FANTECHTRADE

MADE FOR TRADE



NCC 2025 CONDENSATION MANAGEMENT HANDBOOK

Understanding Exhaust Systems

UNDERSTAND
Key requirements of NCC2025 Part 10.8.2

APPLY
What the requirements mean on-site and how to apply them

SOLVE
Product solutions that meet the requirements

At Fantech Trade, one of the most common questions we hear is:

“What does NCC 2025 actually require me to do on-site?”

NCC terminology can be difficult to interpret during design and installation. This handbook has been developed to simplify **NCC 2025 Housing Provisions – Part 10.8.2 Exhaust Systems** and explain what the requirements mean in practical installation scenarios.

INSIDE THIS GUIDE:

- Minimum flow rates
- Outdoor discharge requirements
- Clothes dryer discharge requirements
- Run-on timer requirements
- Understanding 10.6.2(a)
- Make-up air explained

Excerpt From ABCB Housing Provisions - National Construction Code 2025



PART 10.8 CONDENSATION MANAGEMENT

10.8.2 EXHAUST SYSTEMS

(1) An exhaust system installed in a kitchen, bathroom, sanitary compartment or laundry must have a minimum flow rate of—

a. 25 L/s for a bathroom or sanitary compartment; and

b. 40 L/s for a kitchen or laundry.

(2) Exhaust from a kitchen, kitchen range hood, bathroom, sanitary compartment or laundry must discharge directly or via a shaft or duct to outdoor air.

(3) Where a venting clothes dryer is installed, it must discharge directly or via a shaft or duct to outdoor air.

(4) An exhaust system that is not run continuously and is serving a bathroom or sanitary compartment that is not ventilated in accordance with 10.6.2(a) must—

a. be interlocked with the room's light switch; and

b. include a run-on timer so that the exhaust system continues to operate for 10 minutes after the light switch is turned off.

(5) Except for rooms that are ventilated in accordance with 10.6.2(a), a room with an exhaust system in accordance with (1) must be provided with make-up air—

a. via openings to an adjacent room with a free area of 14,000 mm^2; or

b. in accordance with AS 1668.2.

(6) Except for rooms that are ventilated in accordance with 10.6.2(a), a room with an exhaust system in accordance with (3) must be provided with make-up air in accordance with AS 1668.2.



10.6.2 VENTILATION REQUIREMENTS

Ventilation must be provided to a habitable room, sanitary compartment, bathroom, shower room, laundry and any other room occupied by a person for any purpose by any of the following means:

a. Openings, windows, doors or other devices which can be opened—
   i. with a ventilating area not less than 5% of the floor area of the room required to be ventilated; and
   ii. open to—
      1. a suitably sized court, or space open to the sky; or
      2. an open verandah, carport, or the like; or
      3. an adjoining room in accordance with (b).

b. Natural ventilation to a room may come through a window, opening, door or other device from an adjoining room (including an enclosed verandah) if—
   i. the room to be ventilated or the adjoining room is not a sanitary compartment; and
   ii. the window, opening, door or other device has a ventilating area of not less than 5% of the floor area of the room to be ventilated; and
   iii. the adjoining room has a window, opening, door or other device with a ventilating area of not less than 5% of the combined floor areas of both rooms; and
   iv. the ventilating areas specified may be reduced as appropriate if direct natural ventilation is provided from another source (See Figure 10.6.2).

c. An exhaust fan or other means of mechanical ventilation may be used to ventilate a sanitary compartment, laundry, kitchen or bathroom, or where mechanical ventilation is provided in accordance with 10.6.3(b), provided contaminated air exhausts comply with 10.8.2.

Understanding 10.8.2(1) Minimum Flow Rates

Getting airflow right is the starting point. The NCC sets minimum airflow requirements depending on the room type being ventilated.

NCC REQUIREMENT

Exhaust systems installed in:



Bathroom or sanitary compartment:
25L/s (90m³/h)



Kitchen or laundry:
40L/s (144m³/h)

WHAT THIS MEANS ON-SITE

These are the minimum airflow requirements that apply, regardless of fan operation (e.g. on demand or continuous run).

