



GREASE (Kitchen Extract)

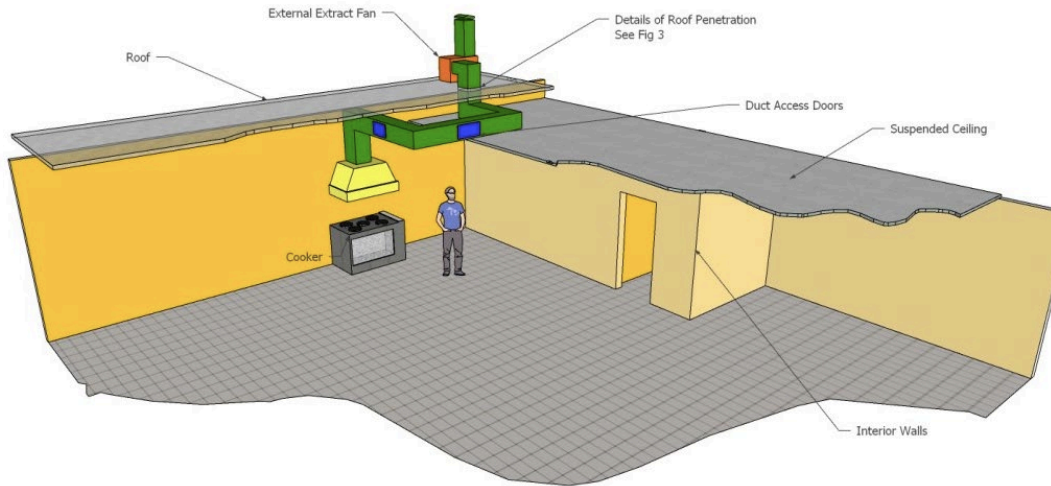
Basic Components Of A Grease Extract System

Filters, Plenums & Extract Ductwork

Components of a Grease Extract System

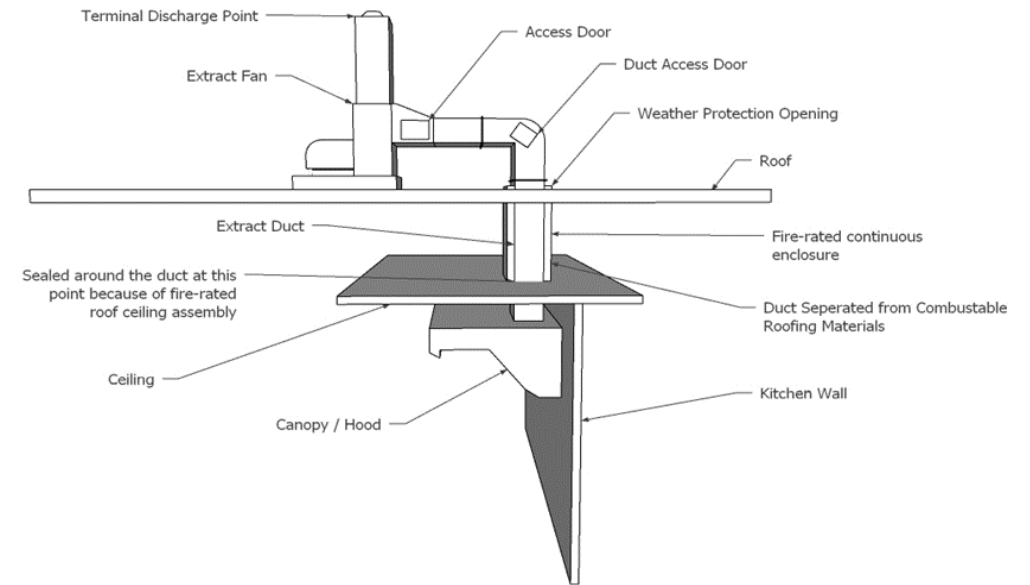
- Canopy/Hood
- Filters
- Plenums
- Extract Ductwork
- Fire Resisting Ductwork
- Fan Systems and Fans
- Access Panels
- Exhaust Grilles
- Attenuators / Silencers
- Turning Vanes
- Ancillary Components

