



## Changes to the Building Regulations and Technical Standards in England, Wales and Scotland

England Regulations have been released (15/12/21) and Scotland & Wales are currently under review. It is the intention that the updates ensure adequate ventilation of all types whilst the energy efficiency of housing is improved at the same time. As the saying goes, **'Ventilate when you Insulate'**.

This is all part of the Government's proposals for the Future Homes Standard, which provides a pathway for highly efficient buildings that are zero carbon ready, better for the environments and fit for the future. Implementation of a full technical specification is scheduled for 2025. There are also proposals being discussed to mitigate against overheating in residential buildings.

The below is a Titon summary of the main points, please ensure you read the full documents for full implications.

## England - Revised Approved Document F publication issued December 2021 with effective date 15th June 2022

### What are the changes for background ventilators? (e.g. trickle vents in windows or doors)

**Note:** All sizes shown are minimum sizes.

### New Homes - using Natural ventilation with background ventilators and intermittent extract fans guidance suitable only for less air tight dwellings):

(Formerly System 1 – Background ventilators and intermittent extract fans)

#### 2010 Regulation Guidance

Ventilation amounts, and therefore number of trickle vents required, vary according to a number of criteria including room type, occupancy levels based on bedroom types, floor area of property. These can range from 35,000mm<sup>2</sup>EA to over 65,000mm<sup>2</sup>EA.

#### 2022 Regulation Guidance

These are now simpler per room amounts;

- **For dwelling with multiple floors:**  
Habitable rooms and kitchens: 8000mm<sup>2</sup>EA  
Bathrooms: 4000mm<sup>2</sup>EA  
Sanitary Accommodation/Utility Room: No minimum

- **For single storey dwellings (e.g flats):**  
Habitable rooms and kitchens: 10000mm<sup>2</sup>EA  
Bathrooms: 4000mm<sup>2</sup>EA  
Sanitary Accommodation/Utility Room: No minimum

There are some sub-rules:

- Seek expert advice should the dwelling have a single exposed façade, or at least 70% of its openings on same façade, or the kitchen has no windows or façade for vents.
- If kitchen and living room not separate, at least 3 vents of same EA as for habitable rooms should be provided in that space.
- Total number of vents in habitable rooms and kitchen should be at least 5, or 4 if one bedroom property.
- 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.

**Notes:** The guidance for natural ventilation is only suitable for less airtight dwellings. For the design, sizing and positioning of ventilators to provide effective ventilation using natural ventilation for highly-airtight dwellings expert advice should be sought.



## New Homes using Continuous mechanical extract ventilation:

(Formerly System 3 – Continuous mechanical extract and (MEV))

2010 Regulation Guidance	2022 Regulation Guidance
Trickle vents should provide 2500mm <sup>2</sup> EA in each habitable room.	Trickle vents should provide 4000mm <sup>2</sup> EA in each habitable room.

**Notes:** The guidance for mechanical extract ventilation is suitable for highly-airtight dwellings only. For the design, sizing and positioning of ventilators to provide effective ventilation using mechanical extract for less airtight dwellings expert advice should be sought.

## New Homes using Mechanical ventilation with heat recovery:

(Formerly System 4 – Continuous mechanical supply and extract with heat recovery (MVHR))

2010 Regulation Guidance	2022 Regulation Guidance
No change, trickle ventilators are not required because these are balanced ventilation systems in more energy efficient house designs.	No change, trickle ventilators are not required because these are balanced ventilation systems in more energy efficient house designs.

