Exclusively for HETAS Registrants

HETAS TECHNICAL BULLETIN #12 SEPT 2018

Welcome to HETAS Technical Bulletin #12 September 2018. Whilst many of us have had an excellent summer September always signals the start of the busy season in our sector.

In this issue we are pleased to be supporting installers who work in various localities where regulation and guidance comes in different forms e.g. for Northern Ireland and the Republic of Ireland. In this issue we look at some of the different approaches that help us work to the same ends of safe and effective installation wherever the installation happens to be located. Like most people who will be affected by Brexit we wonder what it will bring. But with European Standards covering most areas of our work, and the manufacture of appliances etc, it seems that we will be working with these standards in to the future. Where things might get a little more complicated is where individual Countries add parts (Annexes) to standards to address relevant local issues. This already happens and no doubt UK will continue the practice in to the future. We'll keep you updated if or when changes take place. We look forward to a busy and interesting heating season.

If you have comments we would be pleased to hear from you at:

hello@hetas.co.uk.

- Bruce Allen, CEO

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Building Regulation Requirements for Republic of Ireland & the UK VENTILATION SIZING

CALVIN MAY, TECHNICAL STANDARDS MANAGER ON MEETING VENTILATION BUILDING REGS FOR REPUBLIC OF IRELAND & THE UK AND HOW TO FIND OUT MORE ON OUR WEBSITE

All solid fuel and biomass burning appliance installations require an adequate amount of air to operate effectively and ensure the chimney or flue system has enough draw to disperse the products of combustion through the chimney to the outside atmosphere. How much ventilation, suitable ventilation systems available, extracts and what to do in scenarios where the property has undergone significant energy efficiency improvements are all questions installers face during the specification phase to ensure the installation remains in compliance with the relevant Building Regulation Requirements.

What do the Building Regulations state?

The Building Regulations for the Republic of Ireland, Northern Ireland and England & Wales all cover the same basic legal requirements in terms of ensuring a supply of air is readily available for the appliance to function. In basic terms the regulations require the following across the different member countries:

> *A combustion/heat producing appliance shall be so installed so that there is an adequate supply of air available/received to prevent overheating and ensure the safe and efficiency operation of the combustion appliance and any connected flue or chimney serving the appliance*

Where differences exist is with the means provided of meeting compliance with these requirements through supporting technical advice and guidelines. These are made available to installers in the form of either Technical Booklets (Republic of Ireland & Northern Ireland) or Approved Documents (England & Wales), and are readily available free of charge from the relevant governing websites. When looking at ventilation requirements for solid fuel appliances in properties, Technical Guidance J; 2014 (Republic of Ireland), Technical Booklet L; 2012 (Northern Ireland) and Approved Document J; 2013 (England & Wales), and provide guidance which would be considered adequate provision to ensure compliance with the relevant requirements of the regulations.

Meeting Compliance

There are a number of points to consider during the specification of type, location and size of a permanent ventilator into a property providing air for a combustion appliance, including:

- **That the ventilator is of adequate size and is non-adjustable or closable and so provides an adequate and constant flow of air into the room where the appliance is installed**
- **Positioned in a location as to avoid the risk of blockage from debris, snow build up or nesting from animals**
- **Where other combustion appliances or extract systems exist that may depressurise the room, that additional air may be required**

Improvements in the properties insulation properties (i.e. cavity wall, triple glazing etc.) may impact the amount of air available to the property due to the loss of adventitious air available through the building fabric as well as window, door and other opening seals. Properties built before 2008 without these home improvements are likely to have an amount of adventitious air available for operation of the appliance (up to around 5kW output), however the appropriate smoke and spillage commissioning checks are a suitable and important way of checking that enough air is available in the room for the appliance to function.

