RAYBURN

FLUE & CHIMNEY GUIDE

RAYBURN

from AGA

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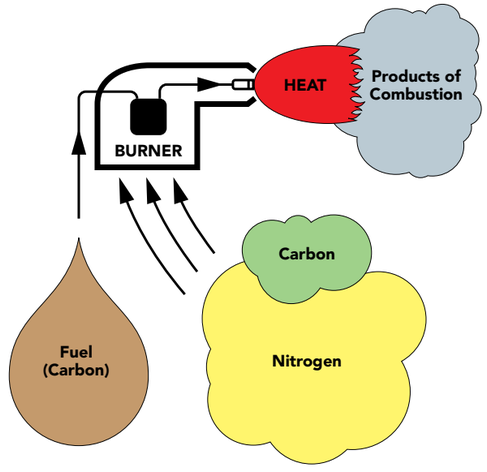
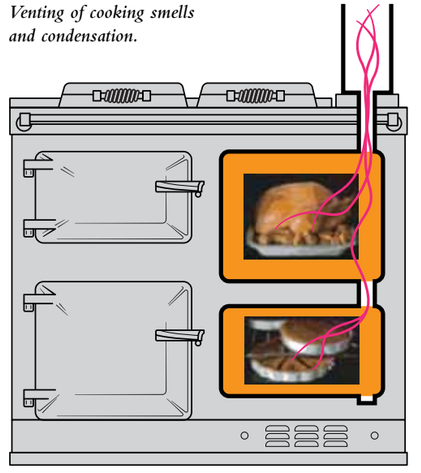
Welcome to the Rayburn Flue and Chimney Guide. A simple, handy document highlighting the various flue options and site requirements for Rayburn Cooking and central heating products.

1. WHAT IS A FLUE AND WHAT DOES IT DO?





Venting of cooking smells and condensation.

When we burn a fuel to release heat, gases such as Carbon Dioxide and water vapour together with some solid particles are produced, depending on the fuel being used. These need to be safely discharged into the outside atmosphere, where they quickly and harmlessly disperse. Solid fuel and wood-burning appliances need the flue to create a movement of air and thus oxygen across the firebed to make them burn. At some point of time in the burning cycle smoke may be produced or other particles which must also be taken away from the living areas.

The 'flue' is the means used to convey these 'products of combustion' from the cooker to outside.

Today's range cookers are highly efficient, incorporating state of the art burners and technology, thereby minimising emissions. Good news for our planet.

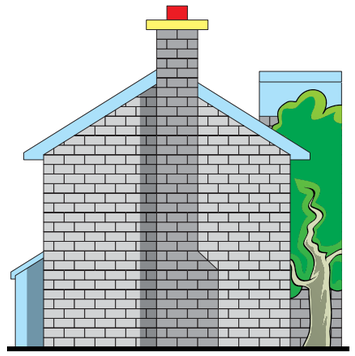
A flue can be part of a chimney, but there are various types and options.

The flue from a range cooker has one other important function to perform. During oven cooking operations, moisture is naturally driven off from the food. Our ovens are directly connected to the outside atmosphere, usually through the flue system, avoiding condensation and steam in the kitchen. So there's no need to deliberately open windows as you might need to with a conventional oven.

The cast-iron ovens have high surface temperatures ensuring that any fat splashes carbonise to powder; in effect, self cleaning. Any objectionable smells created are therefore also carried away by the flue.

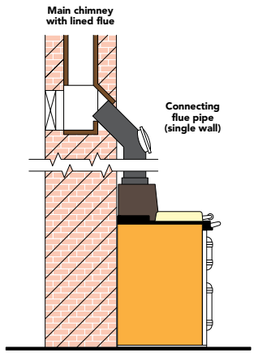
2. FLUE TYPES: CONVENTIONAL FLUE

Traditional masonry chimney.



Pre-fabricated chimney systems.

Typical arrangement for connecting a cooker to a traditional masonry chimney.



Rayburn cookers offer a choice of three flue options, dependent on the model.

