outlined in Appendix C.

Buildings which operate outside of typical working hours must still be measured within the nominal working hours to maintain a fair comparison to other buildings.

All site measurements should be able to be taken within one day. However, this may not be possible for larger buildings or if there are problems on-site on the day of the visit. It is permissible to use more than one day for the collection of data if the time between visits is not more than five working days, unless approval for an extension is granted by the **National Administrator**.

6.4.4 Standard for acceptable measurements

Missing data for any location must not be estimated or approximated. The **sample** may be re-measured within five working days, ideally on the same day as the rest of the measurements were taken.

If missing data is noticed more than five working days after all the **samples** have been taken, the **Assessor** must return to site and re-measure all the data.

6.5 Real-time monitoring and air sampling equipment

6.5.1 General

All measurements conducted for an accredited NABERS IE rating must be conducted using **real-time** monitoring equipment which meets the minimum equipment specifications. Specifications for equipment are listed in each relevant section and a complete list of the equipment specifications are listed in Appendix F.

All **real-time** monitoring equipment must be—

a) **equilibrated** in the tenanted office building for at least thirty minutes prior to any measurements being undertaken; and

b) further **equilibrated** and stabilised at each **sample** location for at least a few minutes prior to collecting readings.

Note: The equipment may be owned by the **Assessor** or sub-contractor. It is anticipated that renting equipment will be the most common approach using companies that offer rental of appropriate equipment.

6.5.2 Location of measurement equipment at sampling locations

The location of the primary workstation layout and work activities must be clearly identified. The measurement equipment must be sited according to the following, unless otherwise specified in these **Rules**:

a) Located with minimal disturbance to work activities within the selected area.

b) Located away from **occupant** access to and from the office area under normal or emergency situations.

c) At least one metre from corners or windows and at least one metre from walls, partitions, and other vertical surfaces (e.g. filing cabinets).

d) At least one metre from localised sources such as photocopiers, printers, or flowering plants as they can emit pollen, etc.

e) At a height above the ground in the range of 0.6 m to 1.1 m (approximately desk level).

The measurement equipment must *not* be located according to the following guidelines, unless otherwise specified in these **Rules**:

1) Within 3 m of an elevator and within 2 m of doors.

2) Directly in front of air supply diffusers, induction units, floor fans, or heaters, etc.

3) In hallways or corridors (if possible).

For **plant room** readings, the measurement equipment must not be more than 3 m from the air intake point either inside or outside the building. This requirement is dependent upon suitable access; but inside the building is preferable. If inside the building, the measurement equipment must be on the outside of (before) any filtration.

6.5.3 Standard for acceptable equipment

6.5.3.1 Technical specification

Instrumentation technical specification requirements are set out in Appendix F.

Instruments vary in their response times when **samples** are being collected. To address this issue, at each sampling location the equipment must be allowed to **equilibrate** and readings to stabilise before starting to record the data for the **sample**.

The **Assessor** must contact the **National Administrator** for technical advice or a specific **Ruling** on the piece of equipment if they are unable to determine whether the equipment meets the specified requirements or if they would like to request a piece of equipment not listed to be considered for inclusion.

6.5.3.2 Calibration and certification

All measuring instruments and devices must be calibrated to ISO 17025 requirements. A copy of a current certificate of **calibration** is to be retained by the **Assessor** unless otherwise specified in these **Rules**.

Note: For any equipment owned and maintained by the **Assessor**, a copy of the certificate of **accuracy** and/or **calibration** from the manufacturer should be supplied. Equipment should be maintained and calibrated in accordance with the manufacturer's specifications.

6.5.3.3 Provision of rental equipment for undertaking ratings

Where equipment is rented, the **Assessor** must obtain **calibration** certificates and documented evidence from the rental organisation that the equipment has been properly checked prior to shipping. These documents must be valid at the time of sampling and retained by the **Assessor**.

Note: **Assessors** are recommended to rent equipment from organisations that are able to provide documented evidence of maintaining the equipment to the standards specified. In the event of an audit, the **Assessor** is responsible and accountable for the **accuracy** of the data.

6.5.3.4 Standard for acceptable equipment

Equipment that does not meet the requirements of these **Rules**, appears damaged or in poor condition must not be used for measurements.

7 Thermal services

7.1 General

This chapter provides requirements for the assessment of thermal services in relation to—

a) assessing both naturally and mechanically ventilated buildings;

b) conducting on-site measurements; and

c) collecting annual temperature data.

This chapter applies to the following **rating scopes**:

1) Base Building.

2) Whole Building.

Note 1: Thermal comfort is directly linked to people's productivity and is very important for their contentment and wellbeing. The assessment of thermal services is dependent on whether the building is naturally or mechanically ventilated.

Note 2: The standard *ANSI/ASHRAE 55-2020: Thermal Environmental Conditions for Human Occupancy* provides a well-accepted approach for determining 'comfort' ranges for temperature based on **air speed**, **relative humidity** and **mean radiant temperature**.

For documentation requirements, see Section 12.5.

7.2 Process overview

7.2.1 General

The process for the assessment of thermal services is as per Table 7.2.1.

Table 7.2.1: Process overview

	Step	Reference
1	Determine if the building is mechanically or naturally ventilated.	7.3
2	Conduct on-site measurements at required sampling locations and record all data.	7.4.2 7.5.2
3	Collect annual monitoring temperature records at required sampling locations and calculate percentage of locations which meet requirements. Validate **accuracy** of BMS sensors as required.	7.4.3 7.5.3

7.2.2 Data required

The data required is dependent on the **rating scope**. See Table 7.2.2.

Table 7.2.2: Data required

Component	Whole Building	Base Building	Tenancy
Occupant Satisfaction Survey (thermal comfort)	☑		
Spot measurements (**space temperature**, **mean radiant temperature**, **relative humidity** and **air speed**)	☑	☑	
Annual monitoring (**space temperature**)	☑	☑	
Outdoor **air temperature** (naturally ventilated only)	☑	☑	

7.3 Natural or mechanical ventilation

The **Assessor** must determine if a building is naturally or mechanically ventilated. Alternatively, a building may be considered 'mixed-mode', meaning that it is naturally ventilated sometimes and mechanically ventilated at other times.

All buildings are considered to be mechanically ventilated by default, unless the **Assessor** confirms that it is naturally ventilated.

Note: NABERS recognises that many buildings have air-conditioning systems that only recirculate air; fresh air is supplied directly without conditioning. These buildings are considered mechanically ventilated for NABERS IE purposes, even though it is understood that windows/louvers are required to be opened to ventilate the building. In practice it is recognised that windows/louvres are not opened when the air-conditioning is operating, meaning that thermal comfort is balanced against the amount of fresh air. By assessing these buildings as mechanically ventilated, potential problems are uncovered.

7.4 Thermal assessment for mechanically ventilated buildings

7.4.1 General

The thermal services quantitative measurements for mechanically ventilated buildings include—

a) spot measurements; and

b) annual temperature data.

For further information on quantitative and qualitative measurements and how they are approached in a NABERS IE rating, see Appendix B.

For documentation requirements, see Section 12.5.1.

7.4.2 Spot measurements for mechanically ventilated buildings

Spot measurements must be recorded for each variable listed in Table 7.4.2 below, at each sampling location.

The spot measurements required at each sampling location are assessed against the Predicted Mean Vote (PMV) as per ANSI/ASHRAE 55.

Table 7.4.2: Requirements for spot measurements in mechanically ventilated buildings

Variable	Sampling frequency	Sampling requirement	Equipment required
Space temperature (°C)	2 **samples**: 1 morning; 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location. 10 s logging intervals.	Multipoint logging instrument which meets the following minimum requirements: Range: at least 5 °C to 50 °C **Resolution**: at most 0.1 °C **Accuracy**: within ± 0.6°C across 10 °C to 45 °C
Mean radiant temperature (°C)	2 **samples**: 1 morning; 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location. 10 s logging intervals.	Multipoint logging instrument which meets the following minimum requirements: Range: at least 5 °C to 50 °C **Resolution**: at most 0.1 °C **Accuracy**: within ± 0.6°C across 10 °C to 45 °C
Relative humidity (%)	2 **samples**: 1 morning; 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location. 10 s logging intervals.	Multipoint logging instrument which meets the following minimum requirements: Range: at least 5 % to 95 % **Resolution**: at most 1 % **Accuracy**: within ± 5 % across 20 % to 95 %

Air speed (m/s)	2 **samples**: 1 morning; 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location. 10 s logging intervals.	Anemometer which meets the following minimum requirements: Range: at least 0.01 m/s to 2 m/s **Resolution**: at most 0.01 m/s **Accuracy**: within ± 3 % over 0 m/s to 2 m/s

7.4.3 Annual temperature data requirements for mechanically ventilated buildings

7.4.3.1 General

The **Assessor** must obtain hourly records of **space temperature** during normal working hours (9 am to 5 pm, Monday to Friday) from a BMS or equivalent system for the entire **rating period**.

Note 1: The inclusion of the annual temperature data **component** is optional, however its omission from the rating will result in this **component** receiving a score of zero.

For further information on how annual temperature data is scored, see Appendix G.

Note 2: The **National Administrator** has created an *Annual Monitoring Data Collection Spreadsheet* for **Assessors** to determine the percentage of the year that the monitoring locations achieve the ANSI/ASHRAE 55 standard. This spreadsheet may be found on the NABERS Members website under 'Process Documents'. **Assessors** may also use their own method to make this determination, however any spreadsheets used must be submitted to the **National Administrator** for auditing purposes.

7.4.3.2 Record requirements for annual monitoring of temperature

The records obtained must be from the floors selected for spot measurements and be as close to the sampling locations as possible. Records of annual data must be collected in the following priority order:

a) From the floors selected for spot measurements at the sampling locations.

b) From the floors selected for spot measurements at other locations that are representative of the floor.

c) From alternate floors which have a similar orientation, fit-out and **occupant** density.

Assessors must provide an explanation in the **NABERS rating input form** when a lower priority is used.

Records must adhere to the specific sampling and verification requirements listed below. The records must be sourced from a BMS or another monitoring program where the sensors meet the following minimum requirements:

1) Range: at least 10 °C to 40 °C.

2) **Resolution**: at most 0.1 °C.

3) **Accuracy**: within ± 0.5 °C.