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Technical Guidance J – Republic of Ireland

Following similar principles to the requirements for Northern Ireland, England & Wales, the ventilation sizing parameters follow the type of appliance and any air tightness measures undertaken, however give slightly varying requirements for the amount of air required. The equivalent amount of air required should always be at least 6500mm² with variation dependent on appliance type, air tightness of the property and whether a draught stabilizer is fitted;

Appliance Type	Nominal Output	Year Property Built?	Home Improved?	Draught Stabiliser?	Minimum equivalent area of air vent required for Republic of Ireland
Closed	<12kW	Pre 2008	Yes & No	No	6500mm²
Closed	<12kW	Pre 2008	Yes & No	Yes	6500mm² + an extra 300mm² per kW output of appliance
Closed	<12kW	Post 2008	-	No	6500mm²
Closed	<12kW	Post 2008	-	Yes	6500mm² + an extra 300mm² per kW output of appliance
Closed	<12kW	Pre 2008	No	No	6500mm² + an extra 550mm² per kW output of appliance above 5kW
Closed	≥12kW	Pre 2008	Yes	No	6500mm² + an extra 550mm² per kW output of appliance
Closed	≥12kW	Pre 2008	Yes & No	Yes	6500mm² + an extra 850mm² per kW output of appliance
Closed	≥12kW	Post 2008	-	No	6500mm² + an extra 550mm² per kW output of appliance
Closed	≥12kW	Post 2008	-	Yes	6500mm² + an extra 850mm² per kW output of appliance
Open fire (no throat)	At least 50% of the cross sectional area of the flue/chimney or 6500mm² (whichever is greater)				
Open fire (throat)	At least 50% of the cross sectional area of throat opening area or 6500mm² (whichever is greater)				

In instances where the equivalent area is not tested and/or given by the ventilator manufacturer or for more simple designed vents on todays market (e.g. airbrick) then the free area can be calculated by measuring the total unobstructed cross sectional area of each opening at right angles to the direction of air flow. Again, it is always advised to use any stated equivalent area when available as this provides a more accurate measurement of the amount of air it can provide. Visit the HETAS website for a full list of suitable ventilators and their equivalent area size:

Visit www.hetas.co.uk and click on the product search button 

Worked Example (4kW stove installation in a 2009 detached property with draught stabiliser)

Air Required (using table above)

6500mm² + an extra 850mm² per kW output of the appliance

4(kW) x 850 + 6500= 7700

Total Air Requirement = **9900mm²**

ADJ – Northern Ireland, England & Wales

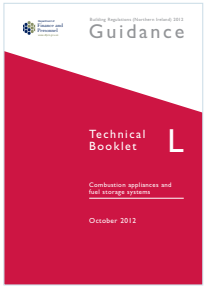
The permanent air vent for the UK slightly differs in that the initial minimum 6500mm^2 is not a requirement, however a permanent ventilator should have an opening size with an equivalent area of that given in the table below dependent on appliance type, air tightness and whether a draught stabilizer is fitted.

Appliance Type	Year Property Built?	Home Improved?	Draught Stabiliser?	Minimum equivalent area of air vent required for Republic of Ireland
Closed	Pre 2008	No	No	550 mm^2 per kW output of the appliance above 5kW
Closed	Pre 2008	Yes	No	550 mm^2 per kW output of the appliance
Closed	Pre 2008	No	Yes	1500 mm^2 to cover the first 5kW + 850mm^2 for each remaining kW of appliance output
Closed	Pre 2008	Yes	Yes	850 mm^2 per kW output of the appliance
Closed	Post 2008	-	No	550 mm^2 per kW output of the appliance
Closed	Post 2008	-	Yes	850 mm^2 per kW output of the appliance
Open fire (no throat)	Not less than 50% of the cross sectional area of the flue/chimney			
Open fire (throat)	Not less than 50% of the cross sectional area of the throat opening area			

The equivalent area of a ventilator is effectively the calculated amount of air that can pass through the vent from the external atmosphere into the room in which the appliance is installed. Most ventilators on the market today are of a more complex design to incorporate features in reducing noise, draughts and in some cases their visual appearance on the internal wall. The equivalent area stated by the manufacturer should be used whenever available, as this provides a more accurate measurement of the amount of air it can provide. A full list of suitable ventilators and their verified equivalent area size can be found on the HETAS HETAS website:

