

GENERAL GUIDES HEARTH SIZING

Firepower

Sune Nightingale

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General Guide to Hearth Sizing

Your stove sits on a hearth which does 3 things:

- provides a strong, stable and safe base for the stove.
- protects the floor from the heat of the stove.
- creates a safe zone around the stove where embers and sparks can fall and not burn things (like carpets for example).

A hearth can also really complete the look of your installation. Often it may be made of something with a contrasting colour from the other flooring, or you might choose to make it from a bold choice of material. Hearths are often smooth and so if a little ash falls on the hearth it makes it very easy to brush up and clean.

We like to take a belt and braces approach to safety and so this document details our guidance where it goes over and above the recommendations given in Approved Document J of the Building Regulations (Doc. J.). You should look up what Doc. J. has to say about this too – it is freely available online.

1. Minimum size and Thickness

The thickness of the hearth as described in Document J is either:

- 12mm (for stoves that don't heat up the hearth to more than 100°C),
- or 250mm thick.
- or 125mm thick with a 50mm air gap.

You should keep to these thicknesses. There are also minimum sizes shown in Doc. J. Again you should keep to these.

Where our guidance advises that you increase the size of your hearth then the part of the hearth that is bigger than this minimum size as shown in Doc. J. can be made from a suitable non-combustible material, 12mm thick or more.

2. Demarkation

The edge of the hearth should be clearly marked. The point is that you want to clearly show an area which should be kept free of flammable stuff. One way of doing this is by a change in height, either with the hearth laid on top of the floor, installed a bit higher than floor level, or with an air gap underneath the hearth so its raised up above the ground level, or by having a raised edge to the hearth.

i. Hearth for a solid fuel cooker

For a cooker stove a raised edge is potentially unsafe: it forms something which you can stumble or trip over and then fall into the hot cooker. Here we recommend that the hearth is not raised but is at the same level as the floor. We recommend that the hearth is made from a material which is a contrasting colour from the other flooring so it is clearly visible. If it is not a contrasting colour then another way to show the edge would be by visual means, for example a metal strip inlaid to the floor which is a different colour from the flooring.

3. Stoves raised up off the ground

An inset stove is often installed raised up from the ground but there are also stoves available with, for example, a log store underneath which raises the firebox. The higher it is installed the further embers can fall when you open the door, and the further they can bounce into the room. The point is that the embers can then cause damage to carpets, flooring and other flammable things, or even set fire to them, so we want to try to minimise that risk.

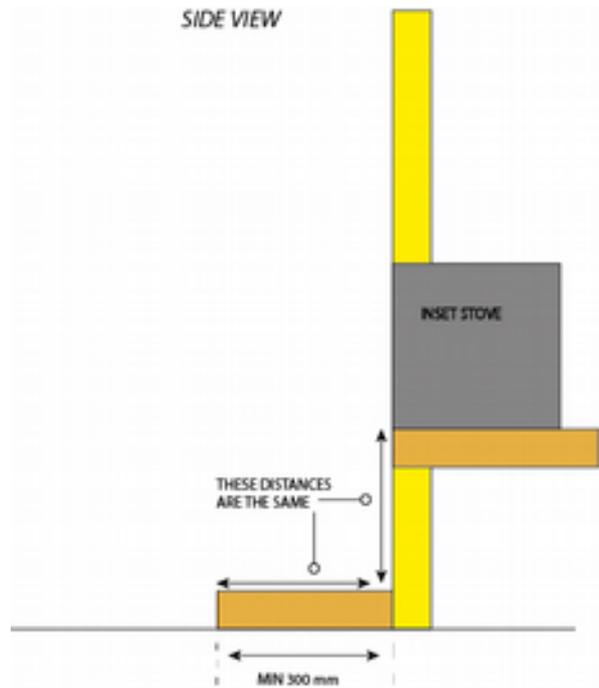
i. Cantilevered hearth

For an inset stove you might consider installing a cantilevered hearth (as shown in the sketch) coming out at least 300mm to the front and at least 150mm to the sides. You might decide on something much more substantial to make a shelf which then also forms a part of the room and a nice place to sit near the fire.