7.4.3.3 Component specific sampling techniques

In addition to the sampling requirements described in Section 4.7, annual temperature records must also consider the following requirements:

a) Continuous logs of temperature that have occurred over the previous 12-months sourced from a BMS or another monitoring program.

b) Sensors used for annual monitoring must follow the criteria listed in Section 4.7 as closely as possible.

Note: Sensors are typically mounted high on the wall, making the requirement to measure at a height of 0.6 m to 1.1 m and a distance of 1 m from the wall or window impractical. For this reason, BMS sensors do not need to meet these specific requirements. They should, however, be distributed throughout the floor in accordance with Section 4.7. The location of sensors must be marked on the floor plans and records be retained for auditing purposes.

7.4.3.4 Proportional inclusion of annual temperature data

Annual temperature data may be proportionally included with the following considerations:

a) Verified data which has been obtained for at least 90 % of the **rating period** will be considered to be **acceptable data** to account for the whole **rating period**. Data must not be selectively omitted, even if the threshold of 90 % can still be complied with.

b) Where less than 90 % of the annual data is available, NABERS will allow the inclusion of the available annual data but will limit the score achievable for this **component** to the relative proportion of data available for the **rating period**.

For guidance on how this inclusion is used in the **NABERS rating input form**, please contact the **National Administrator**.

7.4.3.5 Verification requirements for sensors

Sensors used to obtain annual monitoring data must be validated either independently or by the **Assessor**.

Independent verification may be in the form of a signed statement from a reputable professional in an appropriate field which verifies the calibration of the sensors and the **accuracy** of data collation.

The **Assessor** may validate the sensors by checking a random **sample** of the sensors from which data was used against a NATA-calibrated thermometer.

For both situations, the following verifications must be undertaken:

a) At least 25 % of all indoor sensors used for the rating must be checked once during the **rating period**. For each sensor that is found to be outside the acceptable range, another three sensors must be checked.

b) The reading from the BMS sensor must be within ± 0.5 °C of the NATA-calibrated instrument. The instrument must be left for at least five minutes for equilibration before the test reading is taken.

The data from a sensor found to be outside the acceptable range must either be removed from the rating or in some cases may have a differential applied to the readings so it reads the same value as the calibrated instrument. If a sensor does not the meet verification requirements, the **Assessor** must contact the **National Administrator** for further guidance, with responses to the following:

1) Can another BMS sensor be used?
2) Can two hand-held measurements (readings taken at least few hours apart) be used, if no other BMS sensors are available, to determine whether a temperature offset is due a BMS calibration issue or a faulty BMS sensor?

7.5 Thermal assessment for naturally ventilated buildings

7.5.1 General

The thermal services quantitative measurements for naturally ventilated buildings include—

a) spot measurements; and
b) annual temperature data.

For documentation requirements, see Section 12.5.2.

7.5.2 Spot measurements in naturally ventilated buildings

7.5.2.1 General

The spot measurements at each sampling location are assessed against the 'Adaptive model' as prescribed by ANSI/ASHRAE 55. Average measurements must be recorded for each variable listed in Table 7.5.2.1 below, at each sampling location in accordance with—

a) Section 4.7;
b) Section 6.5.2; and
c) the requirements listed in Table 7.5.2.1.

Table 7.5.2.1: Requirements for spot measurements in naturally ventilated buildings

Variable	Sampling frequency	Sampling requirement	Equipment required
Space temperature (°C)	2 **samples**: 1 morning; 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location.	Multipoint logging instrument which meets the following minimum requirements: Range: at least 5 °C to 50 °C **Resolution**: at most 0.1 °C **Accuracy**: within ± 0.6 °C across 10 °C to 45 °C

Mean radiant temperature (°C)	2 **samples**: 1 morning; 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location.	Multipoint logging instrument which meets the following minimum requirements: Range: at least 5 °C to 50 °C **Resolution**: at most 0.1 °C **Accuracy**: within ± 0.6 °C across 10 °C to 45 °C
Air speed (m/s)	2 **samples**: 1 morning; 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location.	Anemometer which meets the following minimum requirements: Range: at least 0.01 m/s to 2 m/s **Resolution**: at most 0.01 m/s **Accuracy**: within ± 3 % over 0 m/s to 2 m/s
Outdoor **air temperature** (°C)	2 **samples**: 1 morning; 1 afternoon	One average reading near entrance to the building or from data obtained from BOM weather station (see Section 7.5.2.2).	Multipoint logging instrument which meets the following minimum requirements: Range: at least 5 °C to 50 °C **Resolution**: at most 0.1 °C **Accuracy**: within ± 0.6°C across 10 °C to 45 °C

7.5.2.2 Specific sampling requirements for outdoor air temperature

In addition to the sampling requirements described above, outdoor air measurements must be taken 1 m to 2 m above the ground near the main pedestrian entrance to the building.

Alternatively, Bureau of Meteorology (BOM) data from the nearest weather station to the building may be used if the BOM weather station—

a) is not more than 20 km away; and

b) has similar topography.

BOM-supplied data must be an average of the mean daily outdoor **air temperatures** of the seven sequential days prior to the date spot measurements are taken. The daily average must be determined from either—

1) the average outdoor temperature observations for the 24-hour day; or

2) the average for the minimum and maximum temperatures for the given day.

7.5.3 Annual temperature data requirements for naturally ventilated buildings

The requirements for annual monitoring for naturally ventilated buildings are the same as those for mechanically ventilated buildings in Section 7.4.3.2. The following three exceptions to the requirements in Section 7.4.3.2 apply:

a) In the place of hourly indoor temperature data, the **Assessor** must obtain records of the daily average **space temperature** (indoors) during normal working hours from a BMS or equivalent system.

b) The **Assessor** must obtain records of the daily average outdoor **air temperature** measurements. Records should be the daily average data from the nearest weather station, so long as the BOM weather station—

   1) is not more than 20 km away; and

   2) has similar topography.

c) The acceptability limits are the 80 % acceptability limits for the 'Adaptive model' as described by ANSI/ASHRAE 55. The proportion of **samples** at each location which meet these requirements determines the scores for the annual monitoring **component** of the rating.

Buildings utilising the naturally ventilated model must use the *Naturally Ventilated Buildings Worksheet* to submit the rating. This spreadsheet can be found on the NABERS Members website under 'Process Documents'.

8 Indoor air quality

8.1 General

This chapter provides requirements for the assessment of **indoor air quality** in relation to—

a) assessing ventilation effectiveness; and

b) measuring the following indoor air quality components:

1) **Particulate matter (PM_{10})**.

2) **Formaldehyde**.

3) **Total Volatile Organic Compounds (TVOCs)**.

4) **Carbon Monoxide (CO)**.

This chapter applies to the following **rating scopes**:

1) Base Building.

2) Whole Building.

3) Tenancy.

For documentation requirements, see Section 12.6.

Note: Indoor air quality is a major concern to building managers, tenants, and employees because it can impact the health, comfort, wellbeing, and productivity of building **occupants**. Research shows a strong relationship between good **indoor air quality** and employees' performance at work.

Indoor air quality is not a simple, easily-defined concept. It is a constantly changing interaction of complex factors that affect the types, levels and importance of pollutants in the indoor environment. These factors include—

a) sources of pollutants;

b) design, maintenance and operation of building ventilation systems; and

c) **occupant** perceptions and susceptibilities.

8.2 Data overview for indoor air quality

The data required is as per Table 8.2.

Table 8.2: Overview for each component and rating scope

Component	Whole Building	Base Building	Tenancy
Occupant Satisfaction Survey (air quality)	☑	☑	☑
Ventilation effectiveness	☑	☑	☑
Particulate matter	☑		☑
Formaldehyde	☑		☑
Total Volatile Organic Compounds	☑		☑
Carbon monoxide	☑	☑	

For documentation requirements, see Section 12.6.1.

8.3 Ventilation effectiveness

8.3.1 General

Carbon dioxide (CO_2) levels must be measured for each sampling location in accordance with Table 8.3.1.

Note: Ventilation effectiveness measures the air exchange for the building to identify situations of 'stale air'. CO_2 levels can vary significantly in the outdoor air. Therefore, CO_2 is measured in the office space and compared to the CO_2 in the outdoor air being supplied to the building.

CO_2 levels are assessed for all rating types, as it can be an indication of either too many people in the building or of insufficient outside air being provided. The internal CO_2 levels are measured in different locations for Base Building, Whole Building and Tenancy ratings, including in the **occupied** zone and near the discharge from supply air diffusers in order to align with the purpose of the rating.

Table 8.3.1: Measurement requirements for ventilation effectiveness

Rating scope	Sampling frequency	Required CO_2 measurements	Equipment required
Base Building	2 **samples**: 1 morning; 1 afternoon	One average reading of at least five (5) minutes at each sampling location near a supply air diffuser to measure the impact from the HVAC system. One average reading of at least five (5) minutes at the outdoor air intake in each **plant room** assessed.	Multipoint logging instrument which meets the following minimum requirements: Range: at least 20 ppm to 3,000 ppm **Resolution**: at most 1 ppm **Accuracy**: within 50 ppm
Whole Building and Tenancy	2 **samples**: 1 morning; 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location taken in the **occupied** space to measure the impact of tenant activities. One average reading of at least five (5) minutes at the outdoor air intake in each **plant room**.	

8.3.2 Specific sampling requirements for CO_2

The following additional sampling requirements for CO_2 measurements must be followed:

a) Base Building ratings:

   1) CO_2 must be measured near a supply diffuser to receive the direct air flow measurement (e.g. close to 1 m vertically and 1 m horizontally).

   2) CO_2 must be measured within 3 m from the outdoor intake in the **plant room**(s).

b) Whole Building and Tenancy ratings:

   1) CO_2 must be measured at a height of 0.6 m to 1.1 m above the floor (approximately at desk level) in the office space.

   2) CO_2 must be measured within 3 m from the outdoor intake of the relevant air handling unit to the tenanted floor in the **plant room**(s).

   3) CO_2 measurements must be taken when the space is **occupied**; therefore measurements must not be taken between 12.30 pm and 1:30 pm.

Note: For Base Building ratings, the CO_2 recorded should reflect as closely as possible the levels delivered by the HVAC system without any potential contribution from **occupant** activities.

For Whole Building and Tenancy Ratings, CO_2 is assessed as a total effect of the air supplied and **occupant** activities.

8.4 Particulate matter (PM_{10})

8.4.1 General

Particulate matter (PM_{10}) levels must be measured for each sampling location in accordance with Table 8.4.1.