To ensure compliance, we strongly recommend considering the complete installed system, not just selecting a fan based only on free-air airflow performance.

Fan performance can be affected by:

- **Duct length** (Only use the required duct length and remove excess duct)
- **Bends**
- **Fittings**
- **Discharge method**
- **System resistance**

HOW?

To determine the performance of the installed system, the pressure loss created by each component must be calculated and added together.

By calculating the total pressure loss, this will give the actual airflow rate which can be checked against the NCC minimum requirement of 25 L/s (90m³/h) for a bathroom or sanitary compartment.

IMPORTANT TIP

When you're evaluating exhaust fans, it's crucial to pay attention to the details in airflow performance charts. The actual airflow reading should take grilles and fittings into consideration during testing to account for pressure loss. At Fantech Trade, our fans are always tested with grilles and fittings, so you know the true performance of our fans.

CALCULATION METHOD

In the example below, the pressure loss through the duct bend and discharge outlet was calculated using the pressure-loss formula for fittings:

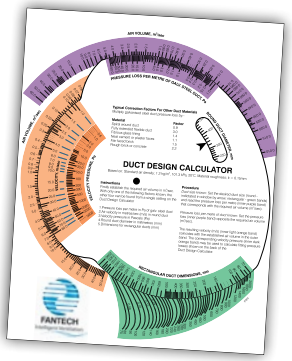
$$P_T = P_V \times K$$

Where:

P_T = Total pressure loss, Pa

P_V = Velocity pressure (obtained from the Duct Design Calculator)

K = Loss coefficient



The pressure loss through the straight duct run was calculated separately using the Fantech Duct Design Calculator.

This calculator is completed for each system component individually. The pressure losses from each component were then added together to determine the total system pressure loss.

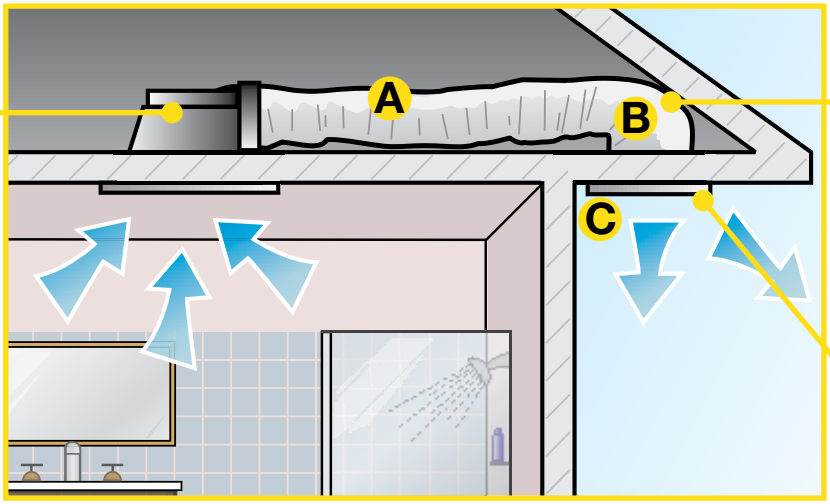
Speak with your local Fantech Trade Ventilation Specialist to request a copy of the Duct Design Calculator, which also includes the pressure-loss formula and loss coefficients for common fittings.

EXAMPLE

The example below demonstrates how a Rapid Response 250HP exhaust fan with a free-air airflow of 100L/s performs once connected to a typical ducted system consisting of a 3m duct run, a 90° duct bend and an eave discharge vent.



Rapid Response 250HP with run-on timer
(RESPF250HPROT)





Flexible Duct
(DUCT150-6M)



External Eave Grille
(EEVSS150)

A The 3m duct run creates 28.8 Pa of pressure loss

B The bend creates 3.6 Pa

C The eave outlet creates 10.8 Pa.