A conventional flue (sometimes called an openflue appliance) uses a flue continuously rising from the top of the cooker and terminating above the highest part of the roof. Older properties may have a convenient chimney built of stone or brick which can be used for this purpose, providing that the inside is lined with an acid resistant material, again commonly referred to as the 'flue'.

Sometimes, when there is no masonry chimney, the flue-pipe from the cooker can be taken all the way up using special prefabricated flue systems consisting of twin-wall pipe and usually manufactured from stainless steel.

The type of material used depends on the fuel type and cooker model, as does the size of flue (diameter) This can range from 125mm (5") for some gas-fired models to 200mm (8") for a multifuel or woodburning cooker. Generally, models providing central heating as well as cooking require larger flues.

A single wall pipe connects between the cooker and the main chimney, preferably made of castiron, as this matches the appearance of the cooker and helps to reduce noise levels. The flueway inside the main chimney should normally be one size larger in diameter than the connecting pipe.

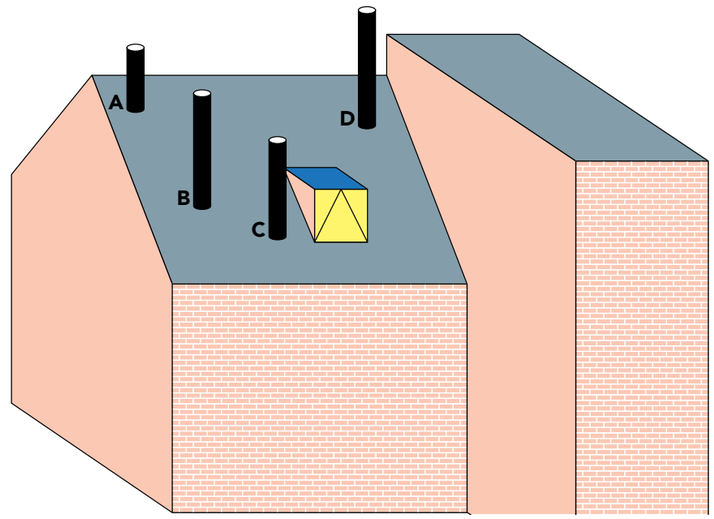
Flues must rise continually, with no horizontal or nearly flat pipe. Some solid fuel cookers (not oil or gas) can connect into a masonry chimney from the rear, with a maximum 150mm horizontal pipe.

Appliances must not share a flue, although there can of course be several separate flues travelling together inside a traditional chimney.

Conventional flued cookers can be sited on internal or external walls within the property as convenient.

Models requiring conventional flues or open flues are:
- Oil — 200, 300, 400, 600, 800 series;
- Gas — 200, 480AG;
- Multifuel & Wood — 200, 300 series.

3. MINIMUM FLUE HEIGHTS



Although most products require a specific minimum chimney height to ensure sufficient updraught, there are other factors to consider, such as the proximity of trees, hills or buildings.

Where bends occur or the flue rises less than vertically, extra overall height might be required to compensate.

Regulations and Standards also dictate where a flue can terminate in relation to surrounding obstacles, generally specifying minimum clearances above the roof structure. A typical example is shown below.

Quick reference chart for minimum flue heights.

Model	200GL 208GL 400GL 480AGL	800 series	200SFW 212SFW 300W 300K 308K 400K series 600K series	345W 355SFW	216SFW
Minimum Height of Flue	3 metres	4 metres	4.5 metres	4.8 metres	5.5 metres

Where to terminate a flue minimum clearance for Solid fuel and Oil (see above).

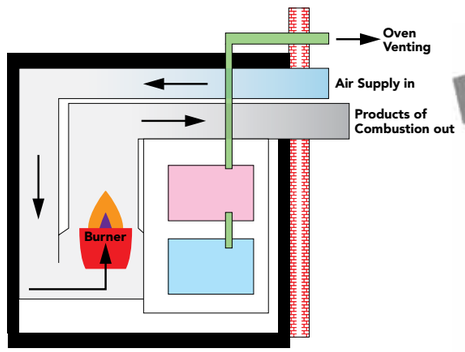
'A' — 600mm above ridge if within 600mm of ridge;
'B' — 2300mm horizontally and 1000mm vertically above the roof surface. or at least as high as the ridge.
'C' — If within 2300mm horizontally of an opening window etc, then terminate 1000mm above the opening.
'D' — At least 600mm above any adjoining building that is closer than 2300mm.