Note: Particulate matter, or **PM_{10}**, refers to airborne particles less than 10 micrometres in diameter, which can enter the lungs. Particles of this size range are generated from a range of sources from HVAC such as mould, traffic and printers. Assessments for **PM_{10}** are carried out where tenants are actively working.

PM_{10} levels are assessed for all rating scopes as the amount of **particulate matter** is influenced by several factors, including:

a) the cleanliness of the tenant;

b) the equipment installed;

c) the management of water damage; and

d) the filtering ability of the ventilation systems.

Table 8.4.1: Measurement requirements for particulate matter (PM_{10})

Rating scope	Sampling frequency	Required PM_{10} measurements	Equipment required
Base Building	2 **samples**: 1 morning; 1 afternoon	One average reading of at least five (5) minutes at each sampling location near a supply air diffuser to measure the impact from the HVAC system.	Multipoint logging instrument which meets the following minimum requirements: Range: at least 0.001 mg/m^3 to 20 mg/m^3 **Resolution**: at most 0.001 mg/m^3 **Accuracy**: within ± 8 % across 0.001 mg/m^3 to 0.150 mg/m^3
Whole Building and Tenancy	2 **samples**: 1 morning; 1 afternoon	One average reading of at least five (5) minutes at each sampling location in the **occupied** space to measure the impact of tenant activities.	

8.4.2 Specific sampling requirements for PM_{10}

The following additional sampling requirements for **PM_{10}** measurements must be followed:

a) Base Building ratings:

1) **PM_{10}** measurement points must be taken near a supply diffuser (e.g. close to 1 m vertically and 1 m horizontally) to receive the direct air flow measurement.

b) Whole Building and Tenancy ratings:

1) **PM_{10}** must be measured at a height of 0.6 m to 1.1 m above the floor.

2) **PM_{10}** measurements must be taken when the space is occupied; therefore measurements must not be taken between 12.30 pm and 1:30 pm.

Note: For the Base Building rating, the **PM_{10}** recorded should reflect levels delivered by the HVAC system without any potential contribution from **occupant** activities.

For Whole Building and Tenancy ratings, **PM_{10}** is assessed as a total effect of air supply and **occupant** activities.

8.5 Formaldehyde

8.5.1 General

Formaldehyde levels must be measured for each sampling location with either—

a) **real-time** equipment, in accordance with Table 8.5.1 and Section 8.5.2; or

b) laboratory analytical methods, in accordance with Section 8.5.3.

Note 1: **Formaldehyde** is measured in the morning to capture when concentrations have built up over night by using either hand-held equipment or a sampling cartridge which is later analysed at a laboratory.

Real time measurements are taken over a shorter period of time and results are provided at the time of assessment. The laboratory analytical methodology follows *ISO16000-3:2001 Determination of formaldehyde and other carbonyls – Active sampling method* where a sampler is left in the space to collect the **sample** over several hours and is sent to a lab for results and can provide more detailed results.

Formaldehyde levels are only assessed for Whole Building and Tenancy ratings as **formaldehyde** sources are chiefly associated with the office fit out, for example emitted from flooring, furnishings and adhesives.

Table 8.5.1: Measurement requirements for formaldehyde using real-time equipment

Rating scope	Sampling frequency	Required formaldehyde measurements	Equipment required
Whole Building and Tenancy	1 **sample**: 1 morning	One average reading of at least five (5) minutes at each sampling location in the **occupied** space to measure the impact of tenant fit out.	Data logger instrument such as a photo-ionisation detector (PID) or an electrochemical sensor which meets the following minimum requirements: Range: at least 20 ppb to 2,000 ppb **Resolution**: at most 10 ppb

Note 2: Equipment reads in ppb will need to be converted to ppm for data entry.

8.5.2 Specific sampling requirements for formaldehyde using real-time equipment

The following additional sampling requirements for **formaldehyde** measurements using **real-time** equipment must be followed:

a) **Formaldehyde** measurements must be collected between 8.00 am and 12:30 pm.

8.5.3 Measurements of formaldehyde using laboratory analytical methods

Where **formaldehyde** is measured using laboratory analytical methods, a **sample** for each sampling floor must be collected as per the following requirements:

a) The **formaldehyde** concentration must be reported as ppm.

b) A low noise air sampling pump with a dinitrophenylhydrazine-coated silica gel cartridge (e.g. SKC 226-119) must be located on a stable surface with the inlet of the cartridge at a height of 0.6 m to 1.1 m from the floor.

> **Note 1:** Air should be sampled at a rate of 0.1 litres to 0.5 litres per minute over a four to six hour period during the day (between 9:30 am and 5 pm).

c) Analysis must involve high performance liquid chromatography with ultraviolet detection and have a detection limit or limit of reporting of <1 µg/sorbent tube section or better.

> **Note 2:** A NATA accredited laboratory with experience in analysing sorbent cartridges should be used to determine the formaldehyde concentration.

d) Where values provided by the NATA-accredited laboratory are reported in mg/m^3, the **Assessor** must convert values to ppm before entering results into the **NABERS rating input form** by using the following formula:

$$\frac{Formaldehyde\ value\ \left(\frac{mg}{m^3}\right) \times\ 24.45}{24.45} = Formaldehyde\ results\ (ppm)$$

8.6 Total Volatile Organic Compounds (TVOCs)

8.6.1 General

Total Volatile Organic Compounds (TVOC) levels must be measured for each sampling location with either—

a) **real-time** equipment, in accordance with Table 8.6.1 and Section 8.6.2; or

b) laboratory analytical methods, in accordance with Section 8.6.3.

> **Note 1:** **TVOCs** are measured in the morning to capture when concentrations have built up over night by using either hand-held equipment or a sampling cartridge which is later analysed at a laboratory.

Real time measurements are taken over a shorter period of time and results are provided at the time of assessment. The laboratory analytical methodology closely follows *ISO 16200-1:2000 – Workplace air quality sampling and analysis of volatile organic compounds by solvent desorption/gas chromatography, Part 1: Pumped sampling method* where a sampler is left in the space to collect the sample over several hours and is sent to a lab for results and can provide more detailed results.

TVOC levels are only measured for Whole Building and Tenancy ratings as **TVOCs** are released in an office space as a result of tenant activities and the equipment and materials selected for fit out.

Table 8.6.1: Measurement requirements for TVOCs using real-time equipment

Rating scope	Sampling frequency	Required TVOCs measurements	Equipment required
Whole Building and Tenancy	1 **sample**: 1 morning	One average reading of at least five (5) minutes at each sampling location in the **occupied** space to measure the impact of tenant activities.	Data logger instrument such as a photo-ionisation detector (PID) which meets the following minimum requirements: Calibration standard / lamp: Isobutylene / 9.5 eV lamp or 10.6 eV lamp Range: at least 10 ppb to 2,000 ppb **Resolution**: at most 1 ppb

Note 2: Equipment reads in ppb will need to be converted to ppm for data entry.

8.6.2 Specific sampling requirements for TVOCs using real-time equipment

The following additional sampling requirements for **TVOC** measurements using real-time equipment must be followed:

a) **TVOC** measurements must be collected between 8.00 am and 12:30 pm.

8.6.3 Measurements of TVOCs using laboratory analytical methods

Where **TVOCs** are measured using laboratory analytical methods, a **sample** for each sampling floor must be collected as per the following requirements:

a) **TVOC** concentration must be reported as ppm.

Note 1: The sampling methodology involves two sorbent tubes at each location, one each for polar and non-polar VOCs. The results are summed to obtain total VOC.

b) A charcoal and a XAD-7 sorbent cartridge must be placed at each location.

c) A low noise air sampler pump must be located on a stable surface with the inlet of the cartridge at a height of 0.6 m to 1.1 m above the floor. Individual air samplers must be prepared at each location for the separate collection of non-polar VOC (charcoal cartridge, e.g. SKC 226-01) and polar VOC (XAD-7, e.g. SKC 226-95).

> **Note 2:** Air should be sampled at a rate of 0.1 litres to 0.5 litres per minute over a four-to-six hour period during the day starting in the morning (between 9:00 am to 5:00 pm).

d) Analysis must involve gas chromatography with flame ionisation detection or gas chromatography with mass selective detection and have a detection limit or limit of reporting of <10 µg/sorbent tube section or better.

> **Note 3:** A NATA-accredited laboratory with experience in analysing sorbent cartridges should be used to determine the VOC concentration.

e) Non-polar VOC must be quantitated as a total by reference to toluene for all chemical species with a retention time between hexane and hexadecane inclusive. Polar VOC is quantitated as a total by reference to methanol or ethanol for all chemical species with a retention time between hexanol and hexadecanol.

f) Total VOC at a given location must be the sum of the non-polar VOC and polar VOC at the same location.

g) Where values provided by the NATA-accredited laboratory are reported in mg/m^3, the **Assessor** must convert values to ppm before entering results into **NABERS rating input form** by using Isobutylene as a calibration standard using the following formula:

$$\frac{TVOC\ value\ \left(\frac{mg}{m^3}\right) \times\ 24.45}{24.45} = TVOC\ results\ (ppm)$$

8.7 Carbon monoxide (CO)

8.7.1 General

Carbon monoxide (CO) levels must be measured in at least one **plant room** in accordance with Table 8.7.1.

> **Note: CO** is used as a measure of the cleanliness of the intake air and is only measured in the **plant room** at the outside air intake to the building. It is not so much a measure of the outdoor air itself but the location of the intake to ensure it is located away from potential pollution sources, such as chimneys, roadways or loading docks.
>
> **CO** levels are only measured for Base Building and Whole Building ratings as the tenant will typically have no impact on **carbon monoxide** levels.

Table 8.7.1: Measurement requirements for carbon monoxide (CO)

Rating scope	Sampling frequency	Required CO measurements	Equipment required
Base Building and Whole Building	2 **samples**: 1 morning; 1 afternoon	One average reading of at least five (5) minutes in the **plant rooms** assessed at the outside air intake to the building to measure the cleanliness of the intake air.	Multipoint logging instrument that records real-time CO levels which meets the following minimum requirements: Range: at least 0 ppm to 30 ppm **Resolution**: at most 0.1 ppm **Accuracy**: within ± 3 % over the range 0 ppm to 10 ppm

8.7.2 Specific requirements for CO measurements using real-time equipment

The following additional sampling requirements for **CO** measurements must be followed:

a) For each major HVAC system selected, the **carbon monoxide** level must be measured within 3 m of the outdoor intake of the corresponding air handling unit. Where there is no HVAC system in the building, the measurement must be taken outdoors in the vicinity of the air intake points.

b) Morning and afternoon **carbon monoxide** may be taken slightly outside of normal working hours, as early as 8.00 am and as late as 5.30 pm.