**Notes:** *The guidance for mechanical supply and extract ventilation is suitable for any level of airtightness.*

## Existing Homes:

2010 Regulation Guidance	2022 Regulation Guidance
<ul style="list-style-type: none"> <li>Replacement windows should be fitted with trickle vents only if the windows being replaced had vents in them.</li> <li>Habitable rooms: 5000mm<sup>2</sup>EA. Kitchen, Utility Room and Bathroom: 2500mm<sup>2</sup>EA.</li> <li>Addition of a wet room to an existing building: 2500mm<sup>2</sup>EA.</li> <li>Addition of a habitable room to an existing dwelling: 8000mm<sup>2</sup>EA.</li> </ul>	<ul style="list-style-type: none"> <li>Replacement windows should be fitted with trickle vents regardless of whether the windows being replaced had vents in them or not, if no background ventilation alternative is being installed.</li> <li>Habitable rooms and kitchens: 8000mm<sup>2</sup>EA. Bathrooms (with or without a toilet): 4000mm<sup>2</sup>EA.</li> <li>Addition of a wet room to an existing building: 5000mm<sup>2</sup>EA.</li> <li>Addition of a habitable room to an existing dwelling (if existing room has less than 5000mm<sup>2</sup>EA): 12000mm<sup>2</sup>EA.</li> <li>If the existing dwelling has continuous mechanical extract ventilation fitted then 4000mm<sup>2</sup>EA is required in habitable rooms.</li> </ul> <p>In all cases there is now an Installation &amp; Commissioning Checklist that needs to be completed and handed over by the installer, this includes background ventilation sign off. This Checklist appears in the Approved Document 'Part' F, as opposed to the separate DVCG (Domestic Ventilation Compliance Guide) which has been made obsolete.</p>



Documentation for Homes:	
2010 Regulation Guidance	2022 Regulation Guidance
<p><b>Domestic Ventilation Compliance Guide (now obsolete)</b></p>	<p><b>Home User Guide for new dwellings (4.18 &amp; 4.19)</b></p> <ul style="list-style-type: none"> <li>▪ A Home User Guide should be provided for a new dwelling as described in Section 9 of Approved Document L, Volume 1: Dwellings. It should contain a section on 'Ventilation' that provides non-technical advice on the ventilation systems provided within the new dwelling.</li> <li>▪ The Home User Guide is in addition to the operating and maintenance instructions. It is intended to be a non-technical overview for the occupiers, and should include some basic details on the operation and maintenance of the system. The operating and maintenance instructions provide further details as required.</li> </ul> <p><b>Additional information for work in existing dwellings (4.20)</b></p> <ul style="list-style-type: none"> <li>▪ When new ventilation is installed in an existing dwelling, information about it should be provided to the building owner in accordance with paragraphs 4.13 to 4.17.</li> </ul> <p>Go to - <a href="https://www.gov.uk/government/publications/home-user-guide-template">https://www.gov.uk/government/publications/home-user-guide-template</a> for the <b>Home Energy Guide Template</b> and the <b>Existing Home Ventilation Guide</b>.</p>
<p><b>Notes:</b> Information about overheating and the conservation of fuel and power are required under different regulations and guidance is given in Approved Documents O (Overheating) and L (Conservation of fuel and power). Where the system provides more than one function, the owner should be informed of each separate function.</p>	
	<p><b>Operating and maintenance instructions (4.13, 4.14 &amp; 4.15)</b></p> <ul style="list-style-type: none"> <li>▪ Sufficient information about the ventilation system and its maintenance requirements must be given to the building owner to allow the system to be operated effectively. This should include both design flow rates and maintenance requirements. The information should be provided in a clear manner, for a non-technical audience.</li> <li>▪ A copy of the completed commissioning sheet in Appendix C should be given to the owner of the new dwellings. For existing dwellings Appendix D checklist may be used.</li> <li>▪ The operation and maintenance information should contain specific instructions for the end user on how and when to use the ventilation system, including information on the intended uses for the available fan settings. Information should also be provided to suggest when, and how, the system components should be cleaned and maintained.</li> </ul>



## What are the changes for Mechanical Ventilation?

2010 Regulation Guidance	2022 Regulation Guidance
<b>System 1:</b> <b>Background ventilators and intermittent extract fans.</b>	<b>Natural ventilation with background ventilators and intermittent extract fans (guidance suitable only for less airtight dwellings)</b>  Dwellings covered by the guidance - Less Airtight Dwellings
<b>System 3:</b> <b>Continuous mechanical extract (MEV).</b>	<b>Continuous mechanical extract ventilation</b>  Dwellings covered by the guidance - All Dwellings
<b>System 4:</b> <b>Continuous mechanical supply and extract with heat recovery (MVHR).</b>	<b>Mechanical ventilation with heat recovery</b>  Dwellings covered by the guidance - All Dwellings

