

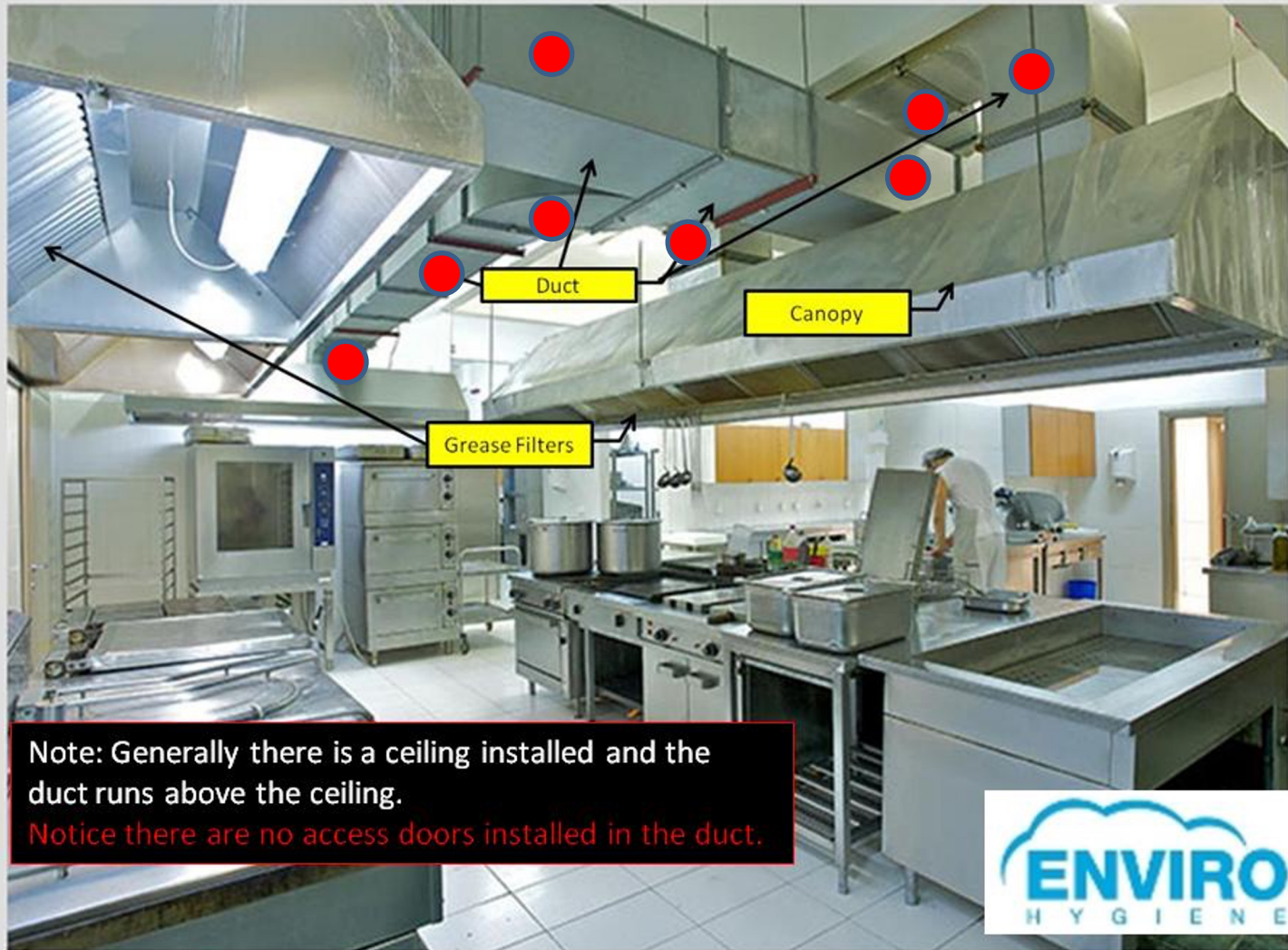


Grease Extract Ductwork Safety, Guidance and Law All you need to Know

Duct Cleaning Presentation

Martin Deevy
Enviro Hygiene Specialists
12.10.22

Cooking Canopy and Ducts - Installation



Basic Cooking Canopy Extract System

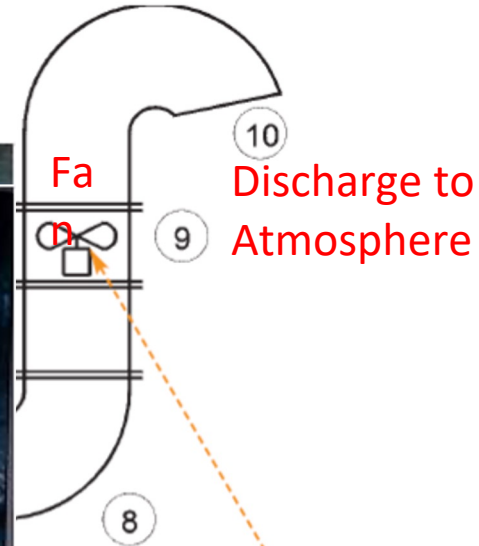
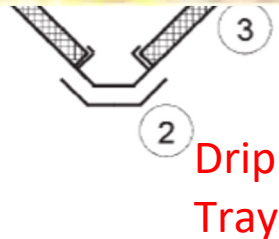
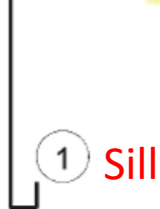
The Dangers of Cooking Canopy Extraction Systems!

FACT: FIRE OFFICERS CITE THE LARGEST SINGLE CAUSE OF SERIOUS FIRES IN CATERING OPERATIONS ON GREASE LADEN CANOPY EXTRACTION SYSTEMS.

FACT: BUILDING OWNERS ARE LEGALLY RESPONSIBLE FOR ASSESSING THE FIRE RISK IN THEIR BUILDINGS AND MAINTAINING THE BUILDING TO A SAFE STANDARD.



Behind the Grease Filters



The Risks You Cannot See



Remove the Fire Hazard

The Facts about Fire Risk and Your Responsibilities

Why do I need to clean my canopy and ducts internally?

Because they collect grease and can burn down a building in minutes if the grease/oil is ignited.



The Facts about Fire Risk and Your Responsibilities

Is it a legal requirement?

Yes, it's the law – all building owners are responsible for the risk assessment and maintenance of their premises.

Safety, Health and Welfare at Work Act, 2005,

Employer's responsibilities

Employers must ensure their employees' safety, health and welfare at work, as far as reasonably practicable.

To prevent workplace injuries and ill-health, the employer must:

- Provide and maintain a safe workplace (which uses safe plant and equipment)

Risk assessment and safety statement

Every employer must carry out a workplace risk assessment to:

- Identify any hazards in the workplace
- Assess the risks arising from such hazards
- Identify the steps to be taken to deal with any risks

BESA TR19 Guidance Document

Is there a guidance document or code of practice for reference and information.
BESA TR19 is the standard that is mostly referred to in Ireland. NAAD 21 has been recently published as a guidance document also.

