

Green Homes Compliance Scheme Test Protocol

Test method for exhaust ventilation fans used in a single dwelling for Green Homes Scheme compliance

1. Introduction

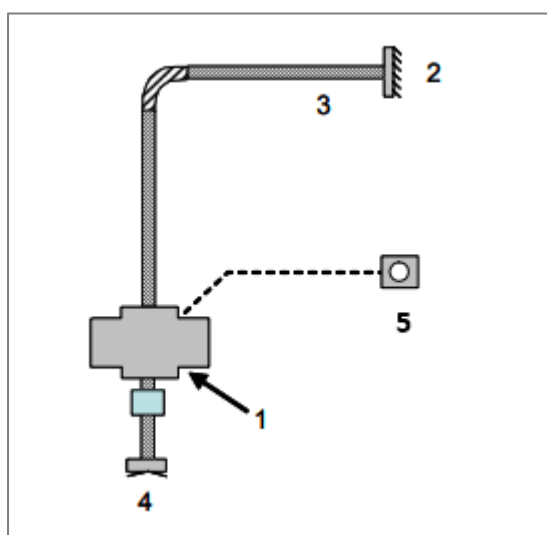
This test method is based closely on the European Standard BS EN 13141-4:2011 and must be read alongside that standard.

2. Scope

This test method specifies laboratory methods for measuring the aerodynamic performance of exhaust ventilation packages for a single dwelling.

The object of this test method is to allow the flow rate at each application to be determined as required by the Building Regulations Approved Document F (Ventilation) when the system is installed in accordance with the manufacturer's instructions.

Figure 1 - Typical components that may form part of an exhaust fan installation



1. Fan unit
2. Roof / wall outlet terminal
3. Duct from fan to outlet terminal
4. Exhaust terminal device
5. System switch (may commonly be the light switch or integrated pullcord)

3. Terms and definitions

The terms and definitions used in this test method are the same as those in European Standard BS EN 13141-6.

4. Performance testing of aerodynamic characteristics

4.1 General

The following aerodynamic characteristic shall be determined for each application, specified as being suitable by the manufacturer:

- Air volume flow rate

4.2 Test installation and conditions

4.2.1 Test installation

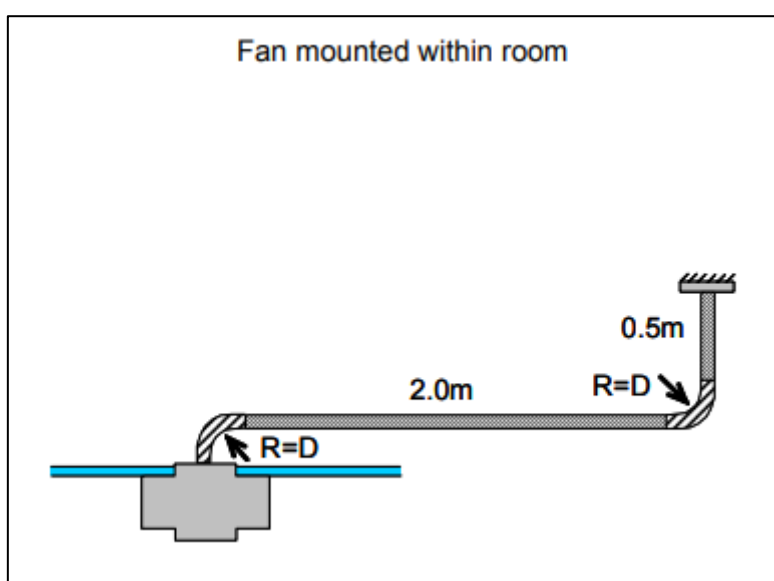
The test shall be carried out with all components supplied by the manufacturer directly linked in accordance with the manufacturer's instructions.

