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Meeting the guidance on ventilation

A guide to ensuring your windows comply
with Approved Document F for air quality



Introduction

The Coronavirus pandemic has raised awareness of the benefits that natural ventilation can have on health and wellbeing. Meanwhile, the government's ongoing efforts to achieve net zero emissions include reducing the amount of CO2 that homes and other buildings produce when they are heated.

Both these factors feed into the new Approved Document F of the Building Regulations, which comes into effect on 15th June 2022. The new guidance sets out updated requirements for ensuring that UK buildings provide adequate ventilation, with background ventilation – often in the form of trickle vents for windows – playing an important role.

The document provides detailed guidance on how trickle vents should be used and the standards they must meet. It is therefore vital that all manufacturers and installers are aware of the new requirements and ensure that their products comply with them – with a risk of reputational damage and even criminal prosecution should they fail to do so.

In this white paper, we provide a comprehensive overview of the new and updated Approved Document F, including what it states about the use of trickle vents and the performance tests they must pass.



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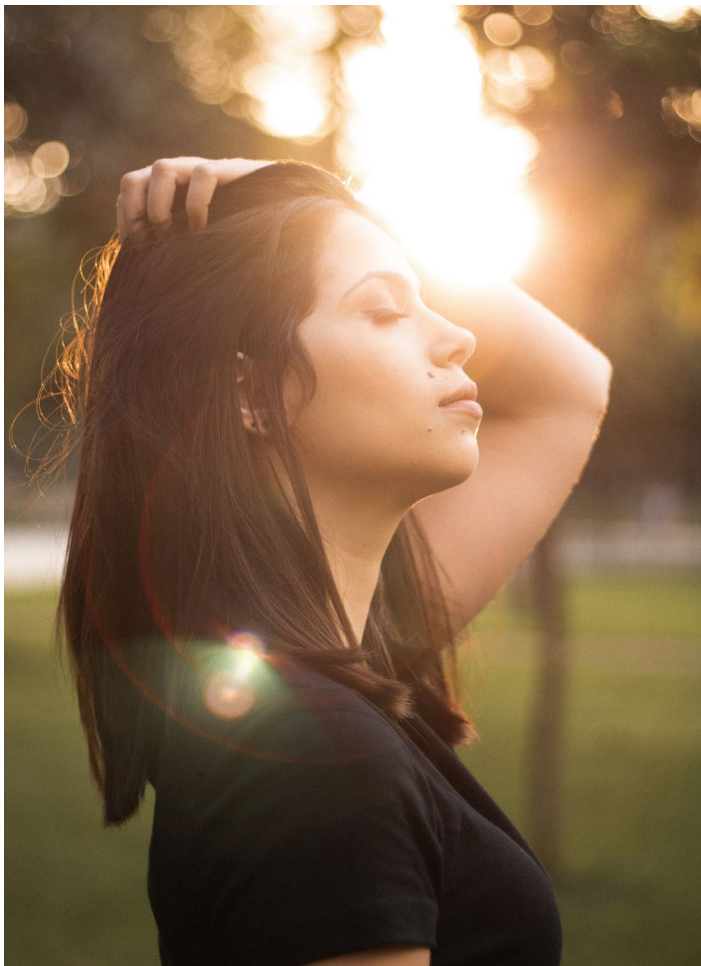


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What are trickle vents?

Trickle ventilators, or trickle vents, are small slots located just above a window or door that provide background ventilation for a home or other building. They are designed to ensure that air flows in and out of the room, providing several benefits that enhance the health and wellbeing of the occupier(s) and regulate conditions inside the building.

Trickle vents are a requirement for many new properties under Approved Document F. They are also a requirement under the Scottish Building Regulations October 2011, Standard 3.14.



The benefits of trickle vents

Ventilation provides a range of benefits for homes, offices, and a range of other buildings by controlling the air flow within them. These benefits include clearing the building of indoor pollutants and controlling moisture and heat levels.