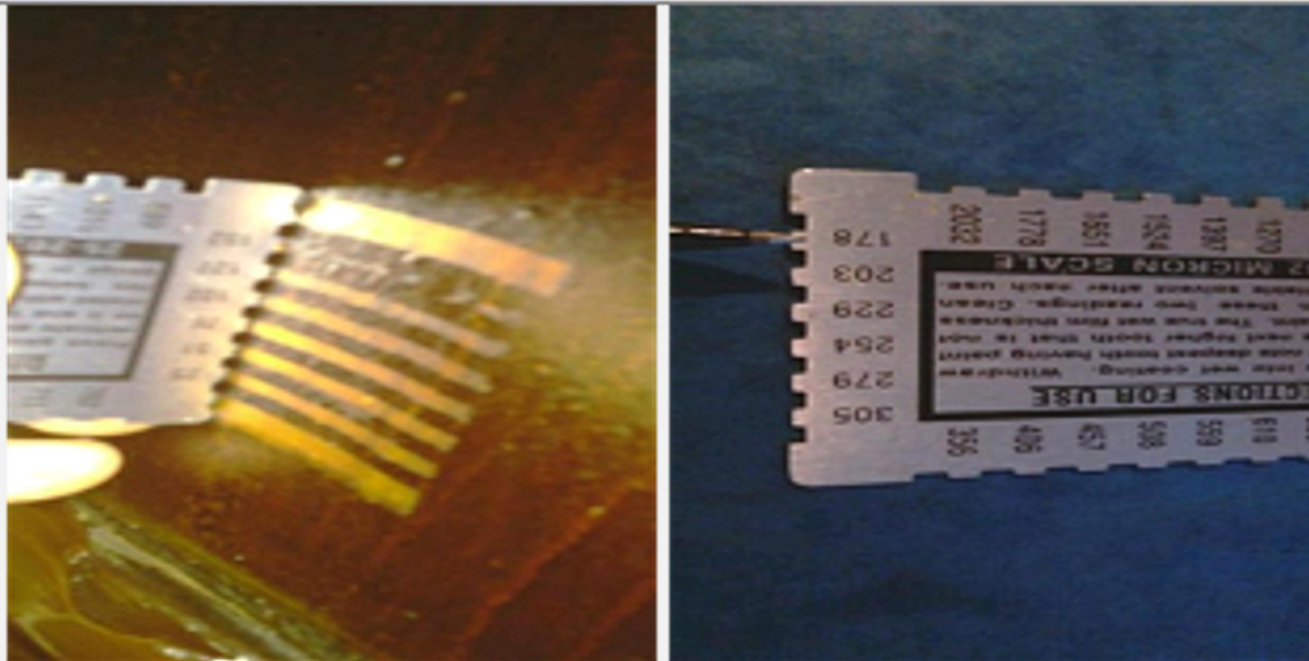


Acceptable Grease Deposits in Ducts

What does BESA TR19 specify as acceptable minimum grease deposit levels?

It states that a WET FILM THICKNESS TEST (WFTT) should be carried out and an

Wet Film Thickness Test



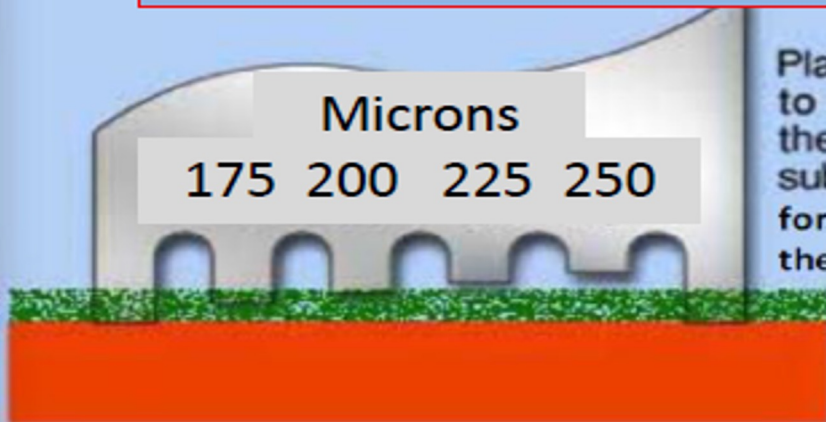
Canopy RHS wftt reading 2 – 178 µm

H
T
f

A reading of 178 microns was obtained 6 months after the system was last cleaned. This would indicate the system should be cleaned twice per annum to keep below the 200 micron limit.