The General Layout

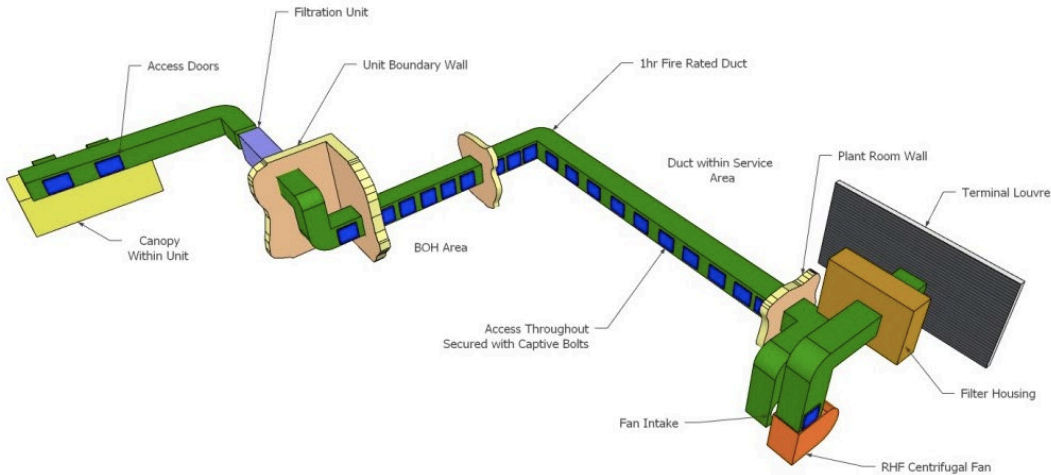


Typical detail showing cooker extraction system

Side view of cooker extraction system

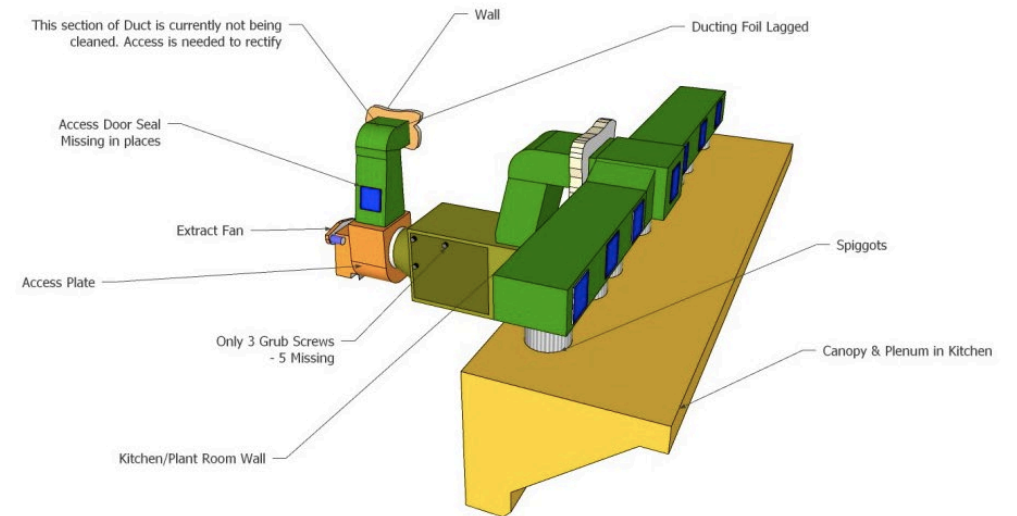


Components of a Grease Extract System

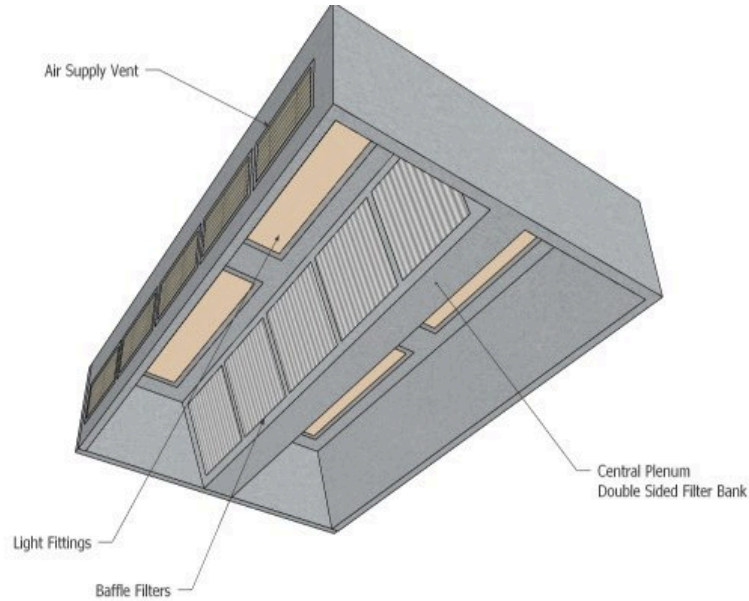


A full grease extract system with components

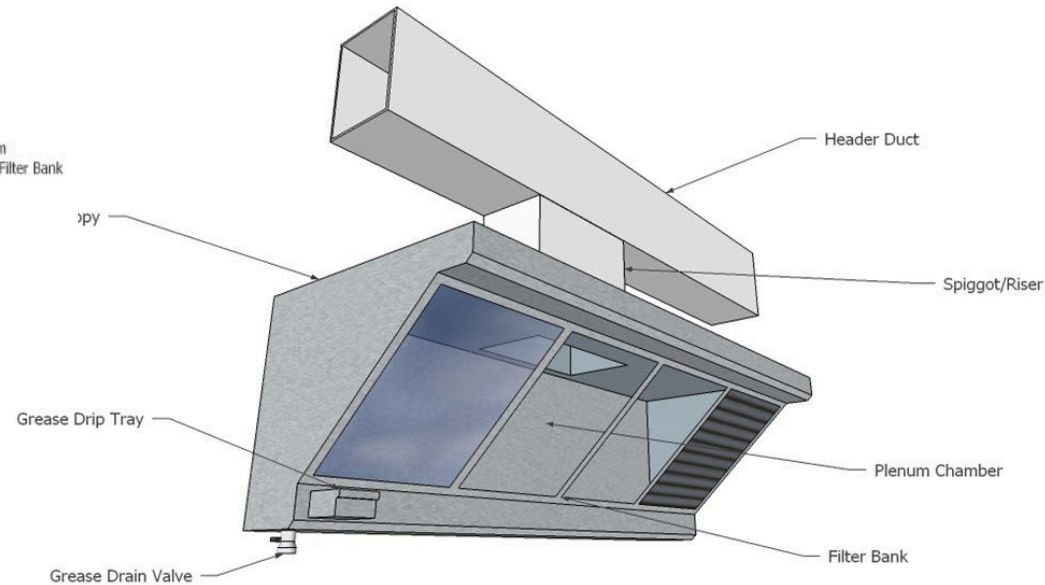
Example of a small grease extract system with components



Component 1: Canopy / Hood



Double Canopy



Canopy hood

- This is normally located over catering equipment.
- It is designed to remove airborne grease from food production.
- It also removes fumes, steam, heat and smoke using filtration and air extraction.
- It can be found in various shapes, including square, circular or ridge type.

Component 2: Filters

Filters installed in canopies are the first line of defence against **excessive grease build-up**. If they are installed, selected and maintained properly, this can decrease the **risk of fire** considerably. They are usually placed within the canopy hood.