9 Acoustics

9.1 General

This chapter provides requirements for the assessment of acoustic comfort in relation to sampling requirements.

This chapter applies to the following **rating scopes**:

a) Base Building.

b) Whole Building.

c) Tenancy.

Note: Acoustic comfort plays an important role in **occupant** satisfaction, well-being and productivity because noise can significantly distract office **occupants**. The main sources of noise in an office are from ringing phones, noisy copy machines and office chatter, which can be exacerbated by the office layout, such as open plan workstations or low partition heights.

Acoustic comfort is measured for all **rating scopes**. Tenant furnishings and activities such as the materials chosen for office fit-out, the office layout and occupant behaviour in the tenancy influences sound levels. The Base Building controls variables such as the mechanical systems and facade insulation. Measurements for Base Building ratings may be taken from locations which more accurately reflect the contribution of the Base Building to noise in the space.

For documentation requirements, see Section 12.7.

9.2 Assessment of acoustics

9.2.1 Data required

The data required is as per Table 9.2.1.

Table 9.2.1: Data required

Component	Whole Building	Base Building	Tenancy
Occupant Satisfaction Survey (acoustics)	☑		☑
Ambient sound	☑	☑	☑

9.2.2 Measurement requirements

9.2.2.1 General

Acoustic levels must be measured for each sampling location in accordance with Table 9.2.2.1.

Table 9.2.2.1: Measurement requirements for acoustics

Rating scope	Sampling frequency	Required acoustic measurements	Equipment required
Base Building	1 **sample**: morning or afternoon	One average reading of at least two (2) minutes at each sampling location, excluding tenant noise.	A Level 1 or Level 2 sound meter, set to read on 'A' scale to record dbA, which meets the following minimum requirements: Range: at least 20 dB to 100 dB **Resolution**: at most 1 dB **Accuracy**: within ± 2 dB
Whole Building and Tenancy	2 **samples**: 1 morning; 1 afternoon	One average reading of at least two (2) minutes at each sampling location, excluding any non-standard spikes.	A level 1 or level 2 sound meter, set to read on "A" scale to record dbA, which meets the following minimum requirements: Range: at least 20 dB to 100 dB **Resolution**: at most 1 dB **Accuracy**: within ± 2 dB

9.2.2.2 Specific sampling requirements for Base Building ratings

For Base Building ratings, the following additional sampling requirements must be followed:

a) The measurements must capture the sound level in the space under normal building working conditions, excluding any tenant noise.

> **Note 1:** While the number of locations and number of floors must be determined in accordance with Section 4.7, the floors sampled are not required to be the same as those used for other measurements (e.g. thermal services or air quality) to accommodate for the need to assess noise excluding contributions from tenant activities.

b) The party conducting the measurements must ensure that services provided by the Base Building (e.g. HVAC system) are operational while sound measurements are being taken.

> **Note 2:** It is expected that the effect of the building services and external noise will be relatively consistent during the day.

Measurements may be taken at any time in a space which meets all of the following conditions:

1) The space is an unoccupied space.
2) The space is adjacent to the building facade.
3) Normal HVAC services are provided to the space.

Where there is no vacant space which meets the above requirements, measurements on tenanted floors may be conducted.

Note 3: These measurements should be done in the morning or afternoon while the HVAC system is operating but with less than 10 % of **occupants** present on the tenanted floor (e.g. from 8.00 am to 9.00 am and from 5.00 pm to 6.00 pm). These measurements can be conducted outside of normal working hours to allow for an accurate assessment of the HVAC noise without the impact from tenants, so long as the HVAC system is operating normally.

If the **Assessor** or their appointed audit sub-contractor is unsure about the tenant noise exclusion method for a NABERS IE Base Building rating, they should contact the **National Administrator** for clarification.

9.2.2.3 Specific sampling requirements for Whole Building and Tenancy ratings

For Whole Building and Tenancy ratings, the following additional sampling requirements must be followed:

a) Measurements must be taken when the space is **occupied**; therefore measurements should not be taken between 12:30 pm and 1:30 pm.
b) The measurements must capture the sound level in the **occupied** space under normal working conditions measured in the “A” scale or dBA.

Note: Care needs to be taken so that intermittent non-standard spikes do not interfere with the readings during the measurement period. An example of a spike that could lead to a re-measurement would be a loud group of people joking and laughing, someone shouting for attention, sirens either internal or external, or something being dropped or broken.

The following is an example of what may be considered to be a normal part of the work environment and should be included in the final readings:

a) Use of office equipment such as printers and photocopiers.
b) Person-to-person or phone conversations held at normal speech levels.
c) Typical street or external noises such as trains or cars going past.
d) Doors opening and closing.

For documentation requirements, see Section 12.7.1.

10 Lighting

10.1 General

This chapter provides requirements for the assessment of lighting in relation to measuring **horizontal illuminance**.

This chapter applies to the following **rating scopes**:

a) Whole Building.

b) Tenancy.

Note: Lighting that suits the work being performed is essential to reduce energy wastage and ensure occupant wellbeing. Quality office lighting is necessary, as studies have shown that light and glare can impact people physically and physiologically, affecting both productivity and general wellbeing.

The assessment of lighting is determined through the **Occupant Satisfaction Survey** and on-site measurements for Whole Building and Tenancy ratings. The assessment of lighting is not required for Base Building ratings, as the Base Building typically has very little, if any, influence on light levels.

For documentation requirements, see Section 12.8.

10.2 Assessment of lighting

10.2.1 Data required

The data required is as per Table 10.2.1.

Table 10.2.1: Data required

Component	Whole Building	Base Building	Tenancy
Occupant Satisfaction Survey (lighting)	☑		☑
Horizontal illuminance	☑		☑

10.2.2 Measurement requirements

Horizontal illuminance must be measured for each sampling location in accordance with Table 10.2.2.

Table 10.2.2: Measurement requirements for lighting

Rating scope	Sampling frequency	Required lighting measurements	Equipment required
Whole Building and Tenancy	6 **samples**: 3 morning; 3 afternoon	Three readings adjacent to each sampling location in the **occupied** space reading ambient conditions in the **occupant** workspace.	Measurements should be taken using a portable light meter which meets the following minimum requirements: Range: at least 20 lux to 20,000 lux **Resolution**: at most 10 lux **Accuracy**: within ± 5 %

10.2.3 Specific sampling requirements for lighting

The following additional sampling requirements for lighting measurements must be followed:

a) Three light readings must be taken within 5 m to 10 m for each sampling location at different workstations or locations based on varying light levels and proximity to windows.

> **Note 1:** This requirement exists because lighting measurements are relatively easy and quick to take, and lighting levels can change dramatically from one area of an office to another (depending on partition layout, proximity to windows and lighting grids).

b) The locations selected for the three readings must—

1) be taken at the workstation in the normal working area. This would typically be at a computer;

2) consider the diverse orientations and locations, as far as is reasonable; and

> **Example:** One reading/area/sampling location/measurement faces the window, one measurement with the back towards the windows and one with a partition between the worker and window.

3) include any obviously bright or dark area that complies with the sampling location (e.g. not in an enclosed office or kitchen).

c) Lighting conditions must not be altered for the readings.

> **Note 2:** For example, blinds are to be left as found and cannot be opened or closed when taking the measurements. The workstation where the readings are taken should be **occupied** or should have been **occupied** within the past hour for this reason.

For documentation requirements, see Section 12.8.1.

11 Office layout

11.1 General

This chapter provides requirements for the assessment of office layout in relation to perceived level of comfort.

This chapter applies to the following **rating scopes**:

a) Whole Building.

b) Tenancy.

Note: Office layout can significantly impact staff productivity. Layout attributes which influence perceived level of comfort include the spatial arrangements of walls, partitions, furniture and equipment in relation to fixed elements like windows or heating, ventilation and air conditioning outlets. Because there are so many variables and differing influences and it depends so much on the tasks required of the occupant, there are no physical readings. This measurement of this parameter relies solely on the **Occupant Satisfaction Survey**.

For documentation requirements, see Section 12.9.

11.2 Assessment of the office layout

11.2.1 Data required

The data required is as per Table 11.2.1

Table 11.2.1: Data required

Component	Whole Building	Base Building	Tenancy
Occupant Satisfaction Survey (office layout)	☑		☑

11.2.2 Measurement requirements

The data used is based on the results from the relevant section of the **Occupant Satisfaction Survey** as office layout is difficult to measure quantitatively.

For documentation requirements, see Section 12.9.1.

12 Documentation required for accredited ratings

12.1 General

The **Assessor** must keep all records on which an assessment is based, including any specific guidance or approvals given by the **National Administrator**. 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.

Information may be contained in many different formats. The purpose of the documentation is to provide an acceptable, credible source of the required information. In some instances, specific document types may be unnecessary for an individual rating. However, under different rating circumstances, the specific document types may carry multiple items of information required for the rating. The qualifying factor is not the type of document but that the documentation contains the required information in an acceptable format.

The information in Sections 12.2 to 12.9 is required for a rating. It is organised based on the divisions of previous chapters, see Chapters 4 to 11. All the required information should be obtained from the building owner/manager before a 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**.

Note: NABERS intends in the future to require raw data to be retained for Level 2 audits. **Assessors** will be provided adequate time to conform to these upcoming requirements.

12.2 Documentation required for Chapter 4: Sampling floors and locations

Topic	Requirements	Documentation
12.2.1 Office area and number of floors	Section 4.3 Section 4.4	*Required information* The **Assessor** must retain evidence of the number of **occupied** floors to validate the data for the **office floor area** used. *Documentation examples* Documentation that can be used as evidence includes the following: a) A current NABERS Energy Rating. b) Floor plans. c) Leases. d) Building area schedules.
12.2.2 Sampling requirements	Section 4.6 Section 4.7 Section 4.8	*Required information* The **Assessor** must retain evidence of the sampling locations used and clearly explain any deviations from the **sample collection plan**, including why originally proposed locations were not suitable. The **Assessor** must retain evidence of how outside air is provided to the building. *Documentation examples* Documentation that can be used as evidence includes the following: a) Written confirmation from building/facility manager of **occupied** and tenanted floors. b) A **sample collection plan**. c) Marked up sampling locations on floor plans or BMS sensor plans. d) **Assessor** notes on outside air provision to the building. **Note 1:** If official floor plans or BMS sensor plans are not available, a clearly annotated sketch by the **Assessor** may be used, provided it accurately reflects the sampling locations

		Note 2: As a best practice, maintain a time log in the **sample collection plan** that records the arrival time, equipment equilibration time, occupancy notes for each location, and measurement times for each floor.