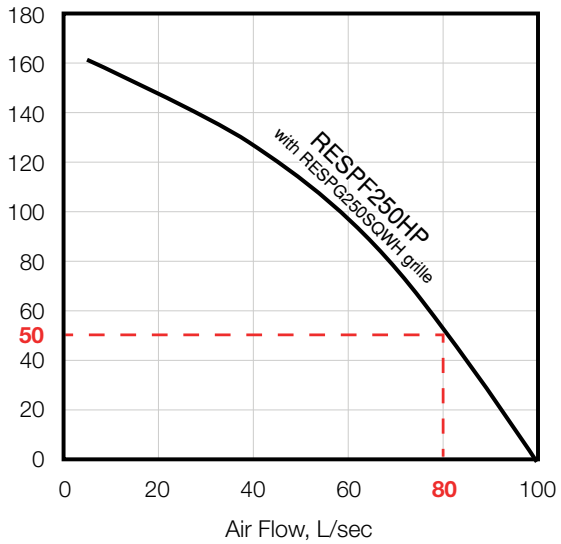
PRESSURE LOSS RESULTS

This gives a total calculated system resistance of 43.2 Pa.
For a conservative design allowance, this has been rounded up to 50 Pa to account for installation variables.

To estimate the installed airflow, locate 50 Pa on the vertical pressure axis and follow it horizontally until it intersects the fan performance curve. From this intersection, follow the line vertically down to the airflow axis. This indicates an estimated installed airflow of approximately 80 L/s:

Performance Curve

Total System Resistance (50 Pa)





FANTECH TRADE SOLUTIONS

At Fantech Trade, we offer a range of fans that meet or exceed the minimum airflow requirements of 10.8.2(1) when correctly selected and installed. Common fans include:

RESPONSE SERIES DUCTED CEILING EXHAUST FANS:



Rapid Response 200:
60L/s (216m³/h)



Rapid Response 250:
80L/s (288m³/h)



Rapid Response 250HP:
97L/s (349m³/h)



Response Radiance 3 in 1 Bathroom Heater, Exhaust Fan & Light:
87L/s (313m³/h)

FANTECH TRADE IN-LINE DUCT MOUNTED FANS:



ProVent Series:
Airflow range: 68L/s–289L/s



TD EVO VAR Series:
Airflow range: 58L/s-511L/s



TD Silent Series:
Airflow range: 66L/s-488L/s



Jetline Series:
Airflow range: 72L/s-447L/s

WHY CONSIDER AN IN-LINE FAN?

While ceiling-mounted exhaust fans can satisfy NCC 10.8.2(1) requirements, in-line fans can provide greater flexibility where installation conditions make it harder to achieve the required airflow.

In-line fans can be beneficial where:



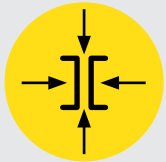
Longer duct runs are required



Multiple bends or fittings increase system resistance



The fan needs to be installed remotely for quieter operation



Space constraints limit fan placement



Higher airflow performance is required

Understanding 10.8.2(2)
Exhaust Discharge to Outdoor Air

Meeting airflow requirements is only one part of the system. The moisture removed also needs to leave the building.

NCC REQUIREMENT

Exhaust from:

- kitchen
- kitchen range hood
- bathroom
- sanitary compartment
- laundry

must discharge directly or via a **shaft or duct to outdoor air**

WHAT THIS MEANS ON-SITE

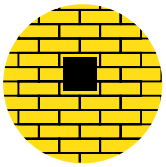
Exhaust air should not terminate into enclosed spaces where moisture can remain trapped.

Planning discharge locations early can simplify installation and reduce redesign later.

HOW?

Typical discharge locations include:


Roof


Wall


Eave


Fascia

Most homes use a combination depending on layout.

FANTECH TRADE SOLUTIONS

Keep in mind that the choice of ducting and accessories can influence installed airflow performance, ease of installation and overall system efficiency.

Fantech Trade offers a range of solutions to support compliant system design including:



Flexible Insulated Duct

Suitable where installation flexibility is required and routing around obstacles is necessary.