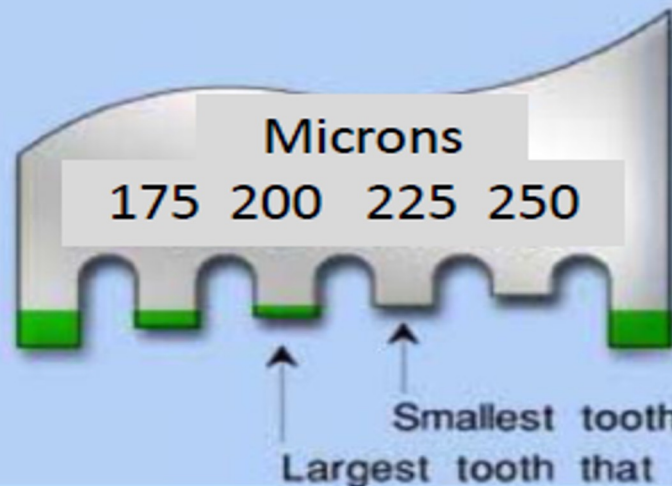
The table a few slides on provides rough guidance on frequency.

How to measure Grease Thickness using a Wet Film Thickness Gauge



Place the gauge at ninety degrees to the coated substrate and be sure the gauge is firmly in contact with the substrate. Slide the gauge through the deposit for 100mm, ensuring the duct metal is exposed on the outer legs of the gauge.

← "WET COATING" "Grease"
← SUBSTRATE "Duct"



After the gauge is removed from the substrate, observe **Micron** value of the largest tooth or notch that is wet and the smallest tooth that is not wet. The wet film thickness lies between these two values.

In the example above, the wet film lies between 200 to 225 microns and this indicates the system requires cleaning if this is an average across the system.

Guidelines to duct cleaning frequencies



Frequency of Cleaning – Typical					
Perceived Level of grease Production	Typical Example	Cleaning intervals (months) Perceived level Daily usage			
		Upto 6 hours	6-12 hours	12-16 hours	16+ hours
Low	No significant production of grease laden aerosols during normal daily food production operations	12 monthly	12 monthly	6 monthly	6 monthly
Medium	Moderate production of grease laden aerosols during normal daily food production operations	12 monthly	6 monthly	4 monthly	3 monthly
High	Heavy, significant or continual production of grease laden aerosols during normal daily food production operations	6 monthly	3 monthly	3 monthly	2 monthly

Non Compliance and Causes of Fire

What if I don't comply with the 2005 Welfare at Work Act and BESA TR19?

- You place any person in your building at risk of fatality/injury due to fire.
- You leave yourself open to litigation and possible judicial sentence due to negligence and **non-compliance with the Safety, Health and Welfare at Work Act, 2005.**
- In addition, **your insurance company may not recognise any claim for damages.**

Is the risk of fire and the spread of fire through the building really that high?

It is.

A fire can be started as follows:

- Direct contact from a flame or excessive heat source in the kitchen **OR.**
- Exposure of duct to fire elsewhere in the building or ignition source above the ceiling.

The inside of a grease laden duct will burn like a chip pan. Fire can travel through the ducts and spit flames onto the roof or into the attic.

Duct joints can fail throughout the building in the ceiling voids and can set off secondary fires.

Selecting a Specialist Duct Cleaning Contractor



Who should clean grease extract ducts?

An experienced and trained specialist duct cleaning company should carry out this work.

CLEANING PROCEDURE

- Free Survey and Wet Film Thickness Test
- Itemised Quotation
- Install access doors in duct if required
- Photograph before and after cleaning
- Clean canopies, ducts and fans
- Certification
- Managed contracts to clean your ducting at the correct intervals*

**This is a requirement of most insurance companies.*



The Enviro Fleet

Contractor assessment

- Experience
- Training
- Health and safety
- References
- Insurances
- Detailed survey – must trace all duct system from canopy to fan – remove ceiling tiles and hatches.
- Detailed and specific quotation outlining exactly the work included in the cost.