12.3 Documentation required for Chapter 5: Occupant Satisfaction Surveys

Topic	Requirements	Documentation
12.3.1 OSS requirements	Section 5.2	*Required information* The **Assessor** must retain the overall results from the provider of the **Occupant Satisfaction Survey**. This includes the number of staff to be surveyed, excluding visiting or temporary staff. *Documentation examples* Documentation that can be used as evidence includes the following: a) Official results of the **Occupant Satisfaction Survey** from a recognised survey provider. b) Documentation from a HR manager regarding the total number of full-time staff who work at the site. **Note:** In most instances, the detail of survey responses from each individual will not be part of the report given by the survey provider. This is acceptable.

12.4 Documentation required for Chapter 6: Site visit

Topic	Requirements	Documentation
12.4.1 Site visit	Section 6.3 Section 6.4.2 Section 6.5.2	*Required information* The **Assessor** must retain evidence of their site visit, including information regarding— a) any sub-contractors used; b) HVAC operational times; c) BMS start and stop times for sampling day(s); d) sampling locations used; and

		e) **calibration** of all equipment used. *Documentation examples* Documentation that can be used as evidence includes the following: 1) A statement of qualifications of any sub-contractor used. 2) A marked floor plan or **sample collection plan**. 3) Photographs of sampling setup. 4) A certificate of **accuracy** or **calibration**.

12.5 Documentation required for Chapter 7: Thermal services

Topic	Requirements	Documentation
12.5.1 Thermal assessment for mechanically ventilated buildings	Section 7.4	*Required information* The **Assessor** must retain evidence of the **calibration** of all equipment used for on-site measurements and all data collection in relation to a building's thermal services. *Documentation examples* Documentation that can be used as evidence includes the following: a) Records of the **calibration** of the BMS sensors and actions taken to verify results. b) Marked up floor plans marking locations of BMS sensors, identifying sensors used to collect data. c) A spreadsheet of logged data using the *Annual Monitoring Data Collection Spreadsheet* or similar for the period specified. d) A thermal survey report conducted by an independent party meeting the same measurement standards.

12.5.2 Thermal assessment for naturally ventilated buildings	Section 7.5	*Required information* In addition to the evidence requirements of Section 12.5.1, the **Assessor** must retain evidence of a building being only naturally ventilated. *Documentation examples* Documentation that can be used as evidence includes the following: a) Drawings/photos of operable windows/louvres. b) A signed statement that the building does not have a mechanical ventilation system.

12.6 Documentation required for Chapter 8: Indoor air quality

Topic	Requirements	Documentation
12.6.1 Indoor air quality	Section 8.2	*Required information* The **Assessor** must retain evidence of all the quantitative measurements taken on-site to ascertain the **indoor air quality** of the premises. This requirement includes retaining information regarding the testing of various pollutants as follows: a) Data collection. b) **Calibration** of all the equipment used. c) Laboratory analysis results with stated method (if applicable). d) Sampling locations. *Documentation examples* Documentation that can be used as evidence includes the following: 1) A spreadsheet of recorded data for the period specified. 2) A written **indoor air quality** survey report conducted by an independent party and confirmed as meeting the same measurement standards. 3) Sampling locations for each measurement recorded on floor plans. 4) Photographs of the sampling setup.

12.7 Documentation required for Chapter 9: Acoustics

Topic	Requirements	Documentation
12.7.1 Acoustics	Section 9.2	*Required information* The **Assessor** must retain the results of the **Occupant Satisfaction Survey** and the following information in relation to their assessment of acoustics for the rating: a) Data collection. b) Sampling locations. c) Evidence the space is an unoccupied space for Base Building ratings and an **occupied** space for Tenancy and Whole Building ratings. *Documentation examples* Documentation that can be used as evidence includes the following: 1) Spreadsheets showing recorded data for the period specified. 2) Sampling locations marked on a floor map. 3) Written statement or time-stamped photos as evidence for **occupied** or unoccupied spaces. 4) Results of the **Occupant Satisfaction Survey** for Tenancy and Whole Building ratings.

12.8 Documentation required for Chapter 10: Lighting

Topic	Requirements	Documentation
12.8.1 Lighting	Section 10.2	*Required information* The **Assessor** must retain the results of the **Occupant Satisfaction Survey** and the following information in relation to their assessment of lighting for the rating: a) Evidence of data collection. b) Sampling locations, including the layout of workstations. c) Evidence of the **accuracy** and/or **calibration** of equipment. *Documentation examples* Documentation that can be used as evidence includes the following: 1) Spreadsheets showing recorded data for the period specified. 2) Sampling locations marked on a floor map. 3) Results of the **Occupant Satisfaction Survey** which covers indoor lighting, not including daylight (see Chapter 5).

12.9 Documentation required for Chapter 11: Office layout

Topic	Requirements	Documentation
12.9.1 Office layout	Section 11.2	*Required information* The **Assessor** must retain evidence of the office layout. *Documentation examples* Documentation that can be used as evidence includes results of the **Occupant Satisfaction Survey** which covers office layout (e.g. spatial comfort) (see Chapter 5 and Section 12.3.1).

Appendix A Rating period

A.1 Allowance for lodgement

A.1.1 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.1.2 and A.1.3 provide examples of this principle.

A.1.2 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:

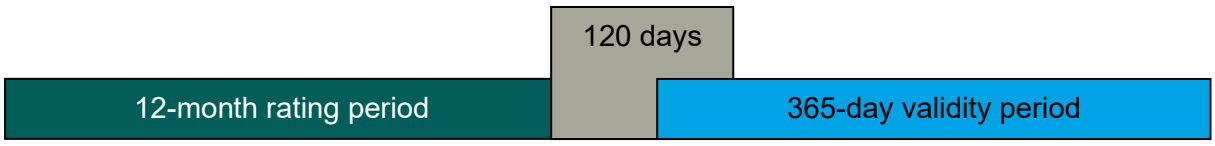
a) The **rating period** is 1 January 2024 to 31 December 2024. The due date is therefore 30 April 2025.

b) The **Assessor** lodges the rating on 1 February 2025, and the **National Administrator** certifies it on 5 February 2025. This is before the due date.

c) The rating will therefore be valid for 365 days from the date of certification (5 February 2025).

d) The **validity period** will be 5 February 2025 to 4 February 2026.

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



A.1.3 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:

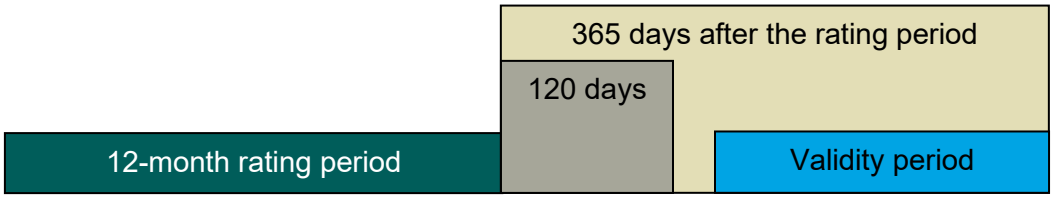
a) The **rating period** is 1 January 2024 to 31 December 2024. The due date is therefore 30 April 2025.

b) The **Assessor** lodges the rating on 1 June 2025, and the **National Administrator** certifies it on 6 June 2025. The rating was lodged after the due date.

c) The rating will therefore be valid for 365 days from the end of the **rating period** (31 December 2024).

d) The validity period will be 6 June 2025 to 31 December 2025.

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



A.2 Allowance for responses

A.2.1 General

Assessors 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.**

As ratings are based on current data, the **validity period** cannot not exceed 485 days from the end of the **rating period**. This means that if an **Assessor** lodges a rating towards the end of the 120-day period and it is certified after the due date because of processing and response time, the **validity period** may be less than 365 days.

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**). The **National Administrator** takes 7 calendar days to complete quality assurance checks, and the **Assessor** takes 6 calendar days to respond to queries that arose from the quality assurance checks. The rating will be valid for 485 days from the end of the **rating period**: see Figure A.2.2.

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

a) The **rating period** is 1 January 2024 to 31 December 2024. The due date is therefore 30 April 2025.

b) The **Assessor** lodges the rating on 29 April 2025, 119 days after the end of the **rating period**. This is before the due date.

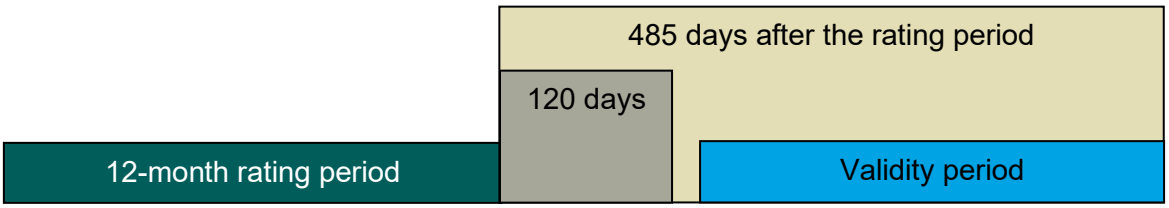
c) The **National Administrator** responds on 6 May 2025 requesting further clarification.

d) The **Assessor** responds on 12 May 2025 and the rating is certified the same day on 12 May 2025.

e) The **validity period** cannot extend past 485 days from the end of the rating period (30 April 2026).

f) The **validity period** will therefore be 12 May 2025 to 30 April 2026 (353 days from the date of certification).

Figure A.2.2: A rating lodged before, but certified after 120 days from the end of the rating period



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.

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.

Requests to adjust the **rating period** for a rating after lodgement will be considered by the **National Administrator** on a case-by-case basis.

A.4 Lodging successive ratings

A.4.1 General

For a premises which already has a current rating, there are two options to complete another rating of the same type: 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.4.2 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 might 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.4.3 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 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.4.4 provides an example of this principle.