Complies with Aus/NZ standards:

3 zero fire rating
AS/NZS 4254



Semi Rigid Aluminium Duct

Can help improve airflow performance by reducing system resistance.

Complies with Aus/NZ Standards:

Fire and smoke control
AS/NZS 1668.1

3 zero fire rating
AS/NZS 1530.3

Flexible ductwork
AS 4254



Roof Vents

Suitable where roof discharge is preferred



Wall Vents

Commonly used where direct external wall discharge is practical



Duct Fittings and Joiners

Assist with transitions, connections and system layout

Understanding 10.8.2(4) Run-On Timers

The run-on timer requirement applies only to exhaust systems serving a bathroom or sanitary compartment under specific conditions. Use the following checks to determine whether it applies:

1 STEP 1: DOES THE ROOM SATISFY 10.6.2(A)?

Under 10.6.2(a), natural ventilation can be provided by an opening, window, door or other device that can be opened.

The ventilating area must be at least 5% of the room's floor area.

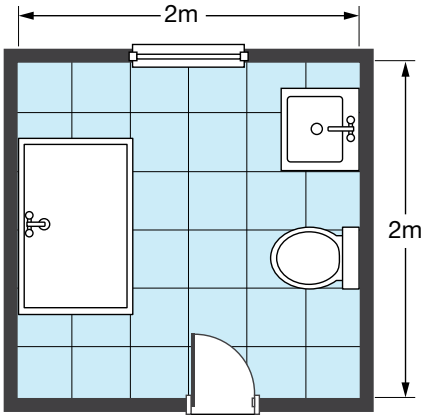
For a window, the ventilating area is based on the dimensions of the openable sash - not the overall window frame or any fixed glass sections.

Example:

Bathroom dimensions:
2m × 2m = 4m² floor area

Minimum ventilating area:
4m² × 5% = 0.20m²

An openable window sash measuring:
500mm × 400mm = 0.20m²
0.20m² would meet the 5% ventilating-area calculation.



IMPORTANT TIP

Meeting the NCC sash-area calculation does not always mean enough air can enter the room while the fan is operating. If the window only opens a small distance, or has a restrictor or flyscreen, the available air path may be limited. This can reduce the fan's installed airflow.

Fantech Trade recommends checking both the openable sash size and how freely air can enter the room when the fan is running. Consider both the openable sash area required under 10.6.2(a) and the practical air path available while the fan is operating.

Where the window opening is restricted or unlikely to be opened, consider a permanent air path such as a suitable door undercut or transfer-air opening. The complete system must still achieve the required installed airflow.

If the room satisfies 10.6.2(a)
The run-on timer provisions under 10.8.2(4) are not triggered.

If the room does not satisfy 10.6.2(a)
Continue to Step 2.

2 STEP 2: DOES THE EXHAUST SYSTEM RUN CONTINUOUSLY?

If the system runs continuously, the run-on timer provisions under **10.8.2(4)** are not triggered.

IMPORTANT: Continuous operation does not replace the minimum airflow requirement. The exhaust system must still achieve at least 25 L/s (90m³/h) for a bathroom or sanitary compartment.

If the system does not run continuously, the requirements of 10.8.2(4) must be followed; The exhaust system must:

- Be interlocked with the room's light switch; **and**
- Include a run-on timer so that it continues to operate for **10 minutes** after the light switch is turned off.

FANTECH TRADE SOLUTIONS

At Fantech Trade, we offer multiple ways to help simplify installations where **10.8.2(4)** run-on timer requirements apply.

RAPID RESPONSE TIMER MODELS

For a simple all-in-one solution, selected **Rapid Response** models are available with an integrated **run-on timer**. By combining the exhaust fan and timer into one product, installation can be simplified while reducing the need for additional components.