Filters must fit into frames **without any gaps** and installed in the correct orientation.

The most common standards are:

- **DIN 18869-5** – Equipment for commercial kitchens – Components for ventilation Part 5: Aerosol separators, requirements and testing
- **DW172** – Specification for Kitchen Ventilation Systems

Cleaning the Canopies / Filters

The **canopy** and **canopy/extract plenum** is an area of **higher fire risk** and it should be cleaned more often according to insurer's requirements.

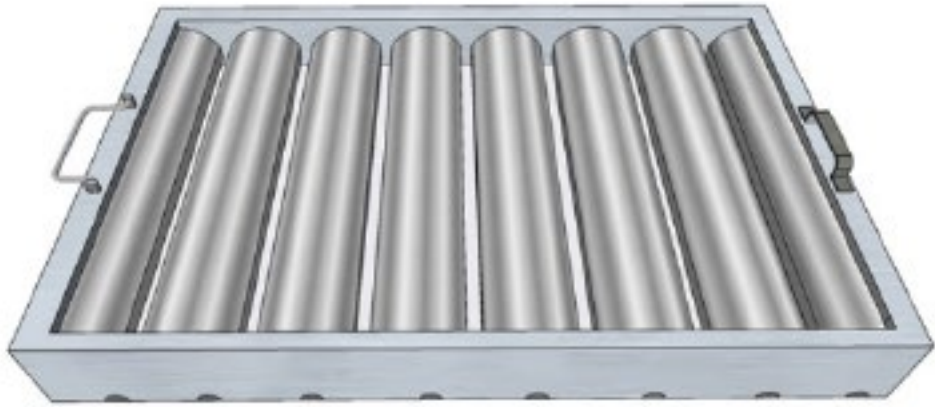
Specialist cleaning should be alongside daily / weekly cleaning of canopies and filters. This is typically carried out by the kitchen staff.

Safety advice:

Ensure that any UV system is isolated **before** removing the filter – UV is harmful.

Types of Filters

Baffle Style Grease Filters



Standard Construction Baffle Style
Grease Filter with Aluminium Frame

Where are they designed to be used?

Commercial kitchens and ventilation from food preparation areas. These must be cleaned regularly.

What is their primary function?

To reduce flames travelling from the cooking area up into the extract duct.

How are they made?

By rolling aluminium to create a series of baffle plates which are then welded onto a sub frame. The sub frame is then wrapped with the outer frame. The interlocked vanes work by changing the air velocity and direction.

How is the grease collected?

Grease is separated by this process, and is collected in drip trays through weep holes at the bottom of the filter.

Mesh Style Grease Filters

Where are they designed to be used?

For commercial kitchens and ventilation from food preparation areas.

What is their primary function?

To reduce the amount of grease carrying over from the cooking area.

How are they made?

By rolling an aluminium frame which holds a series of expanded and corrugated galvanised steel layers. These layers create an impingement barrier which catches grease from the extract air. Rated at 1.5m/sec where the pressure drop is 15Pa for 45mm filters and less than 10Pa for 20mm filters.

When are they used?

They are not usually used as first stage filtration in canopy hoods because grease can gather over the whole surface area and create a potential ignition source. But they are often used as the second stage or in

combination with other types.



Mesh Style Grease Filter with 45mm Thick Aluminium Frame and Galvanised Steel Mesh

Duo Grease Filter – Baffle Mesh Combination

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What is their primary function?

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How are they made?