Health and wellbeing

Trickle vents control the air flow moving in and out of the room, bringing fresh air in and expelling stale air and potentially harmful pollutants. This has a positive impact on the health and wellbeing of occupants, causing them to feel more relaxed and healthier while suffering less from health problems such as headaches, allergies, and asthma.

Reducing condensation

Especially in homes, the build-up of condensation – for example, water vapour from cooking, washing, and bathing – can lead to residue and mould that damages décor and harms occupants' health. Trickle vents are an effective way to reduce the build-up of condensation as they are constantly preventing the build-up of moisture in the building.

Expelling impurities and odours

Trickle vents help to make a building a more pleasant place to live or work in by expelling unwanted odours, such as those created by cooking or emissions from cleaning products, and replacing them with fresh air from outside.

Lowering the temperature in summer

The air flow created by trickle vents also helps to control the temperature within the building. This is particularly welcome during the summer months, when they will reduce the level of humidity and let cool air in, making it a more pleasant environment.

Ventilation without a security risk

While opening a window is the most effective way to introduce ventilation into a home, this poses a security risk if it is done at night or when the home is unoccupied. Trickle vents allow for the home to benefit from air flow even during these times, as the gaps are small enough that security is not compromised.

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Understanding the new regulations

As part of the UK's drive to achieve net zero, there is a new government target for new homes to produce around 30 percent less CO2 than current standards and a 27 percent reduction to be achieved in the emissions from other new buildings, such as offices and shops.

The changes, which come into effect from 15th June 2022, pave the way for the Future Homes and Buildings Standard in 2025, and will mean all future homes are net zero-ready and will not need retrofitting.

They demand that all new residential buildings – including homes, care homes, student accommodation, and children's homes – must be designed to reduce overheating and feature improved ventilation to support the safety of residents and prevent the spread of airborne viruses.

Ventilation guidance is governed by 'Approved Document F: Ventilation'. As of 15th June, 2022, the guidance will change and it will henceforth be governed by two approved documents, 'Approved Document F, volume 1: dwellings' and 'Approved Document F, volume 2: buildings other than dwellings'.



What is the aim of the new guidance?

The guidance sets out the requirement that "there shall be adequate means of ventilation provided for people in the building" in order to protect the health of occupants by preventing mould and internal air pollution that might become hazardous to health. It then states that, in the Secretary of State's view, this requirement is met if the building:

- Extracts water vapour and indoor air pollutants from areas where they are produced in significant quantities (e.g. kitchens, utility rooms and bathrooms) before they spread through the building
- Supplies a minimum level of outdoor air for occupants' health
- Rapidly dilutes indoor air pollutants and disperses water vapour when necessary in habitable/occupiable rooms
- Minimises the entry of external air pollutants
- Achieves all of the following, as far as if reasonably practicable:
 - Produces low levels of noise
 - Offers easy access for maintenance
 - Provides protection from cold draughts
 - Provides protection from rain (volume 2 only)
 - Does not significantly risk occupants' health (volume 2 only)¹

¹<https://www.gov.uk/government/publications/ventilation-approved-document-f>

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What does it say about trickle vents?

To achieve this level of ventilation, the guidance recommends several systems, including extract ventilation, whole building ventilation, and purge ventilation. It also recommends background ventilation, of which trickle vents are the most common type.

The guidance specifies a number of requirements that background ventilators must meet, including:

- All ventilation should be controllable, either manually or automatically
- Background ventilators should be at least 1700mm above floor level, to reduce cold draughts, but still be easy for the occupant to reach
- Any background ventilators with automatic controls should also have manual override
- If a habitable room does not contain windows that can be opened, adequate ventilation can be achieved via another habitable room. If this is the case, then the background ventilation of that room must be of at least 10,000mm² equivalent area

In addition, the guidance recommends that background ventilators such as trickle vents should have the equivalent area marked where it will be easy to see from inside the dwelling when installed, to aid verification by building control bodies.²



²<https://www.gov.uk/government/publications/ventilation-approved-document-f>

Where should trickle vents be used in existing dwellings?