Rapid Response 200 with Run-On Timer:
RESPF200ROT



Rapid Response 250HP with Run-On Timer:
RESPF250HPROT



Rapid Response 250 with Round Grille and Run-On Timer:
RESPFG250RNWHROT



Rapid Response 250 With Square Grille and Run-On Timer:
RESPFG250SQWHROT

Special Note: *Timer models above include a plug and lead to suit HPM 33, or Clipsal 413/4P-WE bases (with 4-pin sockets).*

IN-LINE FANS WITH BUILT-IN RUN-ON TIMERS

For projects using in-line fans, selected models are also available with integrated adjustable run-on timers, providing the same all-in-one benefit while allowing greater flexibility in fan placement.

Available ranges include:



ProVent:
Models **150TSW** and **200TSW** include a 1-30 minute adjustable run-on timer and external mounted 2-speed switch.



TD Silent:
Models **TD-250/100SILT-4PL, TD-350/125SILT-4PL, TD-500/150SILT-4PL and TD-800/200SILT-4PL** include a 1-30 minute adjustable run-on timer



TD EVO VAR:
All models come standard with an on-board, adjustable 1 to 30 minute run-on timer*

ADJUSTABLE RUN-ON TIMER SOLUTION

For installations where an integrated timer fan may not be the preferred option, Fantech Trade also offers the **ROTADJ20R5D** Adjustable Run-On Timer up to 20 minutes with start delay also adjustable to 5 minutes.

The ROTADJ20R5D is an ultra-compact, easy to wire and versatile solution designed to add timer functionality across a wide range of applications. Compatible with fans up to 4.0A, it can be used with exhaust fans, in-line fans and higher airflow systems.

This can be beneficial where:

- An existing exhaust fan is already specified
- Higher airflow products or in-line fans are being used
- Timer settings need to be adjusted to suit the application
- A wider range of fan options is preferred



Adjustable Run-On Timer:
ROTADJ20R5D

Make-Up Air Explained.
Understanding NCC 2025 Clauses 10.8.2(5) and 10.8.2(6)

One of the most common reasons exhaust systems underperform is insufficient replacement air. Put simply, if air is being exhausted from a room, replacement air also needs to enter.

HOW DO I KNOW IF MAKE-UP AIR APPLIES?

1 **First, check whether the room satisfies 10.6.2(a) natural ventilation requirements.** *(See page 3)*

Does the room have sufficient openable area to outdoor air?

YES

the make-up air provisions under 10.8.2(5) and 10.8.2(6)

DO NOT APPLY

NO

2 **Does the room contain:**

An exhaust system under 10.8.2(1)

or

A venting clothes dryer under 10.8.2(3)

YES

Make-up air provisions

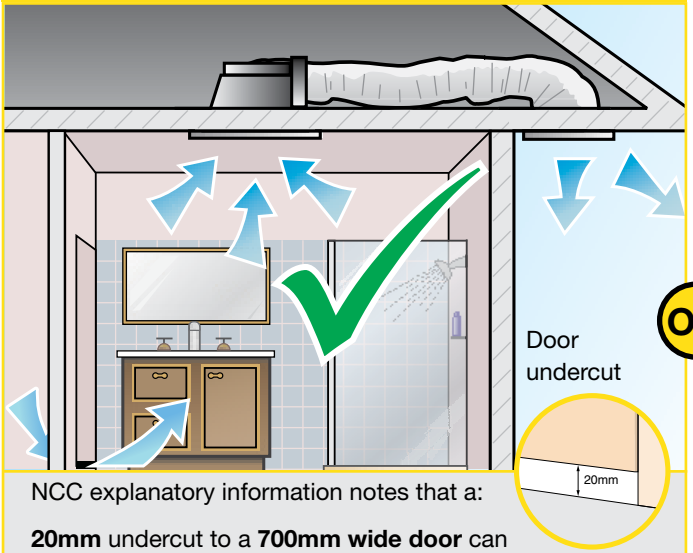
APPLY



COMPLIANCE PATHWAYS FOR MAKE-UP AIR

Under NCC 10.8.2(5)(a), compliance can be met by providing openings to an adjacent room with a free area of: 14,000mm²