A.4.4 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:

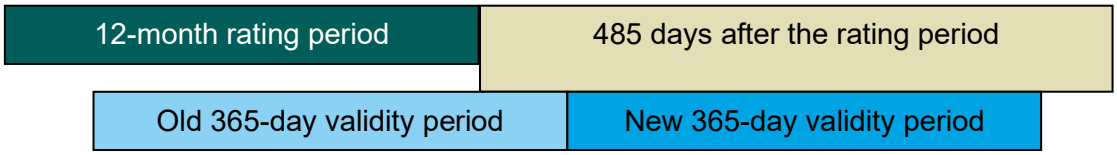
a) The current rating's **validity period** expired on 31 December 2024.

b) The **rating period** is 1 October 2023 to 30 September 2024 for the renewal rating.

c) The **Assessor** lodges the renewal on 1 November 2024 and it is certified by the **National Administrator** 7 November 2024.

d) The **validity period** for the renewal will be 1 January 2025 to 31 December 2025.

Figure A.4.4: Validity period for new rating begins once the 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.4.5 provides an example of this principle.

A.4.5 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:

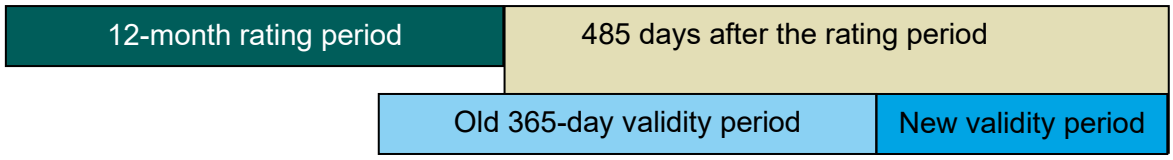
a) The current rating's **validity period** expired on 31 December 2024.

b) The **rating period** is 1 August 2023 to 31 July 2024 for the renewal rating.

c) The **Assessor** lodges the renewal on 1 November 2024 and it is certified by the **National Administrator** on 7 November 2024.

d) The **validity period** for the renewal will be 1 January 2025 to 28 November 2025, 485 days after the end of the **rating period**.

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



Appendix B Qualitative and quantitative approach

B.1 Qualitative measures (Occupant Satisfaction Survey)

The **Occupant Satisfaction Survey (OSS)** is a qualitative assessment of how a building is performing from the perspective of its **occupants**. The **OSS** is an independent survey, conducted by a third party that allows comparison against sufficiently large data sets for meaningful analysis.

The **OSS** considers **occupant** satisfaction with the thermal comfort, lighting, noise, **indoor air quality** and office layout. It is conducted for NABERS IE Tenancy and Whole Building ratings.

B.2 Quantitative measures

Quantitative measurements assess a building's IE performance without human perception affecting the results.

The measured **parameters** for thermal comfort are—

a) **space temperature**;

b) **mean radiant temperature**;

c) **relative humidity**; and

d) **air speed**.

The measured **parameters** for **indoor air quality** are—

1) **formaldehyde** (typically due to furnishings, flooring and adhesives);

2) **Total Volatile Organic Compounds (TVOCs)**;

3) **carbon monoxide (CO)**;

4) carbon dioxide (CO_2); and

5) inhalable airborne particles (**particulate matter** less than 10 µm in particle diameter, or **PM_{10}**).

NABERS IE also measures sound levels to determine the potential noise disturbance, and light levels to provide an indication of potential for eye strain and the **occupants**' ability to work comfortably.

B.3 Methodologies for quantitatively assessing indoor environment parameters

B.3.1 General

NABERS IE quantitatively assesses **parameters** using a mix of spot measurements and annual monitoring data.

B.3.2 Annual monitoring

Annual monitoring uses temperature data collected over the entire year, providing insight into building performance across the year. Where possible, understanding ongoing conditions that influence **Indoor Environment Quality** is preferable, and can lead to an improved (higher) rating. Data from ongoing temperature measurements collected in buildings with systems that track, on a constant basis, temperature data can be fed into the NABERS assessment tool.

Annual monitoring data is not mandatory, but it does enable a higher star rating to be achieved.

B.3.3 Spot measurements

In addition to annual monitoring, all **parameters** covered by the **rating scope** are measured on the day of assessment, being a 'moment in time' measurement. The moment in time assessment is made within strict criteria at each location and in some cases is measured in both the morning and the afternoon. This set of one-off measurements, or 'spot measurements' is used to provide an indication of the premises' performance for the rest of the year.

Spot measurements are used because it is not currently viable to collect data for these IE **parameters** over an annual time period as the equipment required to monitor the **parameters** continually is not commonly found in buildings.

Note: This reference to 'moment in time' is to distinguish the measurement from continuous (annual) monitoring, and does not infer an instantaneous reading. Spot measurements may be an instantaneous reading, over a five minute period or potentially measured across an entire day.

To ensure spot measurements are conducted in a consistent manner, specific sampling requirements are outlined in Chapter 4 and Chapter 6, as well as **component** specific requirements listed in the relevant sections for each **component** measured.

Appendix C Sample collection plan

The table below provides an example summary of timings of sampling requirements. Darker cells indicate a second set of measurements is required in the afternoon following a set of measurements on the same morning. **Assessors** must refer to the relevant section of the **Rules** for the sampling time windows for each **component**.

Component	8:00	9:00 — 12:00	12:30	13:00	13:30 — 16:00	17:00
Air temperature (indoor and outdoor)		5 min			5 min	
Relative humidity		5 min			5 min	
Mean radiant temperature		5 min			5 min	
Air speed		5 min			5 min	
Carbon dioxide (indoor)		5 min			5 min	
Carbon dioxide (**plant room**)	5 min			5 min		
PM_{10}[1]		5 min			5 min	
Formaldehyde	5 min					
TVOCs	5 min					
Carbon monoxide	5 min			5 min		
Ambient sound (Base Building)[2]	2 min				2 min	
Ambient sound (Whole Building and Tenancy)		2 min			2 min	
Lighting		3 readings			3 readings	

[1] For a Base Building rating, sampling may occur between 12.30 pm and 2.00 pm.
[2] If a vacant floor is used, sampling can occur at any time while the HVAC system is operational.

Appendix D Data collection required

The following tables are a summary of the different measures and the data that is to be collected. They have been provided for easy reference only and do not form part of these **Rules**. If there is a conflict, the written text of the **Rules** will always take precedence.

Sampling requirements are as per Chapter 4, Chapter 6 and any component specific requirements as listed under each component.

Base Building Ratings				
Parameter	**Component (units)**	**Sampling frequency**	**Sampling requirement**	**Reference**
Thermal services: Spot measurements	**Space temperature** (°C)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location.	Section 7.4.2
	Mean radiant temperature (°C)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location.	Section 7.4.2
	Air speed (m/s)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location.	Section 7.4.2
	Relative humidity (%) (mechanically ventilated)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location.	Section 7.4.2
	Outdoor air temperature (°C) (naturally ventilated)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes 1 m to 2 m above the ground at the pedestrian entrance to the building. Or data from a BOM weather station.	Section 7.5.2

Base Building Ratings				
Parameter	**Component (units)**	**Sampling frequency**	**Sampling requirement**	**Reference**
Thermal services: Annual monitoring	Annual **space temperature** records (°C)	Data covering the **rating period**	For all normal working hours: a) Hourly temperature data for mechanically ventilated buildings b) Daily average temperature data for naturally ventilated buildings	Section 7.5.3
Indoor air quality: Ventilation effectiveness	Carbon dioxide (ppm)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes at each sampling location near a supply air diffuser to measure the impact from the HVAC system; and One average reading of at least five (5) minutes at the outdoor air intake in each plant room assessed.	Section 8.3
Indoor air quality: Indoor pollutants	Particulates (µg/m^3)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes at each sampling location near a supply air diffuser to measure the impact from the HVAC system.	Section 8.4
	Carbon monoxide (ppm)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes in the plant rooms assessed at the outside air intake to the building to measure the cleanliness of the intake air.	Section 8.7
Acoustic comfort	**Ambient sound** levels (dB)	1 **sample**: morning or afternoon	One average reading of at least two (2) minutes at each sampling location, excluding tenant noise.	Section 9.2.2

Whole Building Ratings				
Parameter	**Component (units)**	**Sampling frequency**	**Sampling requirement**	**Reference**
Thermal services: Spot measurements	**Space temperature** (°C)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location.	Section 7.4.2
	Mean radiant temperature (°C)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location.	Section 7.4.2
	Air speed (m/s)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location.	Section 7.4.2
	Relative humidity (%) (mechanically ventilated)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes duration at each sampling location.	Section 7.4.2
	Outdoor air temperature (°C) (naturally ventilated)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes 1 m to 2 m above the ground at the pedestrian entrance to the building. Or data from a BOM weather station.	Section 7.5.2
Thermal services: Annual monitoring	Annual **space temperature** records (°C)	Data covering the **rating period**	For all normal working hours: a) Hourly temperature data for mechanically ventilated buildings b) Daily average temperature data for naturally ventilated buildings	Section 7.5.3

Whole Building Ratings				
Parameter	**Component (units)**	**Sampling frequency**	**Sampling requirement**	**Reference**
Indoor air quality: Ventilation effectiveness	Carbon dioxide (ppm)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes at each sampling location taken in the **occupied** space to measure the impact of tenant activities; and One average reading of at least five (5) minutes at the outdoor air intake in each plant room assessed.	Section 8.3
Indoor air quality: Indoor pollutants	Particulates (µg/m^3)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes at each sampling location in the **occupied** space to measure the impact of tenant activities.	Section 8.4
	Formaldehyde (ppm)	1 morning **sample** only	**Using real-time equipment:** One average reading of at least five (5) minutes at each sampling location in the **occupied** space to measure the impact of tenant fit out.	Section 8.5.2
			Using laboratory method: One **sample** per floor assessed, collected over a 4 to 6 hour period.	Section 8.5.3
	Total Volatile Organic Compounds (ppm)	1 morning **sample** only	**Using real-time equipment:** One average reading of at least five (5) minutes at each sampling location in the **occupied** space to measure the impact of tenant fit out.	Section 8.6.2
			Using laboratory method: One **sample** per floor assessed, collected over a 4 to 6 hour period.	Section 8.6.3