Visit www.hetas.co.uk and click on the product search button

Product



Left to right: ***Northern Ireland's*** *"Technical Booklet L - Combustion Appliance and Fuel Storage Systems"* ***Southern Ireland's*** *"Technical Guidance Document J - Heat Producing Appliances" and the* ***UK's*** *"Approved Document J"*

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Importance of Commissioning

Although the technical guidance within approved documents and technical handbooks gives specification for the minimum equivalent area of a permanent ventilator, this should in no way be deemed as a substitute for the appropriate commissioning and undertaking of relevant smoke and spillage test procedures to confirm the safe operation of the appliance.

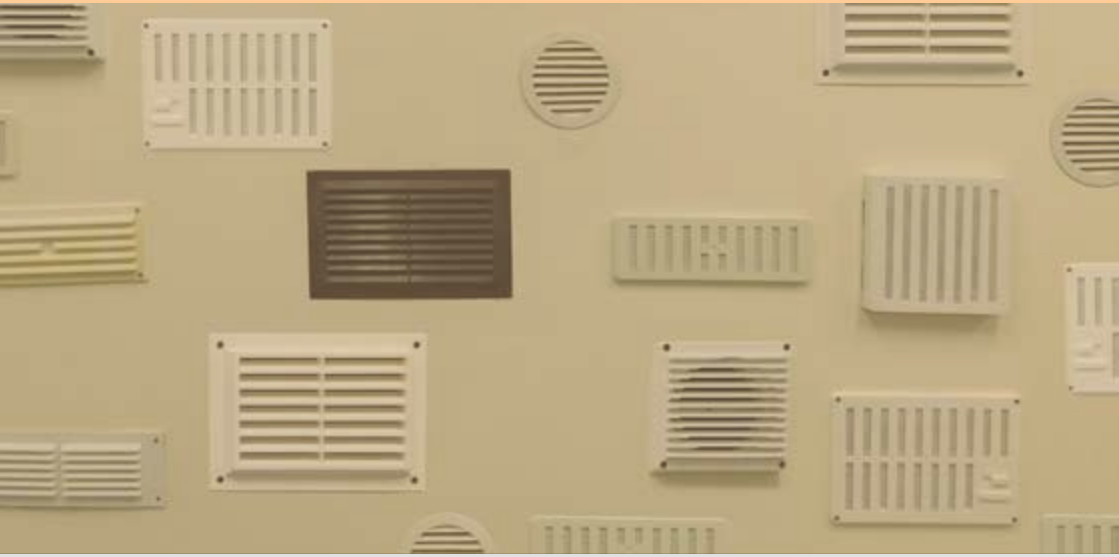
HETAS provide further guidance on the relevant smoke and spillage test procedures that can be undertaken during commissioning and include the following checks/tests;

- **Flue Draught Reading (and whether the reading is in line with appliance manufacturers prescribed range)**
- **Smoke Draw Test (Smoke Test II)**
- **Flue Draught Extraction Test (if required)**
- **Spillage Refuel Test**

In some cases, additional air may be required, particularly in scenarios where extract systems or other appliances are present in the same or adjoining rooms to the appliance which can de-pressurise the environment. Manufacturer's installation instructions should always be checked in the first instance to see whether the appliance is suitable for installation in a room with any additional extract systems.

Further information on commissioning can be found in your HETAS technical handbook, Chapter 5, Page 5-42 or on the member's Technical Area of the HETAS website at **www.hetas.co.uk/members-area** or go to:

www.hetas.co.uk > login > Technical Area



BSI Standards Update
BS 8303:2018

CALVIN MAY, TECHNICAL STANDARDS MANAGER TALKS ABOUT THE KEY ELEMENTS OF THE NEW STANDARD AND INFORMS US WHAT HAS CHANGED SINCE THE LAST PUBLICATION IN 1994

Installation of domestic heating and cooking appliances burning wood and solid mineral fuels

Over recent years, the industry through the UK BSI standards committee RHE/28 have been working hard in reviewing and developing the requirements contained in the solid fuel recognised standard BS 8303: 1994 Installation of domestics heating and cooking appliances burning solid mineral fuels. With the new standard due for publication and release in the coming weeks, it is important for registered installers and other industry personnel to be aware of the relevant changes, which include more up-to-date installation practices that better reflect the products and materials available on today's market.