Quick reference chart for Conventional flue sizes (diameters).

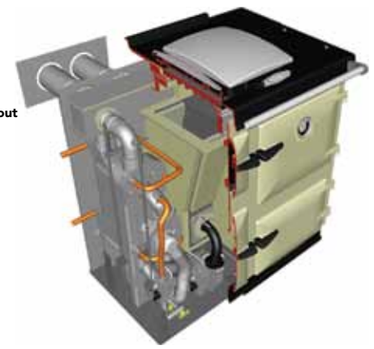
Model	200GL	208GL 200K 300K 308K	400K series 400G 480AGL 600 series 880K 8120K	200 SFW 212 SFW 216SFW 8150K	300W 345W 355SFW
Flue pipe connection	100mm	100mm	125 mm	125mm	150mm
Recommended Main chimney internal diameter (minimum)	100mm	125mm	125mm	150mm	200mm

4. FLUE TYPES: BALANCED FLUE

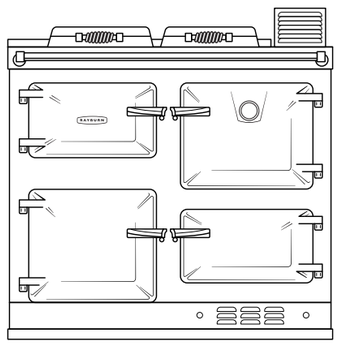
How a balanced flue works.



Rayburn condensing boiler and balanced flue.



A typical balanced flue cooker.



A balanced flue (sometimes more correctly referred to as a room-sealed appliance) can be a solution where a property has no masonry chimney and a freestanding flue-pipe would be inappropriate.

It uses two, twin pipes or ducts coming straight from the back of the cooker through the wall to outside. One tube brings a fresh air supply into each of the burners, whilst the others discharge the products of combustion. On oil-fired models this takes the form of two rectangular ducts, whilst the gas-fired cooker has two concentric tubes. Terminals are externally covered by a protective cage.

Although no bends can be fitted in the flue-pipe, the overall length can be up to 1 metre, using optional extension pieces; more than adequate for most domestic wall thicknesses.

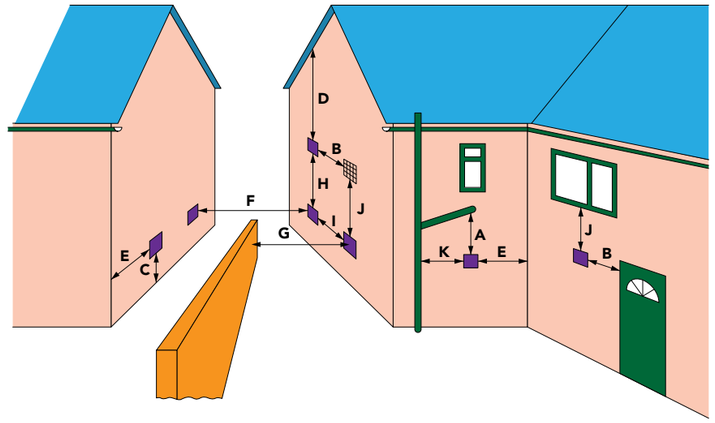
Current regulations dictate where a balanced flue can terminate and there are minimum clearances required to nearby obstructions or opening windows & doors. They should not terminate within car-ports. An assessment should be made as to whether the noise or vapours might cause annoyance to neighbours etc.

