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Extractors and cooker hoods

Building Regulations require that all domestic kitchens must be equipped with an extractor fan and providing the fan is of sufficient size, cooker hoods are accepted. See below.

A *cooker hood* is an extractor fan enclosed within a hood with a grease filter incorporated in the underside.

There are two sorts of cooker hood: those for *extracting air* to outside and those for *re-circulating* air over a carbon filter and back into the kitchen to remove the cooking smells.

Needless to say re-circulating models are a poor substitute for extractor hoods and are only of some slight use if it is utterly impracticable to install a duct to the outside.

The type and size of cooker hood will depend upon the lifestyle and the size of the kitchen. The near professional cook with a large kitchen and an adjacent dining area will need a powerful fan, while a small flat with a minute kitchen can make do with the smallest size that will satisfy the Building Regulations.

Extraction performance

Although the Building Regulations lay down a minimum extraction rate for a kitchen fan, this may well not be large enough to be effective. See pp. 72, 73.

The recommended air changes per hour for domestic kitchens is 10 to 15.

To calculate the size of fan required:

Find the volume of the room in cubic metres (m^3)
Multiply the volume of the room in cubic metres by the number of air changes per hour required

For example:

kitchen = 4 m × 5 m × 2.5 m = 50 m^3
air changes required = 12
50 × 12 = 600 m^3/h

Manufacturers' catalogues give the maximum and minimum extract rates in litres/second and cubic metres/hour.

one m^3/h = 0.777 l/s
one l/s = 3.6 m^3/h

Extractor fan outputs range from about 200 to 800 m^3/h

Depending on size, extractor fans in cooker hoods are approximately rated between 220 to 380 W.

Siting of fans

The most common cause of unsatisfactory mechanical ventilation is short circuiting of air movement between the fan and nearby air inlets, such as open windows or external doors.

Fans should be mounted as far as possible from such sources to work effectively.

Insufficient air replacement can also cause problems especially in well insulated houses with draught-proof windows.
If necessary make provision for air replacement with gaps under room doors, internal grilles in doors, airbricks, etc.

Fans and cooker hoods should not be positioned above a high level grill, nor should the underside of a cooker hood be too low over a hob for fear of catching fire.
Each fan manufacturer will give recommended clearances.
Typically they may be:

65 mm minimum over a gas hob
55 mm minimum over an electric hob.

Ducting

Ducts from extractor fans should ideally be as short as possible and as close to an outside vent grille as possible.
For maximum efficiency a duct should be no longer than 5 m deducting 1.2 m for every 90° bend.

Ducts should rise up immediately a minimum of 300 mm from the extractor fan before any bends to avoid turbulence.

Where possible use 45° bends rather than 90° bends.
If 90° bends are necessary, use large radius bends.

Suitable materials for extractor fan ducts are:

rigid PVC, galvanised sheet steel and flexible aluminium

Avoid *spiral-concertina* hoses which reduce air flow and generate noise by flapping.

Avoid any *flat* ducting (rectangular in section) as these will considerably reduce performance.

Horizontal ducts should have a 25 mm fall to outside to get rid of any condensate.

Long vertical ducts may need *condensation traps* to allow condensate to evaporate.

Duct diameters should always be the same size as the outlet from the extractor and never reduced.
Usual sizes are: 100, 120 and 150 mm diameter

Terminate ducts on the outside wall with a louvered grille incorporating a *back-draught shutter.*

Noise

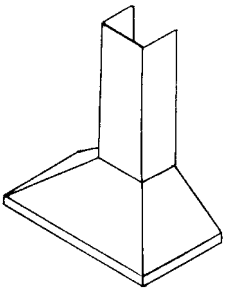
Extractor fans are noisy – the larger amount of air extracted the greater the noise.
Check when a powerful fan is required that the noise levels are tolerable.
The decibel rating for different sizes of fans ranges from 50 to 70 dB(A) re 1 pW.