HETAS will continue to publish ongoing information to its registrants on the new alternative approaches contained within the BS 8303 standard through its technical bulletin publications, as well as an update to the current HETAS H003 and H003 refresher training courses to include the relevant requirements.

Application of the Standard

HETAS continue to receive queries relating to the appropriate application of any provisions contained within recognised BSI standards, and how they can be applied with continued re-assurance in meeting the UK Building Regulation requirements. For solid fuels, page 40 of Approved Document J gives clear guidance on this issue by means of stating the following:

Alternative Approach

The requirements may also be met by adopting the relevant recommendation in the publications listed below to achieve a level of performance equivalent to that obtained by following the guidance in this Approved Document:

a. BS EN 15287-1 Chimneys. Design, Installation & Commissioning of chimneys for non-room-sealed heating appliances

b. BS 8303 Installation of domestic heating & cooking appliances burning solid mineral fuels

The important part of this statement is the word "equivalent", which ensures that by way of adopting the approaches given in these two recognised standards that the installation is no less safe than what would occur by following the technical guidelines given within the Approved Document.

So what will change?

With the original standards last publication coming in 1994, the new standard will look more closely at covering the basic requirements surrounding more highly efficient closed appliances, and base less emphasis on new installation of inefficient opened fire appliances (covered in more detail in BS 1251:2015). This will include provisions for the hearth, recess construction, closure/register plate, air supply and maintenance.

There are two principle additions to the upcoming standard amongst the other covered that were not previously contained within the 1994 version, mainly constituting requirements for:

- **The appropriate heat shielding of an appliance up to 7kW nominal output in scenarios of lightweight timber construction properties**
- **Information on the design, installation and assessment procedures relating to the installation of dedicated external air supply appliances.**

The annex will also include updated commissioning guidance relating to the methods for commissioning flues and installations of varying types, using the industry recognised smoke and spillage test procedures.

Shielding of Combustibles

The standard will contain caveats for the appropriate protection of combustible materials when using a shield, and state the required clearance and air gaps distances. In particular:

- Use of a 1.5mm galvanized steel metal shield, affixed with non-combustible fixings to maintain an air gap of 25mm between the shield and the wall
- Shield protrudes at least 300mm above the top surface of the appliance and extend to the edge of the hearth horizontally
- The shield shall be open top and bottom to allow the flow of cool air between the shield and the wall
- Distance from the appliance rear to the outer surface of the shield of at least 95mm and at least 90mm from the side of the appliance to the outer surface of the shield (if near to an adjacent wall)

Dedicated External Air Supply

The annex to the new BS 8303 will contain information to the appropriate design, assessment and commissioning of appliances with a dedicated external air supply in line with HETAS technical guidance document HETAS_TN_0020. These include:

- Ensuring installation of a dedicated external air supply kit is completed in line with manufacturer's instructions, including consideration for the duct diameter, total length, air inlet terminal position and duct material specification
- Appropriate risk assessment and commissioning procedures are undertaken to understand the properties current ventilation and air tightness, appliance roomsealed properties and again ensuring manufacturer instructions are available and met.
- Appropriate smoke tests are completed, including with any extract running and spillage test when the door is opened for refuel.