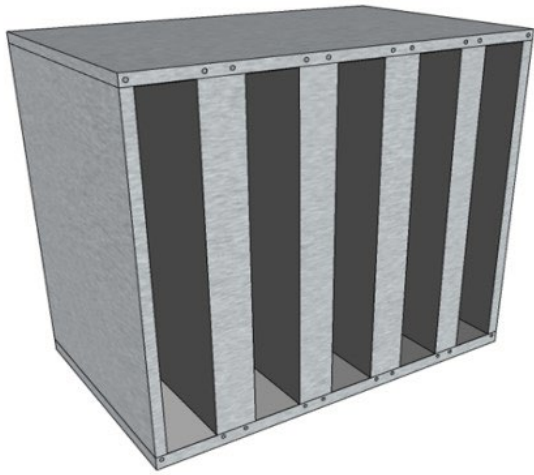
They are made by rolling stainless steel to create a series of baffle plates which are then welded onto a sub frame. The sub frame is then wrapped with the outer frame.

How do they work?

The extra mesh layers improve the grease collection rates over standard baffle filters. There are layers of expanded fine mesh to improve filter efficiency without affecting the flame stopping.

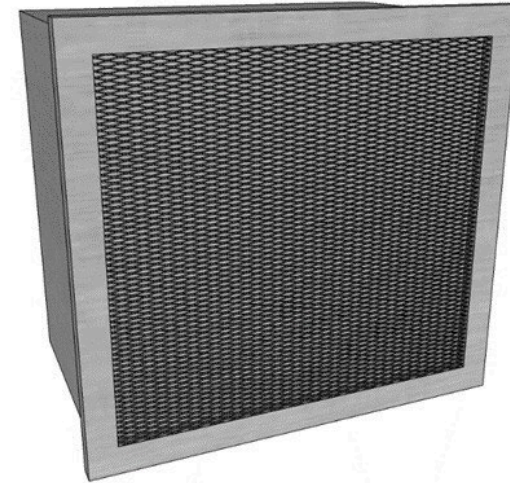


Carbon Filter Units



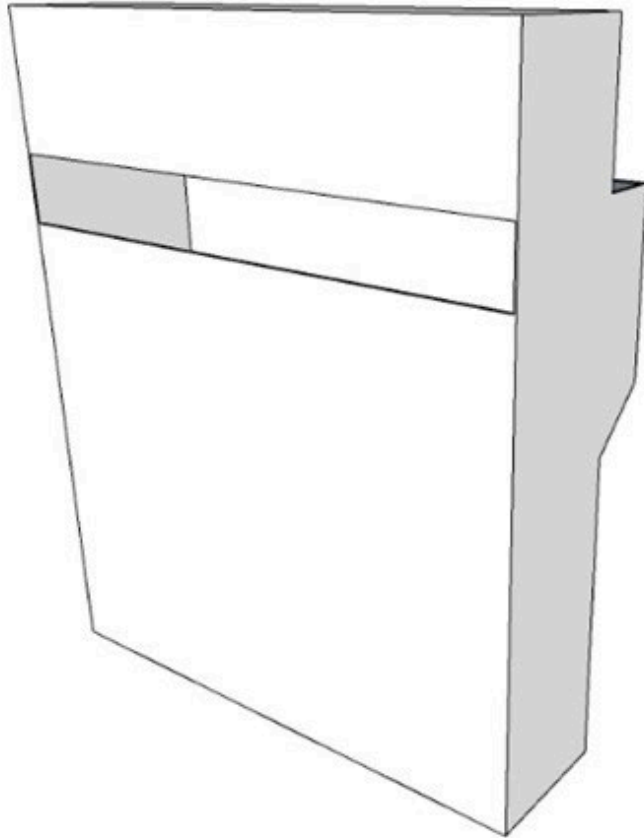
These make incorporation into ducted air systems and installation easier. They can be used for purifying air and on the extract to remove toxic gases and odours.

Compact Filters



They are typically used in Kitchen Extract systems however it is a versatile and strong filter which can be used in all situations. These are designed for high temperature applications.

Cartridge Filter



These form a high velocity opening for a number of baffle filters. They cause the air to change direction four times at a lower pressure than baffle filters.

They are installed in a sloping assembly over the full length of the canopy hood. Grease is collected in a grease drawer.

Component 3: Plenum

Where is this?