The new Approved Document F states that, when replacing windows in a dwelling or non-dwelling, if the existing windows have background ventilators, the replacement windows should include background ventilators of at least the same volume of equivalent area.

If the windows being replaced do not have background ventilators, and the ventilation is not provided via other means, it is necessary to ensure that the ventilation provision in the dwelling is no worse than it was before the work was carried out.

Recommended ventilation rates in these circumstances are as below:

Habitable rooms	8000mm² EA
Kitchen	8000mm² EA
Bathroom (with or without a toilet)	4000mm² EA

It is important to note that the rates of EA are per room and not per window.



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Where should trickle vents be used in new dwellings?

The guidance states that, in less airtight dwellings, there are the following requirements for background ventilators under system 1 Natural Ventilation:

- All rooms with external walls should have background ventilators
- If the dwelling has more than one exposed façade, the area of background ventilators on each façade should be similar to allow for cross-ventilation
- If an exposed façade is close to an area of sustained and loud noise, such as a main road, then a noise attenuating background ventilator should be fitted

- If fans and background ventilators are fitted in the same room, they should be at least 500mm apart
- The minimum total area of background ventilators in each room should follow the guidance in the table below
- The total number of ventilators installed in the dwellings habitable rooms should be at least the following:
 - Four ventilators if the dwelling has one bedroom
 - Five ventilators if the dwelling has more than one bedroom³

Room	Minimum equivalent area of background ventilators for dwellings with multiple floors	Minimum equivalent area of background ventilators for single-story dwellings
Habitable rooms ⁽²⁾⁽³⁾	8000mm ²	10,000mm ²
Kitchen ⁽²⁾⁽³⁾	8000mm ²	10,000mm ²
Utility room	No minimum	No minimum
Bathroom	4000mm ²	4000mm ²
Sanitary accommodation	No minimum	No minimum

Notes:

- The use of this table is no appropriate in any of the following situations and expert advice should be sought.
 - If the dwelling has only one exposed façade.
 - If the dwelling has at least 70% of its openings on the same façade.
 - If a kitchen as no windows or external façade through which a ventilator can be installed.
- Where a kitchen and living room accommodation are not separate rooms (i.e. open plan), no fewer than three ventilators of the same equivalent area as for other habitable rooms should be provided within the open-plan space.
- The total number of ventilators installed in a dwelling's habitable rooms and kitchens should be no fewer than five, except in one-bedroom properties, where there should be no fewer than four.
- If a bathroom has no window or external façade through which a ventilator can be installed, the minimum equivalent area specified should be added to the ventilator sizes specified in other rooms.

³<https://www.gov.uk/government/publications/ventilation-approved-document-f>, 'Background ventilators', 1.52-1.58

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How should trickle vents be used in conjunction with other ventilation systems?

According to the new guidance, where continuous mechanical extract ventilation is used, background ventilators should satisfy all of the following conditions:

- Not be in wet rooms
- Provide a minimum equivalent area of 4000mm² for each habitable room in the dwelling
- Provide a minimum total number of ventilators that is the same as the number of bedrooms plus two ventilators, for example a one bed dwelling to have minimum of three ventilators and a two-bed dwelling a minimum of four etc.

It adds that, to avoid unintended air pathways, background ventilators should not be installed where mechanical ventilation with heat recovery is in place.



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What tests do trickle vents need to pass?

Trickle vents must pass the BSI standard BS EN 13141-1:2019, entitled 'Ventilation for buildings – Performance testing of components/products for residential ventilation, Part 1: Externally and internally mounted air transfer devices'.

This standard was introduced in 2019, and replaces the previous standard for trickle vents, BS EN 13141-1:2004.

The test includes performance testing of several aerodynamic characteristics, including flow rate/pressure, reverse flow ability, air tightness when closed, free area, and air diffusion in the occupied zone, as well as performance testing for sound insulation and water tightness.

How will the new standards be regulated?