<b>All systems</b>	<p><b>Highly airtight dwellings:</b>                      Dwellings that achieve one of the following.</p> <p>a. A design air permeability lower than <math>5\text{m}^3/(\text{h}\cdot\text{m}^2)</math> at 50Pa.                      b. An as-built air permeability lower than <math>3\text{m}^3/(\text{h}\cdot\text{m}^2)</math> at 50Pa.</p> <p>Where the guidance for highly airtight dwellings is followed, dwellings are assumed to have an infiltration rate of 0 air changes per hour.</p> <p>Airtightness level must be proved if no trickle vents are to be fitted into a 'Less airtight dwelling'.</p> <p><b>Less airtight dwellings:</b>                      Those dwellings that are not highly airtight dwellings.</p> <p>Where the guidance for less airtight dwellings is followed, dwellings are assumed to have an infiltration rate of 0.15 air changes per hour.</p>
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2010 Regulation Guidance						2022 Regulation Guidance																																			
<p><b>Table 5.1b - Whole dwelling ventilation rates</b></p> <table border="1"> <thead> <tr> <th>Number of bedrooms</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>Whole dwelling ventilation rate (a.b.) l/s</td> <td>13</td> <td>17</td> <td>21</td> <td>25</td> <td>29</td> </tr> </tbody> </table> <p><b>Notes:</b></p> <p>a. In addition, the minimum ventilation rate should be not less than 0.3 l/s per m<sup>2</sup> of internal floor area. (This includes all floors, e.g. for a two-storey building add the ground and first floor areas).</p> <p>b. This is based on two occupants in the main bedroom and a single occupant in all other bedrooms. This should be used as the default value. If a greater level of occupancy is expected add 4 l/s per occupant.</p>						Number of bedrooms	1	2	3	4	5	Whole dwelling ventilation rate (a.b.) l/s	13	17	21	25	29	<p><b>Table 1.3 - Minimum whole dwelling ventilation rates</b></p> <table border="1"> <thead> <tr> <th>Number of bedrooms</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <td>Minimum ventilation rate criterion 1 – by number of bedrooms</td> <td>19</td> <td>25</td> <td>31</td> <td>37</td> <td>43</td> </tr> <tr> <td>Minimum ventilation rate criterion 2 – by floor area</td> <td colspan="5">0.3 l/s per m<sup>2</sup> of internal floor area</td> </tr> </tbody> </table> <p>A minimum rate of 0.3 litres per second per m<sup>2</sup> of internal floor area (this includes all floors, e.g. for a two-storey building, add the ground-floor and first-floor areas).</p> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>Where the dwelling has only one habitable room, a minimum ventilation rate of 13 litres per second should be used.</li> <li>For each additional bedroom, add 6 litres per second to the values in Table 1.3.</li> </ol>						Number of bedrooms	1	2	3	4	5	Minimum ventilation rate criterion 1 – by number of bedrooms	19	25	31	37	43	Minimum ventilation rate criterion 2 – by floor area	0.3 l/s per m <sup>2</sup> of internal floor area				
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### Example of changes:

Minimum whole dwelling rate [continuous rate].

Large increase in per bedroom rate could equate to a higher whole house continuous rates. Example below looking at 70m<sup>2</sup>.

2010 Regulation Guidance	2022 Regulation Guidance
<ul style="list-style-type: none"> <li>The continuous rate – current</li> <li>Floor area rate = 70m<sup>2</sup> x 0.3 = 21l/s</li> <li>Dwelling Bedroom rate = <b>21l/s</b></li> </ul>	<ul style="list-style-type: none"> <li>Boost Rate – Unchanged</li> <li>Floor area rate remains the same = 70m<sup>2</sup> x 0.3 = 21l/s</li> <li>Dwelling bedroom rate now = <b>31l/s</b></li> </ul>



Noise	
2010 Regulation Guidance	2022 Regulation Guidance
	<p><b>1.5</b> Mechanical ventilation systems, including both continuous and intermittent mechanical ventilation should be designed and installed to minimise noise. This includes all of the following:</p> <ul style="list-style-type: none"> <li>• Sizing and jointing ducts correctly</li> <li>• Ensuring that equipment is appropriately and securely fixed</li> <li>• Selecting appropriate equipment, including following paragraph 1.6</li> </ul> <p><b>1.6</b> For mechanical ventilation systems, fan units should be appropriately sized so that fans operating in normal background ventilation mode are not unduly noisy. This might require fans to be sized so that they do not operate near the maximum capacity of the fan when operating in normal background ventilation mode.</p> <p><b>1.7</b> Account should be taken of outside noise when considering the suitability of opening windows for purge ventilation.</p>

**Wales** - Revised Approved Document 'Part' F due for publication very soon after the England equivalent.

**Scotland** - Revised Technical Standards are due to be published after the England & Wales documents.

**Please get in touch for more information or guidance about the upcoming changes:**

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