Further details and assessment/commissioning forms are available within the current version of HETAS_TN_0020 which is available on the technical area of the HETAS website at www.hetas.co.uk/members-area or go to:

www.hetas.co.uk > login > Technical Area

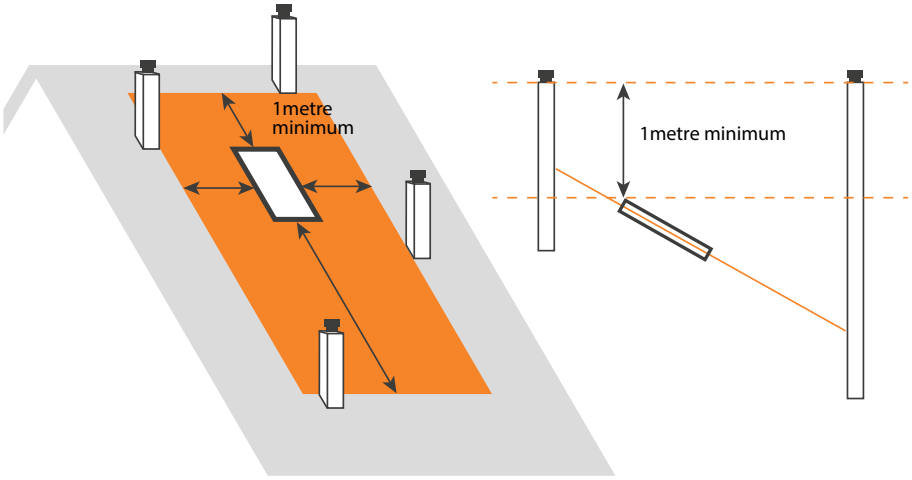
Technical Helpline Q&A

I am carrying out an installation where the termination of a solid fuel chimney is compromised by existing **velux windows** - How do British Standards affect my work?

BS EN 15287:1 2007 Indicates a prohibited zone of 2 metres below a velux window, 1 metre above, and 1 metre to the left and right.

Other rules apply as normal termination is achieved by measuring 2.3 metres horizontally to the weather surface and terminating at least 1 metre above the highest part of the openable window.

Approved Document J page 29, Diagram 17 should also be referenced when determining compliance.



The prohibited area around openable velux windows is shown in the orange rectangle above

Can you have a chimney less than 4.5 metres in height?

Possibly, but beware of short chimneys; there have been numerous complaints from neighbours to Local Authority Environmental Health Departments about smoke nuisance where the initial cause is pointed towards a short chimney, particularly in single storey extensions and conservatories. A chimney should always be the correct height to safely and effectively evacuate the products of combustion into the outside atmosphere, whilst at the same time ensuring smoke nuisance to neighbouring properties is avoided

Page 9 of Building Regulations Approved document J states the following requirements in relation to the discharge of products of combustion as:

> *J2 Combustion appliances shall have adequate provision for discharge of product of combustion to the outside air.*

Further guidance is offered in Approved document J section 2.8 page 30

A chimney height of 4.5 metres is a suggested minimum height **that may provide** sufficient flue draught but this is not a mandatory figure, nevertheless it is guidance. However, stove manufacturers may have adopted this figure into their installation instructions, and for this reason this may become their minimum height. If this is the case there may not be any scope to reduce the height of the flue as you will be conflicting with instructions that will be considered a more stringent requirement.

Whenever you depart from the guidance in approved document J, it is the installers responsibility to demonstrate that the alternative method of work that they have adopted is equally as safe and compliant as the guidance.

Building Control are likely to accept a BS EN13384-4:2005 compliant flue calculation to determine whether a short flue will have sufficient draught. This is suggested as an alternative approach within the ADJ guidance and so can be used to support an installers design.

We also have to be careful with solid fuel chimney termination positions, because combustion gases must disperse safely to the atmosphere and the terminal position, or a chimney cowl, or the weather conditions, or adjacent buildings or trees can influence the discharge from a chimney. Approved document J diagram 17, page 31 offers common outlet positions that are likely to meet the requirements. But in all cases the guidance offered is a method for compliance in ordinary circumstances, if guidance in an Approved Document is followed there will be a presumption of compliance, however it does not guarantee compliance.