On a new-build property, if a project has been approved prior to 15th June 2022, then there will be a 12-month transition period before that site is required to comply. Once that period has expired, the site will be inspected by Building Control to the new regulations.

All replacement windows, meanwhile, will need to comply as of 15th June 2022, regardless of when the order was received. Replacement windows will be inspected by a government-authorized scheme such as FENSA or CERTASS, based on an Installation and Commissioning checklist that must be completed and handed over to the homeowner after a window installation that includes sign-off on the background ventilation. Knowingly making a false declaration on this will invalidate either a FENSA or a CERTASS certification.

The logo for BSI (British Standards Institution) consists of the lowercase letters 'bsi.' in a bold, black, sans-serif font. A small red circle is positioned to the right of the period.The logo for CERTASS (Certificate of Environmental Resistance to Air Transfer) features the word 'CERTASS' in a bold, blue, uppercase, sans-serif font.

⁴<https://shop.bsigroup.com/products/ventilation-for-buildings-performance-testing-of-components-products-for-residential-ventilation-externally-and-internally-mounted-air-transfer-devices/tracked-changes>

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What can happen if you fail to comply?

If non-compliant trickle vents are installed in a dwelling or other building, the effects can be serious – ranging from prosecution and enforcement notices to severe reputational damage.

Responsibility to enforce the building regulations rests with the local authority in the area. The local authority may choose to prosecute builders, installers, or main contractors in the Magistrates' Court, where an unlimited fine may be imposed.

The local authority may also serve an enforcement notice to the building owner, requiring alternation or removal of work which contravenes the regulations. If the owner does not comply with the notice, the local authority has the power to undertake the work itself and recover the costs of doing so from the owner.

While the bulk of the direct legal responsibility sits with the builder, installer, or main contractor, it is clear that the fallout of any failure to comply will reflect very badly on the manufacturer. Their reputation would be severely damaged with the builder and specifier, leading to a breakdown of trust that would likely damage their business opportunities in the future.



Introducing the Yale SlotVent range

The Yale SlotVent range of trickle vents for windows offers a choice of three variants – 2500EA (Equivalent Area), 4000EA, and 5000EA – each providing a different level of ventilation, depending on requirements. The product is made up of an internal vent that can be tilted 30, 60, or 90 degrees and includes the option of a foam gasket that reduces noise and drafts; as well as an external hood and a fly screen for the over-frame.

The vents are available in a wide range of colours – from Black and White to Agate Grey, Chartwell Green, and Irish Oak – inners and outers can be ordered as a set or separately to suit the window aesthetics and specification.

Easy to fit, they are attached to the window using pre-fitted clips, or can alternatively be fixed using the screw-holes provided in the clips.

All products in the SlotVent range have been thoroughly tested at BRE in accordance with EN13141-1:2019, confirming their suitability for residential building ventilation, and BS EN ISO 10140-1, testifying to their ability to insulate against airborne sound.

For more information, please visit <https://www.yaledoorandwindowsolutions.co.uk/en/productsdb/trickle-vents/slotvent/>

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Conclusion

It is vital that window fabricators read and understand the new regulations before they come into force on 15th June 2022. Only by ensuring that they are using the right types of trickle vents – with the right capabilities and accreditations – can they avoid falling foul of inspections. The reputation of their business and its future opportunities depends on getting this right.



About Yale

At 180 years strong, Yale is a leading security brand that protects the people, places and things we love most. It secures millions of homes and businesses worldwide with its innovative mechanical locks, safes and smart locks for front doors, interior doors, cabinets, package deliveries and more.

Yale is part of the ASSA ABLOY Group, the global leader in access solutions. Every day, we help billions of people experience a more open world.



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About GGF

The Glass and Glazing Federation (GGF) represents companies that manufacture, supply or install glass and glazing products in the UK and internationally.

Being the industry authority, the GGF promotes best practice and helps shape the highest technical and health & safety standards. The Federation is also the industry's main voice in local and national politics influencing policy and legislation.



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