Types of cooker hood

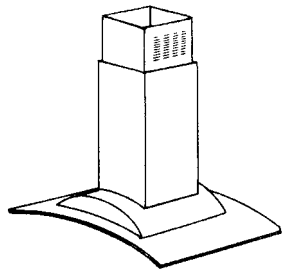
There are six basic different types of cooker hood:

Chimney	large wall-mounted hood, sometimes made to suit range cookers with big skirt and chimney in matching material
Island	similar to chimney hood but for a hob in an island situation
Integrated	concealed in wall cabinet with top hung pull-out flap matching cabinet doors.
Telescopic	slimline hood with motor concealed in wall cabinet operated by full-width narrow pull-out section at base
Canopy	concealed behind a fixed panel matching cabinet doors with air intake grille set level with bottom of panel
Standard	wall-mounted over hob with extract duct behind wall cabinet door

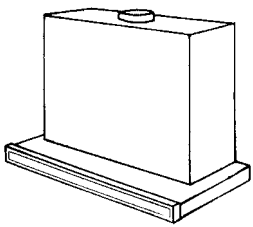
All cooker hoods incorporate grease filters. The best are made of stainless steel which can be washed in a dishwasher.
Cheaper models have disposable paper filters which typically need changing twice a year.



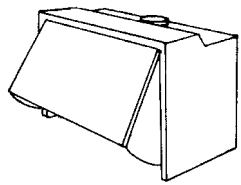
Chimney hood



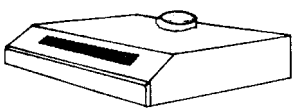
Island hood



Telescopic hood



Integrated hood

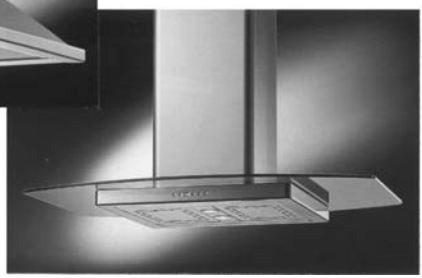


Standard hood

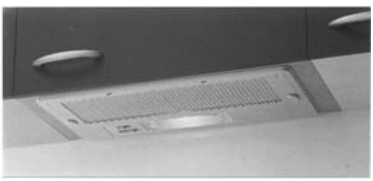
Canopy hood

Basic types of cooker hood

Chimney hood ss 900 wide



Island hood ss and glass 900 wide



Canopy hood 524 wide

Integrated hood 600 wide

Telescopic hood 600 wide

Standard hood 600 wide

Cooker hoods – by Baumatic

Cooker hood features

The following features may be included:

lights	typically 2 × 20 W halogen lamps
speed level switch	usually for 3 levels
automatic sensor	humidistat
run-on facility	timer set for fan to overrun
interval ventilation	to ventilate room periodically
charcoal filter	for re-circulating models
grease filter	for extraction models
saturation indicator	for filter changing/washing
splashback	matching splashback, often sold together with range cookers

Hob extractors

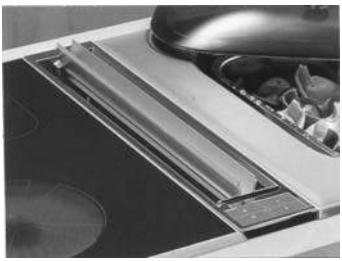
In addition to the extractors described above, there are also *hob extractors*. These are NOT suitable for gas hobs and are not as efficient as overhead cooker hoods. However, they can be useful alongside electric barbeque hobs which can emit noxious fumes at hob level or where uninterrupted headroom or view is desirable.

They are designed to be set alongside domino hobs in island or peninsular worktops. They extract the air downwards through 125 mm diameter ducts into base cabinets and horizontally to outside.

The fan is positioned either at the bottom of the base cabinet or externally at the end of the horizontal duct.

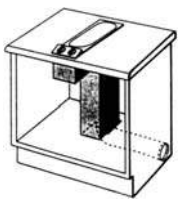
It is not always easy to accommodate the horizontal duct unless there is convenient floor joist space or it can be carried along the ceiling of a floor below.

See illustration overleaf.



Hob extractor with automatic sealing flaps – shown open-operated by touch control panel

Hob extractor with grille alongside electric hobs operated by control knob



Installation drawing of direct suction hob extractor with duct in base cabinet turning horizontally to link with remote fan on outside wall

Direct suction hob extractor with 90° rotating arm which can extend to 420 mm above hob. Contracts back flush with worktop when not in use.

Hob extractors – by Gaggenau