How ducts are cleaned and certified



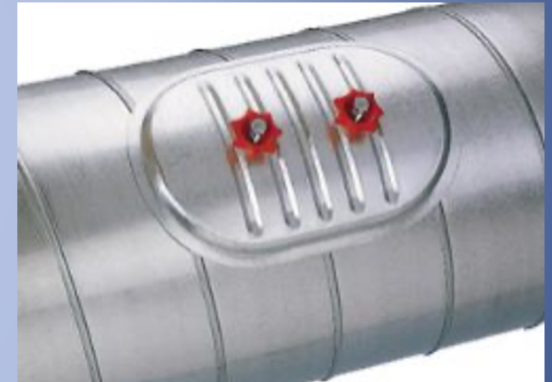
How are grease ducts cleaned?

Ducts are generally cleaned by scraping/wet wiping. It is a manual process requiring access above cooking equipment, ceilings, in lofts, plantrooms and roofs.

Rotary brushes can be used on circular ducts up to 400/500mm diameter.

How do duct cleaning operatives access the inside of ducts?

They install metal access hatches into the ducts every 2 metres and each side of every bend and component.





Access Door Locations

In-line equipment	Location
Control dampers	Both sides
Fire dampers	Both sides
Heating/cooling/re-claim Coils	Both sides
Attenuators (rectangular)	Both sides
Attenuators (circular)	Both sides
Filter sections	Both sides
Air turning vanes	Both sides
Changes of direction	One side
In-duct fans/devices	Both sides
Inlet/exhaust louvre	Both sides
Intermediate cleaning panels	

Access Door Sizes

Duct size up to longest side major axis	Recommended dimension of openings	
200 mm	300 mm	150 mm
300 mm	300 mm	200 mm
400 mm	450 mm	300 mm
≥500 mm	450 mm	450 mm

Table 5 Recommended size of openings (circular)

Duct size up to	Recommended dimension of openings	
310 mm	250 mm	150 mm
450 mm	400 mm	300 mm
550 mm	400 mm	300 mm
≥600 mm	500 mm	400 mm

BESA TR19 states that access doors should be installed at a minimum of 2 metre centres

On riser ducts, a minimum of 2 access doors should be installed on each level of the building, one at high and one at low level.

The recommendation is that access doors are installed on the sides of ducts but often site conditions and duct profile will require that doors can

Fire Rated Ductwork

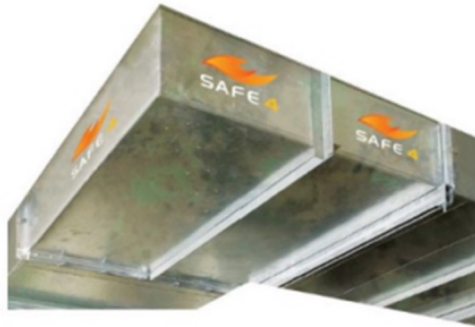


Fig No. 35. Safe4 Fire Duct Systems



The market place for fire resisting ductwork is constantly changing and is a highly specialized area.

It is critical to have sufficient access doors installed in fire rated ducting at the construction stage as modification costs are high and can only be carried out by an approved agent of the supplier.

The fire rating is nullified if a third party modifies these systems.

Fire rated ducting should be stamped with the manufacturers details as per the photos above.

Arranging a Canopy and Duct Cleaning Job



Understand the scope of work included in the quotation.

Request proof of insurance, risk assessment and method statement (RAMS). Work should not commence without these. Client (or client agent) is responsible for vetting the duct cleaning specialist. Also look for Safe Pass and Manual Handling certification. If using a boom lift, operative must be certified.

Arrange time of visit, agree work duration, access through the building, keys, permits, etc. If you have not arranged for access required, you will be charged for a re-visit.