There are a lot of installations taking place in single storey dwelling, where the height of 4.5metres cannot be achieved because the flue terminates quite a distance from the main property (in excess of 2.3 metres). We advise that you contact the stove manufacturer to see what their minimum flue height is before starting to the job; they may want a flue calculation before they commit to agreeing a shorter flue height can be used, but you need this agreement in writing. Further information and flue calculations can in most cases be obtained from the chimney manufacturer.

Evidence of the commissioning tests carried out must be recorded and copies provided to the consumer with a copy retained by the installer for future reference.

Are You Ready for EcoDesign?

CALVIN MAY, TECHNICAL STANDARDS MANAGER EXPLAINS HOW TO ENSURE YOUR INSTALLATIONS COMPLY WITH THE UPCOMING ECODESIGN GUIDELINES

In the future any solid fuel and biomass burning appliance will have to meet specified minimum seasonal efficiency and maximum emission limits which have been set to better support future clean air strategies and policies throughout EU. and the new Regulations will ensure only the more clean-burning and highly efficient appliances are available for sale and installation in the UK. **So what do these new t measures mean, and how will the industry be affected once the regulations are fully in force?**

In simple terms, any new solid fuel independent boiler put onto the market from January 2020, or any roomheater stove on the market from January 2022, will need to meet five new legal requirements to be installed in the UK, which include;

- A minimum seasonal efficiency figure based on the appliance operation at both nominal and minimum heat output
- A maximum emission limit for Particulate Matter (PM)
- A maximum emission limit for Organic Gaseous Compounds (OGC)
- A maximum emission limit for Carbon Monoxide (CO)
- A maximum emission limit for Nitrogen Oxide (NOx)

All efficiency and emission claims made by the manufacturer of the appliance will be referenceable within the relevant installation & operating instructions, as well as contained within any marketing and sales literature published after the 2020 and 2022 implementation dates. Each measurement will have to be met when tested using all fuels specified as suitable for burning by the appliance manufacturer, with each verified measurement specifically referenced within the instructions against each prescribed fuel.

What will this mean for Manufacturers, Retailers & installers of solid fuel burning appliances?

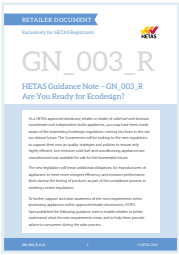
The regulations stipulate that after 1st January 2020 (and subsequently 1st January 2022), any appliance put onto the UK market for sale will need to meet those performance caveats highlighted above, and will be up to the appliance manufacturer to ensure future sales of appliances to distributors and retailers meet the more stringent Ecodesign requirements. Some manufacturers are already meeting some of the fundamental performance requirements of Ecodesign before the 2022 implementation date with a range of HETAS Ecodesign compliant independent boilers and SIA Ecodesign ready stoves which is searchable on the HETAS website:

Visit www.hetas.co.uk and click on the product search button Product

Retail showrooms can also play an integral part in supporting compliance, by means of ensuring that the new information is readily available to consumers and purchasers and ensure showroom knowledge is up-to-date around what the new requirements mean, so that enquiries received during the selection/purchase process can be appropriately answered.

This leads on the responsibilities for HETAS registered installers, who may have already been receiving enquiries relating to the upcoming Ecodesign legislation and what it will mean for consumers both before and after the 2020 (2022) implementation dates. After 2020 (2022) any new installations being commissioned and signed off to the local authority will need to ensure that the necessary Ecodesign regulations have been met, as well as ensuring installations are carried out in accordance with UK Building Regulations and other regulations as relevant

HETAS are here to help


RETAILER DOCUMENT

GN_003_R

HETAS Guidance Note – GN_003_R
Are You Ready for Ecodesign?

In support of the new legislation coming into force, HETAS have developed three specified guidance note documents which further explain requirements and responsibilities of HETAS registered manufacturers, retailers & installers, in the hopes of aiding its members with query handling and that they remain in compliance with the requirements. Further information can be found in the members area of the HETAS website: **www.hetas.co.uk/members-area** or go to:

www.hetas.co.uk > login > Technical Area

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