This is a void inside the canopy, after the filters and before the ductwork.

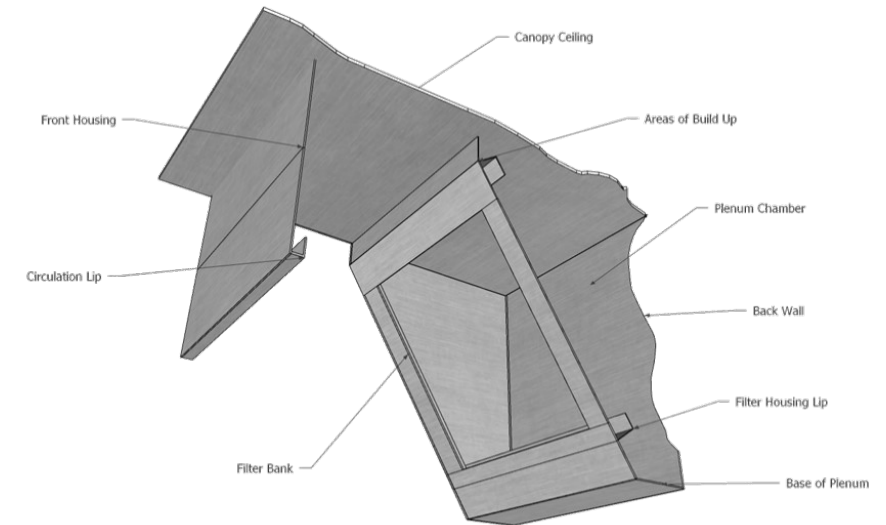
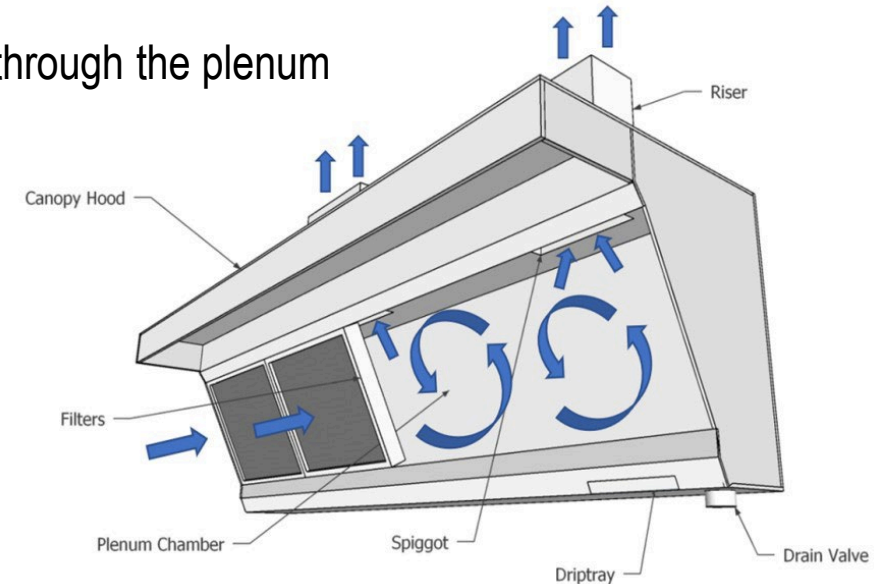
What are they designed for?

To facilitate air circulation.

Can the access be restricted?

Sometimes by fire suppression detection systems. Any access restrictions should be reported in the post clean report.