4.2.2 Installation configuration of the fan unit

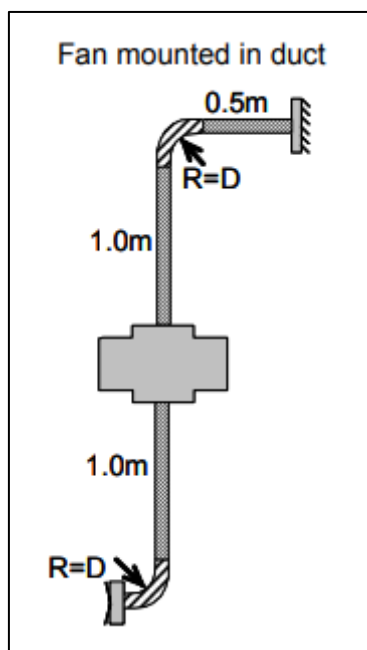
The fan unit shall be connected in accordance with one of the configurations detailed in Figure 2.

Figure 2 – Options for fan unit configurations (R=D means radius of bend equals diameter of duct)

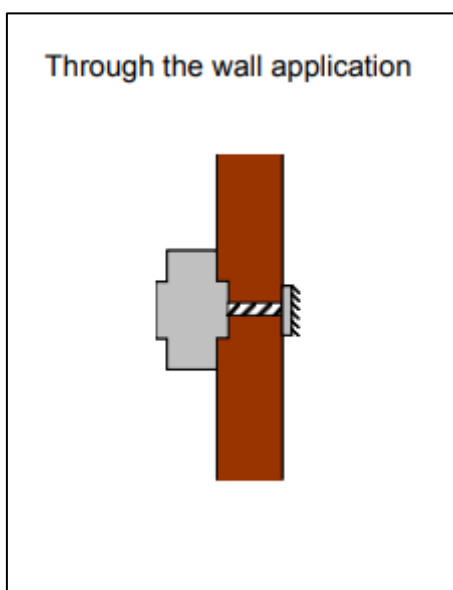
Option 1



Option 2



Option 3



Ducts shall be made using components provided or specified by the manufacturer or supplier.

When flexible ducts are provided or specified, they shall be extended to 90% of their maximum length and shall be supported to prevent sagging and to maintain the specified elbow radius. The diameter of the flexible duct used for testing shall be the same as the fan spigots, unless adaptors are supplied packaged with the fan.



4.2.3 Test conditions

4.2.3.1 Exhaust air flow rates

If the air flow rate is set after installation, (e.g. by fan speed selection) the fan should be set to deliver the maximum air flow rate for each application for which it is designed. These shall be:

Kitchen 60l/s

Utility 30l/s

Bathroom 15l/s

4.2.3.2 Exhaust conditions

4.2.3.2.1 Normal conditions

The system shall be tested under the following exhaust condition:

- The pressure difference between the pressure upstream of the exhaust and the pressure downstream of the outlet shall be 0 ± 0.5 Pa.

4.2.3.2.2 Wind conditions

To test the wind effect, a counter pressure at the exhaust terminal of +15 Pa shall be applied to the normal conditions for the connection to outlet.

The air flow rate at the fan shall be measured.

4.2.3.3 Temperature

The temperature of the test room shall be in accordance with BS EN 13141-4.

4.2.3.4 Electrical conditions

The electrical conditions for the test shall be in accordance with BS EN 13141-4



4.3 Test procedure

4.3.1 Air flow measurements

The air flow measurements shall be in accordance with BS EN 13141-4 Clause 4.3.1.

5. Fan identification

The fan unit must be permanently labelled so that it can be identified. If the labelling is not permanently visible, the cover shall be removable without the need for tools.

6. Presentation of results

The manufacturer, product model and serial number (if relevant), the test installation configuration and duct type and size shall be clearly detailed.

The fan will be easily identified for each application specified as being suitable by the manufacturer when tested to this test method.

7. Application of results

Assessment of the performance of an exhaust fan for compliance with the requirements of Building Regulations ADF requires that the minimum air flow rates defined in 4.2.3.1 are achieved for each application specified as being suitable by the manufacturer.

The effect of wind on the performance of the exhaust fan shall not reduce the air flow below the minimum air flow rates defined in clause 4.2.3.1. If the reduction in air flow falls below the requirement the exhaust fan is considered as unsuitable for application as an exhaust ventilation device within the Green Homes Compliance Scheme.