Whole Building Ratings				
Parameter	**Component (units)**	**Sampling frequency**	**Sampling requirement**	**Reference**
	Carbon monoxide (ppm)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes in the plant rooms assessed at the outside air intake to the building to measure the cleanliness of the intake air.	Section 8.7
Acoustic comfort	**Ambient sound** levels (dB)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least two (2) minutes at each sampling location, excluding any non-standard spikes.	Section 9.2.2
Lighting	Horizontal light levels (lux)	6 **samples**: 3 morning and 3 afternoon	Three readings adjacent to each sampling location in the **occupied** space reading ambient conditions in the **occupant** workspace.	Section 10.2.2
Office Satisfaction Survey	Survey results	N/A	Survey results for: thermal comfort, **indoor air quality**, acoustic comfort, lighting and office layout	Chapter 5

Tenancy Ratings				
Parameter	**Component (units)**	**Sampling frequency**	**Sampling requirement**	**Reference**
Indoor air quality: Ventilation effectiveness	Carbon dioxide (ppm)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes at each sampling location taken in the **occupied** space to measure the impact of tenant activities; and One average reading of at least five (5) minutes at the outdoor air intake in each plant room assessed.	Section 8.3
Indoor air quality: Indoor pollutants	Particulates (µg/m^3)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes at each sampling location in the **occupied** space to measure the impact of tenant activities.	Section 8.4
	Formaldehyde (ppm)	1 morning **sample** only	**Using real-time equipment:** One average reading of at least five (5) minutes at each sampling location in the **occupied** space to measure the impact of tenant fit out.	Section 8.5.2
			Using laboratory method: One **sample** per floor assessed, collected over a 4 to 6 hour period.	Section 8.5.3
	Total Volatile Organic Compounds (ppm)	1 morning **sample** only	**Using real-time equipment:** One average reading of at least five (5) minutes at each sampling location in the **occupied** space to measure the impact of tenant fit out.	Section 8.6.2
			Using laboratory method: One **sample** per floor assessed, collected over a 4 to 6 hour period.	Section 8.6.3

Tenancy Ratings				
Parameter	**Component (units)**	**Sampling frequency**	**Sampling requirement**	**Reference**
	Carbon monoxide (ppm)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least five (5) minutes in the plant rooms assessed at the outside air intake to the building to measure the cleanliness of the intake air.	Section 8.7
Acoustic comfort	**Ambient sound** levels (dB)	2 **samples**: 1 morning and 1 afternoon	One average reading of at least two (2) minutes at each sampling location, excluding any non-standard spikes.	Section 9.2.2
Lighting	Horizontal light levels (lux)	6 **samples**: 3 morning and 3 afternoon	Three readings adjacent to each sampling location in the **occupied** space reading ambient conditions in the **occupant** workspace.	Section 10.2.2
Office Satisfaction Survey	Survey results	N/A	Survey results for: **indoor air quality**, acoustic comfort, lighting and office layout	Chapter 5

Appendix E Component weightings by rating scope

Each **parameter** of the rating is given a weighting as described in Section 3.2.2. Within each **parameter**, weightings are given for each **component** required for the specified **rating scope**. The weightings for each of the individual **components** by **rating scope** are given in the tables below.

Table E.1: Thermal services

Component	Whole Building	Base Building	Tenancy
Occupant Satisfaction Survey (thermal comfort results)	50 %		
Spot measurements (**space temperature**, **mean radiant temperature**, **relative humidity**, **air speed**)	20 %	40 %	
Annual monitoring (**space temperature**)	30 %	60 %	

Table E.2: Indoor air quality

Component	Whole Building	Base Building	Tenancy
Occupant Satisfaction Survey (air quality)	50 %		50 %
Ventilation effectiveness (CO_2)	20 %	55 %	20 %
Particulate matter (PM_{10})	10 %	30 %	10 %
Formaldehyde	10 %		10 %
Total volatile organic compounds (TVOCs)	5 %		10 %
Carbon monoxide (CO)	5 %	15 %	

Table E.3: Acoustics

Component	Whole Building	Base Building	Tenancy
Occupant Satisfaction Survey (acoustics results)	50 %		50 %
Ambient sound	50 %	100 %	50 %

Table E.4: Lighting

Component	Whole Building	Base Building	Tenancy
Occupant Satisfaction Survey (lighting results)	50 %		50 %
Horizontal illuminance	50 %		50 %

Table E.5: Office layout

Component	Whole Building	Base Building	Tenancy
Occupant Satisfaction Survey (office layout results)	100 %		100 %

Appendix F Equipment specification list

All **samples** should be taken using equipment which meets the minimum specifications outlined below. These are minimum requirements only and any equipment used may go beyond these specifications. For the most accurate results, it is recommended that data logging equipment utilise data logging intervals of at least 60 s, with a preference for 10 s intervals.

Parameter	Attribute	Equipment required for site visit measurements	
Thermal services	**Space temperature** (Spot measurements)	Multipoint logging instrument which meets the following minimum requirements:	
		Range	At least 5 °C to 50 °C
		Resolution	At most 0.1 °C
		Accuracy	Within ± 0.6 °C across 10 °C to 45 °C
	Space temperature (Annual measurements)	Building Monitoring System (BMS) or equivalent sensors which meets the following minimum requirements:	
		Range	At least 10 °C to 40 °C
		Resolution	At most 0.1 °C
		Accuracy	Within ± 0.5 °C
	Mean radiant temperature (MRT)	Multipoint logging instrument which meets the following minimum requirements:	
		Range	At least 5 °C to 50 °C
		Resolution	At most 0.1 °C
		Accuracy	Within ± 0.6 °C across 10 °C to 45 °C
	Relative humidity (RH)	Multipoint logging instrument which meets the following minimum requirements:	

		Range	At least 5 % to 95 %
		Resolution	At most 1 %
		Accuracy	Within ± 5 % across 20 % to 95 %
	Air speed	Multipoint logging instrument (anemometer) which meets the following minimum requirements:	
		Range	At least 0.01 m/s to 2 m/s
		Resolution	At most 0.01 m/s
		Accuracy	Within ± 3 % over 0 m/s to 2 m/s
Indoor air quality	**Ventilation effectiveness** (CO_2)	Multipoint logging instrument that records real-time carbon dioxide levels and meets the following minimum requirements:	
		Range	At least 20 ppm to 3,000 ppm
		Resolution	At most 1 ppm
		Accuracy	Within ± 50 ppm
	Particulate matter (PM_{10})	**Real-time** particulate counter with a sensor based on 90° light scattering which meets the following minimum requirements:	
		Range	At least 0.001 mg/m^3 to 20 mg/m^3
		Resolution	At most 0.001 mg/m^3
		Accuracy	Within ± 8 % across 0.001 mg/m^3 to 0.150 mg/m^3
	Formaldehyde	Multipoint data logger instrument such as a photo-ionisation detector (PID) or an electrochemical sensor which meets the following minimum requirements:	
		Range	At least 20 ppb to 2,000 ppb
		Resolution	At most 1 ppb

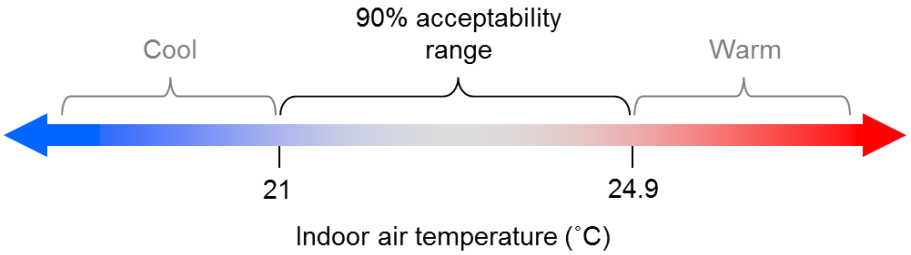
	Formaldehyde (laboratory option)	Samples taken using a low-noise air sampling pump with a dinitrophenylhydrazine-coated silica gel cartridge e.g. SKC 226-119 located on a stable surface with the inlet of the cartridge at a height of 1.1 m from the floor. Air should be sampled at a rate of 0.1 to 0.5 L/minute over a 4 to 6 hour period during the day (between 9:30 am and 5 pm). A NATA-accredited laboratory with experience in analysing sorbent cartridges should be used to determine the **formaldehyde** concentration. Analysis must involve high-performance liquid chromatography with ultraviolet detection and have a detection limit of at least 0.001 mg/m^3.	
	Total Volatile Organic Compounds (TVOCs)	Multipoint data logger instrument such as a photo-ionisation detector (PID) which meets the following minimum requirements:	
		Calibration standard/lamp	Isobutylene/ 9.5 eV lamp or 10.6 eV lamp
		Range	At least 10 ppb to 2,000 ppb
		Resolution	At most 1 ppb
	Total Volatile Organic Compounds (TVOCs) (laboratory option)	Two sorbent tubes at each location, one for non-polar VOC and the other for polar VOC. The results are combined to obtain total VOC. A NATA-accredited laboratory with experience in analysing sorbent cartridges should be used to determine VOC concentration. Analysis must involve gas chromatography with flame ionisation detection or gas chromatography with mass selective detection. The detection limit with either analytical method should be at least 0.01 mg/m^3.	
	Carbon monoxide (CO)	Multipoint logging instrument that records **real-time carbon monoxide** levels which meets the following requirements:	
		Range	At least 0 ppm to 30 ppm
		Resolution	At most 0.1 ppm
		Accuracy	Within ± 3 % over the range of 0 ppm to 10 ppm

Acoustic comfort	**Ambient sound** levels	A level 1 or level 2 sound meter, set to read on A scale to record dbA, which meets the following minimum requirements:	
		Range	At least 20 dB to 100 dB
		Resolution	At most 1 dB
		Accuracy	Within ± 2 dB
Lighting	**Horizontal illuminance**	A portable light meter which meets the following minimum requirements:	
		Range	At least 20 lux to 20,000 lux
		Resolution	At most 10 lux
		Accuracy	Within ± 5 %

Appendix G Temperature range for annual temperature data

For annual temperature data, the 90 % acceptability limits of ANSI/ASHRAE 55 are applied, expressed as a simple temperature range; see Figure G.1.

Figure G.1: Space temperature range



Measurements within the rating period which fall between 21 °C and 24.9 °C meet the requirements of ANSI/ASHRAE 55. Any temperature point which falls outside this range—

a) during normal working hours; and

b) within the **rating period**;

does not meet the standard.

The proportion of **samples** at each location which meet these requirements determines the scores for the annual monitoring **component** of the rating.

Appendix H List of changes

The following table lists the changes to the content of *NABERS The Rules — Indoor Environment for Offices v2.0* (September 2021) in order to produce this version v3.0.