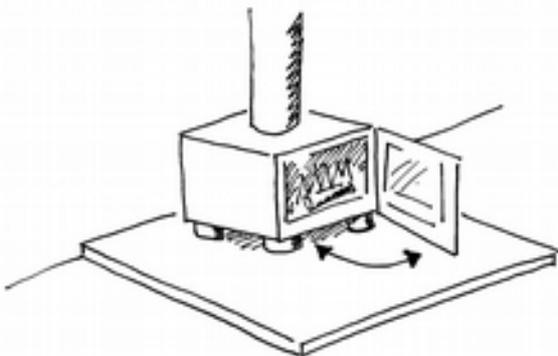


ii. Increase the depth

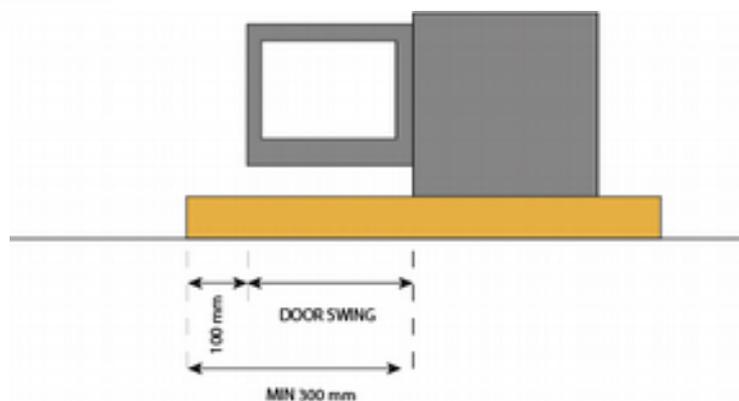
If the firebox of your stove is raised up high off the ground – for example an inset stove set up higher than 300mm in the wall, then our guidance is that the hearth should come out to the front of the stove the same distance as the firebox's height above the floor, with 300mm still being the minimum distance.



4. How far does the door swing open?



Embers can potentially sit on the door of a stove and fall out into the room when it is opened. Our guidance is that that the hearth should come out to at least as far as the full arch made by the door opening, ideally 100mm further. *



* Credit to Geoff Royle, *The Stove Yard*, for this safety concept.

5. Hearth under an inset

Its easily overlooked but just because an inset stove is installed inside a wall or newly built Thermalux chamber it doesn't mean that it does not need a hearth underneath it. The hearth should be incorporated into the design spec. and the minimum thicknesses, as recommended in Doc. J., should be kept to. One way of doing this is to cast a slab/block of concrete for the stove to sit on when you make the installation chamber. Another way is to use concrete lintels side by side with an air gap underneath.

i. Log store

If there is a log store under the inset then remember that if your hearth has to be 125mm thick with a 50mm air gap then that air gap has to be maintained – you don't want logs coming up to the base of your 125mm hearth. A solid roof might be formed above the log store or a robust metal mesh might be used to maintain that air gap.

6. Direct air connection

Many stoves have a direct air spigot which lets you connect a direct air duct which then runs outside. Sometimes this duct has to run up through the hearth. The duct used should be non combustible and made of suitable materials. A Class II stainless liner or stainless steel single skin flue pipe is suitable – neither of these would melt if an ember accidentally landed against them for example.

In the event of downdraught the duct could also get hot. This is a relatively rare occurrence and is more likely to happen in installations with strong wind or with very tall structures or landscapes nearby: homes on a cliff, by a huge hill, or larger building where there is strong wind are possibilities. Consideration should be given to this to insulate the duct from combustible materials along its run and where it penetrates walls, etc. Rockwool sleeves and/or linertherm insulation are possible solutions.

Remember that if the duct runs under the floor that it might come into contact with timber.

7. Who am I?



My name is Sune Nightingale and I help to run Firepower. I am a self confessed stove geek and have been supplying stoves, pellet boilers, chimney systems, thermal stores for many years now. I enjoy the technical aspects of helping to design systems that heat houses with wood from a humble air vent for a Passiv Haus, to designing a Feature Wall luxury inset stove installation, to full blown, integrated, renewable heating systems.

As part of my role I am proud to sit on the HETAS Technical committee, the HETAS Installation subcommittee, and the BSI RHE/28 committee. All are really talented and knowledgeable groups of people from wide ranging backgrounds: installers, manufacturers, test-house engineers, official bodies. There I help with the collaborative efforts to improve safety and keep up with developments in our industry.

I welcome feedback

Did you find this useful? Great! If you have a spare 3mins then email me a short quote I can use on our website testimonials.

Do you have any comments or improvements? I'd like to hear them.

I'd also like to hear from stove installers and engineers about common challenges you face on site day-to-day so I can feed that back in to the committees.

I like LinkedIn: <https://www.linkedin.com/in/sune-nightingale-a94ba724/>

or you can email me: sune@firepower.co.uk

In the trade? Then you should think about working with us

We work via our network of registered Energy Centres, Showrooms and Engineers. We run specific training events for our more specialist products.

You gain access to a broad range of products which give an extra edge, either because they fill a niche in the market, allowing you to offer your clients something unique, but also by making the installation simpler, smoother, more elegant.

Check us out, learn more, get in touch

Firepower, Flightway, Dunkeswell, Devon, EX14 4RD, UK, +44(0) 844 332 0155