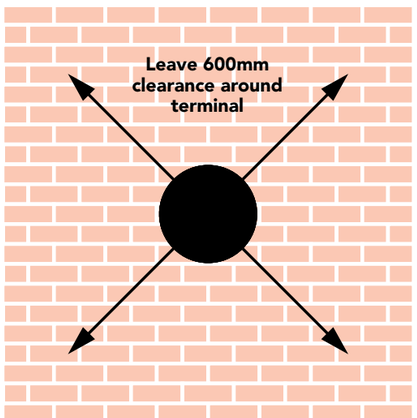
The 480CD has a high-efficiency 'A' rated boiler operating on the condensing principle. This means that every last bit of heat is usefully extracted from the flue gases causing condensate to form. The fluepipes have been designed with this in mind and any condensate is led safely away to a convenient drain or soakaway, by an additional small pipe. As the burners and flue-path are sealed from the room, no airbricks into the kitchen are required.

Oven venting is still a product feature and benefit. A separate copper pipe travels from the ovens to outside to remove cooking smells and condensation, sometimes assisted by a small electric fan on the oil-fired models.

Current models using balanced flues are:
- *Oil — 400 central heating models*
- *Gas — 480CD*

5. BALANCED FLUE WHERE CAN IT GO?





Apart from the obvious need for the cooker to be sited against an outside wall, there are also a number of minimum clearances required to other objects.

A = 600mm Below sanitary pipes

B = 600mm Horizontal to openings such as windows, doors or an airbrick

C = 300mm Above ground level

D = 600mm Below eaves

E = 300mm From an internal or external corner

F = 1200mm Facing another terminal

G = 600mm From a facing surface

H = 1500mm From any other terminals above or below

I = 750mm From any other terminals horizontally

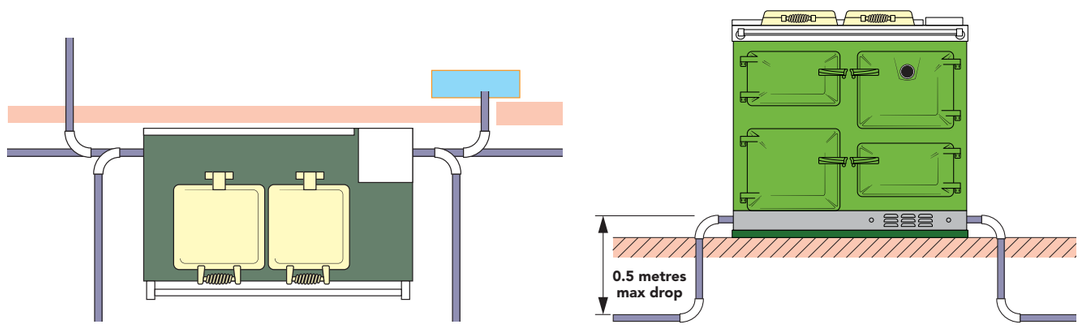
J = 600mm Below openings such as windows, doors or an airbrick

K = 300mm From vertical pipework

Put in simple terms, nothing should come closer to the terminal than about 600mm.

6. FLUE TYPES: POWER FLUE

Power flue route options.



A Power flue may be the answer for properties where there is no conventional chimney and offers the flexibility for the cooker to be sited on an external or internal wall, even within an island or peninsular setting.

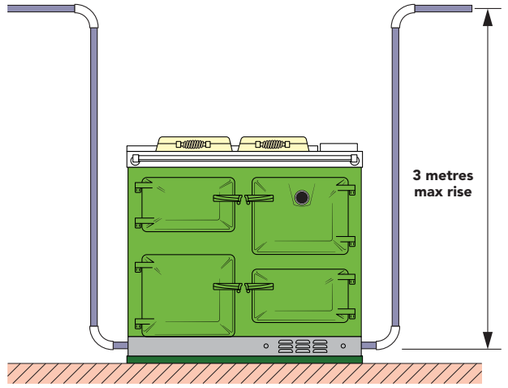
It uses a single, stainless steel flue-pipe, diameter 54mm.
A variable speed, low voltage electric fan is fitted externally to provide the necessary suction.