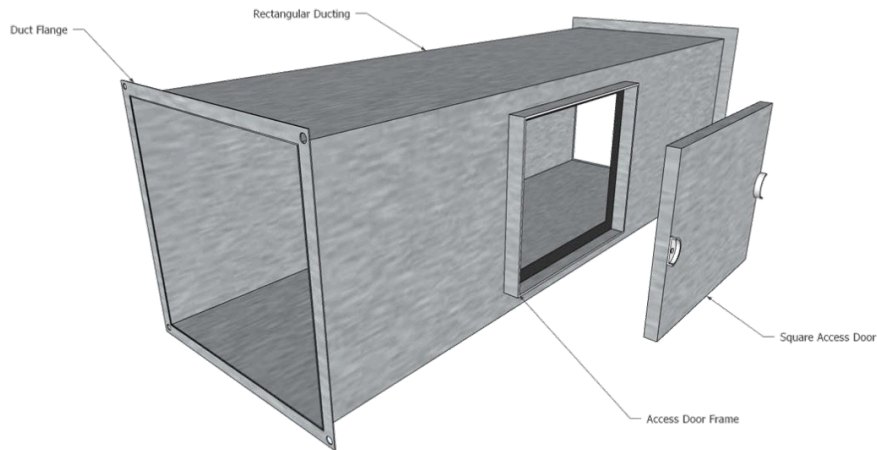
Air flow through the plenum



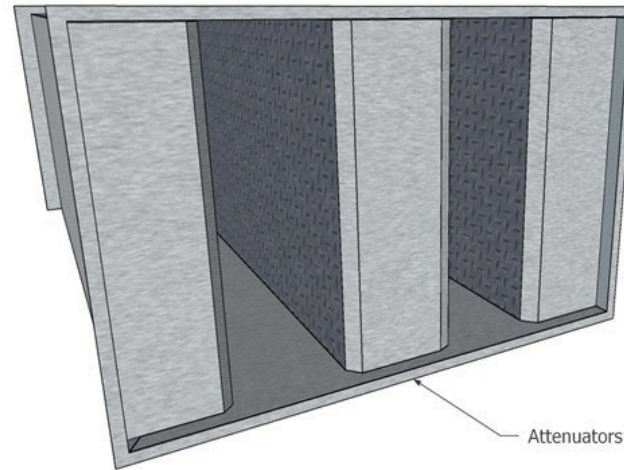
Filter housing & plenum chamber

Component 4: Extract Ductwork

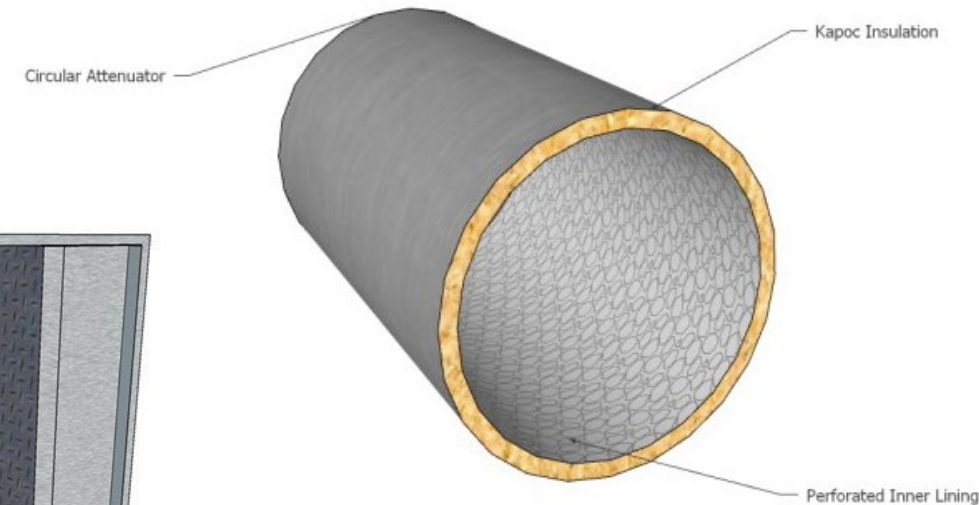
Ductwork is conduits conveying air or fumes – in this case from the kitchen to the fan and point of exhaust.



Rectangular Ducting



Grease Extract Ductwork - Attenuators



Perforated Inner Lining of a Circular Attenuator