Chapter 1: Introduction		
Version 2.1 (old version)	**Version 3.0** (Current version)	**Content changes**
1.1 Summary	1.1 General	Title Changed. Updated references to chapters, to align with the NABERS Rules template.
1.2 Interpretation of the rules and rulings		Updated wording to align with the NABERS Rules template.
1.3 Situations not covered by the rules		Updated wording to align with the NABERS Rules template.
1.4.2 Formatting conventions and referencing		Updated wording to align with the NABERS Rules template.
1.6 Related documents		Updated wording to align with the NABERS Rules template.

Chapter 2: Terms and definitions		
Version 2.1 (old version)	**Version 3.0** (current version)	**Content changes**
2 Terms and definitions		Updated definition for **Auditor**. Updated definition for **mean radiant temperature (MRT),** to include a formula. Updated definition for **NABERS rating input form.** Updated definition for **office floor area.** Updated definition for **rated premises.** Updated definition for **rating period**

Chapter 3: Key concepts and procedures		
Version 2.1 (old version)	**Version 3.0** (current version)	**Content changes**
3.3 Rating period		Table 3.3.1 revised to clarify the start and end dates for rating periods. NABERS has withdrawn the **Rules** that allowed Indoor Environment rating periods to be aligned with other current NABERS ratings (Energy or Water).
3.3.2 Time allowed for assessment		Clarified **Rules** for validity periods.
3.5 Site visits		Transferred purposes of completing a site visit to Section 6.3. Added new Section 3.5.1 outlining the mandatory requirement for site visits and reference to Chapter 6. Added new Section 3.5.2 covering situations where a site visit cannot be conducted or delegated.
N/a	3.7 Alternative methodologies	New section added on the **Rules** for using alternative methodologies in NABERS Indoor Environment ratings.

Chapter 4: Sampling floors and locations		
Version 2.1 (old version)	**Version 3.0** (current version)	**Content changes**
4.3.5 Calculating the office floor area		Revised Table 4.3.5 to clarify the options for calculating office floor area.
4.7.2 Office floor sampling requirements		Clarified that one sample is required from each perimeter zone, following the order of priority.

Chapter 5: Occupant Satisfaction Surveys		
Version 2.1 (old version)	**Version 3.0** (current version)	**Content changes**
5.2.4 Survey provider information		Updated hyperlink to the survey provider University of Sydney.

5.2.5 Entry into **NABERS rating input form**	Revised text 'NABERS Rate' to '**NABERS rating input form**'.

Chapter 7: Thermal Services		
Version 2.1 (old version)	**Version 3.0** (current version)	**Content changes**
Chapter 7		Added the term 'at least' to equipment 'Ranges'. Added the term 'at most' to all equipment 'Resolutions'. Added the term 'within' to all equipment 'Accuracies'.
7.4.3.2 Record requirements for annual monitoring of temperature		Added the requirement for assessors to provide an explanation if a lower priority order is used.
7.4.3.5 Verification requirements for sensors		Added questions to guide communications with **National Administrator**.

Chapter 8: Indoor air quality		
Version 2.1 (old version)	**Version 3.0** (current version)	**Content changes**
Chapter 8		Added the term 'at least' to equipment 'Ranges'. Added the term 'at most' to all equipment 'Resolutions'. Added the term 'within' to all equipment 'Accuracies'.
8.3.2 Specific sampling requirements for CO_2		Revised CO_2 measurement window for whole building and tenancy ratings. Measurements must not be taken between 12:30 pm and 1:30 pm.
8.4.2 Specific sampling requirements for **PM_{10}**		Revised **PM_{10}** measurement window for whole building and tenancy ratings. Measurements must not be taken between 12:30 pm and 1:30 pm.
Table 8.3	Table 8.4.1	Revised accuracy requirement from 5% to 8% for measuring **PM_{10}**.
Table 8.4	Table 8.5.1	Revised resolution requirement from 1 ppb to 10 ppb for measuring formaldehyde. Added the use of electro-chemical sensors for measuring formaldehyde.

Table 8.5	Table 8.6.1	Revised upper limit range requirement from 10,000 ppb to 2,000 ppb for measuring **TVOCs**.
Table 8.6	Table 8.7.1	Revised upper limit range requirement from 200 ppb to 30 ppb for measuring **CO**.

Chapter 9: Acoustics		
Version 2.1 (old version)	**Version 3.0** (current version)	**Content changes**
Chapter 9		Added the term ‘at least’ to equipment ‘Ranges’. Added the term ‘at most’ to all equipment ‘Resolutions’. Added the term ‘within’ to all equipment ‘Accuracies’.
9.2.2.3 Specific sampling requirements for Whole Building and Tenancy ratings.		Revised measurement window for whole building and tenancy ratings. Measurements should not be taken between 12:30 pm and 1:30 pm.

Chapter 10: Lighting		
Version 2.1 (old version)	**Version 3.0** (current version)	**Content changes**
Chapter 10		Added the term ‘at least’ to equipment ‘Ranges’. Added the term ‘at most’ to all equipment ‘Resolutions’. Added the term ‘within’ to all equipment ‘Accuracies’.

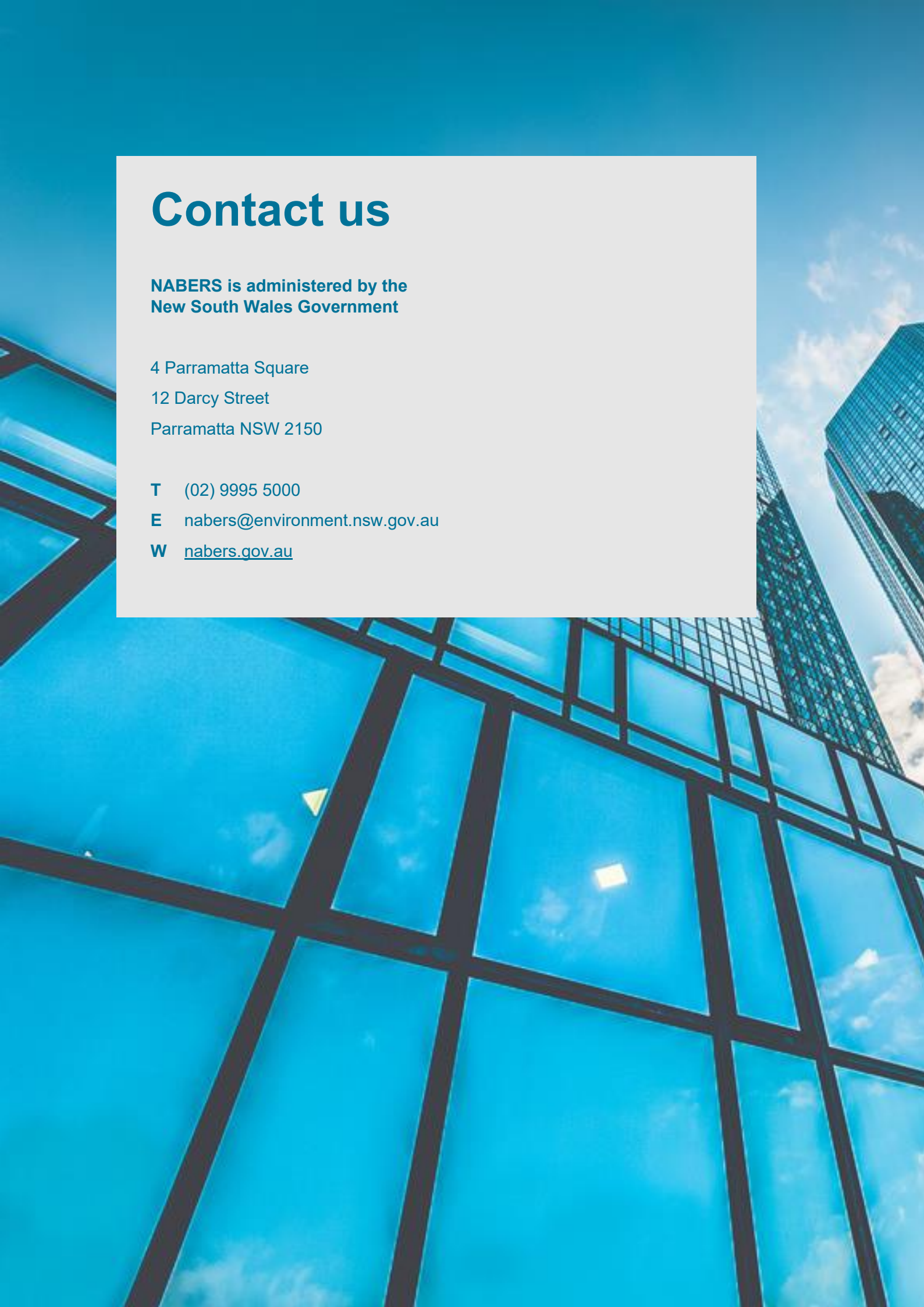
Chapter 12: Documentation required for accredited ratings		
Version 2.1 (old version)	**Version 3.0** (current version)	**Content changes**
12.1 Summary	12.1 General	Title changed. Updated wording to align with the NABERS Rules template. Added note for retaining raw data for Level 2 audits.

12.2.2 Sampling requirements	Updated evidence requirements for Section 4.8.
12.4.1 Site visits	Updated evidence requirements for Section 6.4.2 and Section 6.5.2.
12.5.2 Thermal assessment for naturally ventilated buildings	Updated evidence requirements for Section 7.5.
12.6.1 Indoor air quality	Updated evidence requirements for Section 8.2.
12.7.1 Acoustics	Added evidence requirements for Section 9.2.

Appendix A Rating period		
Version 2.1 (old version)	**Version 3.0** (current version)	**Content changes**
Appendix A		Revised to align with the NABERS Rules template.

Appendix C Sample collection plan		
Version 2.1 (old version)	**Version 3.0** (current version)	**Content changes**
Appendix C		Clarified that the Sample collection plan must only be read as an example.

Appendix F Equipment Specification list		
Version 2.1 (old version)	**Version 3.0** (current version)	**Content changes**
Appendix F		Added the term ‘at least’ to equipment ‘Ranges’. Added the term ‘at most’ to all equipment ‘Resolutions’. Added the term ‘within’ to all equipment ‘Accuracies’.



Contact us

NABERS is administered by the New South Wales Government

4 Parramatta Square

12 Darcy Street

Parramatta NSW 2150

T (02) 9995 5000

E nabers@environment.nsw.gov.au

W nabers.gov.au