1 DOOR UNDERCUT

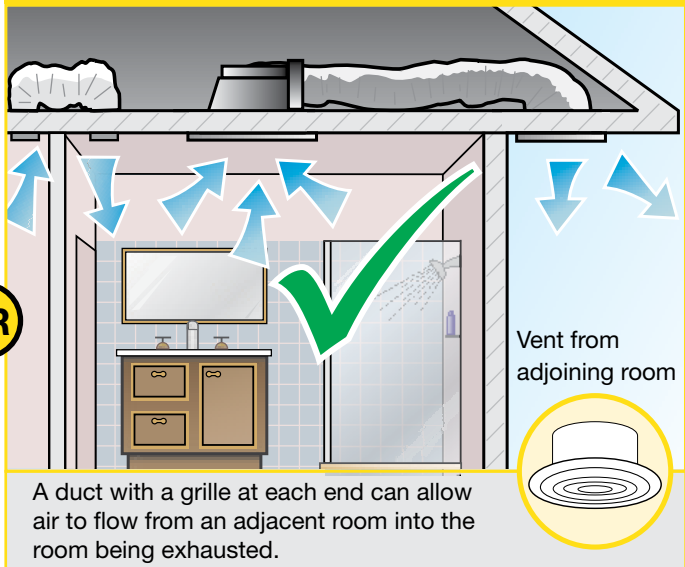


NCC explanatory information notes that a:

20mm undercut to a **700mm wide door** can achieve: 14,000mm² free area

OR

2 DUCTED AIR TRANSFER BETWEEN ROOMS



A duct with a grille at each end can allow air to flow from an adjacent room into the room being exhausted.

When the exhaust fan operates, make-up air is drawn through the duct. The completed arrangement must provide the required minimum free area of 14,000 mm²

For example, a grille with a 150mm diameter duct opening will have free area of 17,600mm² and therefore comply.

FANTECH TRADE SOLUTIONS

Fantech Trade offers a range of grille options for make-up air applications. Linear slot grilles are a popular choice, providing a clean, streamlined finish.



LINEAR SLOT DIFFUSERS



IALG CEILING GRILLE



IDJG CEILING GRILLE

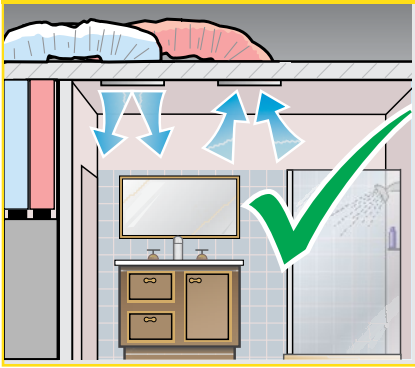


IDVSS INTERNAL DUCT VALVE

OR

Under NCC 10.8.2(5)(b), compliance can be achieved in accordance with AS1668.2

3 AS1668.2 COMPLIANT PRESSURISED SUPPLY AIR



Instead of providing a 14,000 mm² opening to an adjacent room, pressurised supply air may provide the equivalent of an undercut.

For example, a heat recovery ventilation system may use a matching supply fan to blow air into the space and replace the air removed by the exhaust system.

Ventilation Specialists That Support the Trade

At Fantech Trade, ventilation is what we do. Our team works closely with electricians, builders and electrical wholesalers to help ensure the right solution is selected for every application.

Many of our ventilation specialists come from trade backgrounds, so we understand the realities of working on site. From product selection through to installation guidance and after-sales support, we are here to help, every step of the way.

As part of Fantech, Australia's leading ventilation company, we combine decades of industry knowledge with a commitment to supplying high-quality ventilation solutions through our wholesale network.



SUPPORT YOU CAN COUNT ON

- Technical advice when you need it
- Application-specific recommendations
- Product selection guidance
- Installation support
- After-sales support

GOT ALL YOU NEED FOR THE JOB?


Bushfire Compliant Products


Wall Mounted Fans


Window Mounted Fans


Ceiling Mounted Fans


Heat Recovery Ventilation Systems


Flexible Duct



Run-on Timers


In-Line Fans


Internal & External Grilles


Special Order Products

DON'T RISK IT. IF IN DOUBT, REACH OUT!

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