A basic flue installation kit is supplied with the product, suitable for most installations up to 3m. Additional flue-pipe fittings and fastenings are available including 90 and 45 degree angle bends to allow flexibility of the flue route.

The pipe exits from the cooker through either the right or left-hand side panel at low level, allowing for the pipe to be taken below work units if required.

It is possible to route the flue at high level or even under a floor, providing access can still be gained for cleaning the inside of the pipe. The flue can be extended up to 5 metres in length incorporating a maximum of 5 bends.

Current regulations dictate where power flues can terminate and there are minimum clearances required to nearby obstructions or opening windows & doors. Also minimum clearances above ground level. They should not terminate within car-ports.



A combustion air supply through an airbrick into the kitchen is required.

Oven venting is still a product feature and benefit, using the flue-pipe and fan to discharge externally.

Current models available as powered flues are:
- *Oil — 400 cooker only model and XT*
- *Gas — 400 cooker only model and XT*

Obviously these products are dependent on an electricity supply to operate.

Rayburn 400 Cooker with power-flue.

Power Flue external fan.

Power Flue installation kit.

7. AIR BRICKS & COMBUSTION AIR SUPPLY

Any fuel burning appliance requires an oxygen supply to work safely. Rayburn cookers using a conventional or power flue system take their combustion air supply from the room in which they are installed. Replacement air must be brought into the room through an airbrick connecting to outside. The size of airbrick depends on the fuel type and output of the cooker and therefore varies from model to model.

Today's plastic airbricks can deliver more air in relation to their size when compared to traditional terracotta types and often have integral baffles fitted to reduce the possibility of cold drafts.

Air supply grilles should be discretely located as close to the cooker as possible, sometimes using the underside of work units and fitted in the kick-strip. A suspended, ventilated floor can also be used to provide an air supply. Airbricks which have a manual shutter and can therefore be closed off (often called hit & miss types) must not be used for safety reasons.

The Rayburn 800 series have provision for an air supply to be brought in direct from outside into the rear panel.

It is important to appreciate that where extraction fans or cooker hoods are installed, they are busy sucking air from the room, not bringing it in! Therefore these are not a substitute for an airbrick.

Note that ventilation requirements are covered by legislation, Building regulations and Standards, and are often changing. They also vary from country to country.

** The quoted air brick sizes refer to the actual free area of the brick. I.e. all the combined area of the holes added together, not the overall dimensions of the brick.*

Model	Air brick size*
200SFW, 300W	1.1 sq cm
212SFW	5.5 sq cm
216SFW	22 sq cm
300K, 308K	30 sq cm
200GL, 208GL, 400GL, XT gas	37 sq cm
345W	50 sq cm
355 SFW, 400K, 600K, XT oil	62 sq cm
440K	127 sq cm
460K, 660K	147 sq cm
480K, 680K, 880K	185 sq cm
499K, 699K	211 sq cm
8120K	250 sq cm
8150K	290 sq cm

8. KEY POINTS

Rayburn 400 Series.

1. A properly installed flue system is essential for the safe and efficient operation of a Rayburn.

2. Flue linings and prefabricated chimney systems have an expected life span equivalent to the appliance to which it is connected. However a Rayburn cooker can last a long time. Therefore, don't be tempted to connect a new cooker to an existing flue lining.

3. If you are planing to use an existing masonry chimney, it must first be inspected, tested and swept.

4. Each individual fuel type requires different flue materials and construction methods.

5. This document is a generic guide only and does not replace the need to refer to the specific product installation instructions. These must be read in conjunction with the prevailing Regulations and Standards.

6. In particular for England and Wales refer to Approved document Part J of the Building Regulations.

7. Our Product installation instructions are available for downloading as PDF files on the internet.

8. Visit the technical section of our web site www.rayburn-web.co.uk where there is a literature library.

9. Most Rayburn dealers are able to arrange for home surveys and offer pre-installation advice.

10. The installation and commissioning of range cookers must be carried out by a competent person and is 'notifiable work' to the local authority.

11. Flues and chimneys need routine inspection and cleaning, particularly solid fuel or wood burning models.

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