For night time work, client supervision or key holder may be required, alternatively, full access to the duct run through the building will be required.

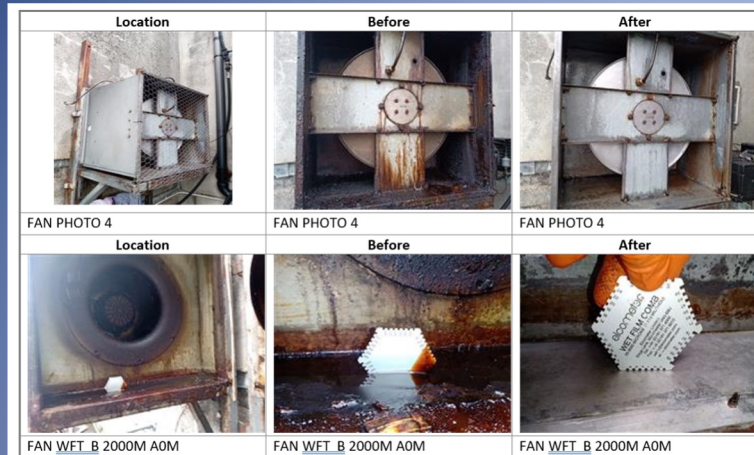
Know where the fan switches are for isolation and know where the fan is located.

Visually inspect the work that night or the day after...ducts can start re-contaminating after a number of days.

Sign off on the work once satisfied a good job has been completed. Ducts will not look new and there may be a few light grease streaks present.

Note any areas reported where duct access was not possible for reasons such as structural access panels being required. Review and see if access can be provided for next visit.

Reporting and Certification



Hygiene Certificate

Project Name: _____
Project Address: _____
System Name: Main Grille Canopy
System Type: Extract Canopy Ductwork

This document certifies that the systems referenced above have been cleaned in accordance with the following standard (as far as the systems permit access):

BESA TR19 – Guide to good practice in Internal Cleanliness of Ventilation Systems

The complete system should be photographed before and after cleaning is completed

A sketch of the system should be included or location photos of the access points through the building

The access doors and cleaning locations in the report should be recognisable in your building.

Areas not reachable and not cleaned should be identified.

Reporting software should be used to minimise error and speed up report availability.







Wet film thickness test readings should be included in the report.







Report should be available within 7 days of cleaning.

A Hygiene Certificate should accompany the report

Reporting and Certification



Location	Before	After
		
FAN PHOTO 4	FAN PHOTO 4	FAN PHOTO 4
Location	Before	After
		
FAN <u>WFT_B</u> 2000M A0M	FAN <u>WFT_B</u> 2000M A0M	FAN <u>WFT_B</u> 2000M A0M

Location	Before	After
		
DUCT AD2	DUCT AD2	DUCT AD2
Location	Before	After
		
DUCT AD2 W F T B 500 A0m	DUCT AD2 W F T B 500 A0m	DUCT AD2 W F T B 500 A0m

Hygiene Certificate

Project Name: _____
 Project Address: _____
 System Name: Main Grille Canopy
 System Type: Extract Canopy Ductwork

This document certifies that the systems referenced above have been cleaned in accordance with the following standard (as far as the systems permit access):

BESA TR19 – Guide to good practice in Internal Cleanliness of Ventilation Systems

Insurance Companies and Policies



Wet Film Thickness Test

WFTT measurement: μm (microns)	Recommended action
200 μm as a mean across the system	Complete cleaning required
Any single measurement above 500 μm	Urgent localised cleaning required

In the event of a fire, the insurance company will seek compliance with the policy conditions or BESA TR19 and may employ the services of a technical expert to inspect the fire damage and review annual duct cleaning reports. **If not satisfied that compliance has been followed, they can refuse to settle any claim.**

Comprehensive and detailed cleaning reporting and certification containing Wet Film Thickness Test readings carried out by a competent contractor **is proof of compliance.**

Sample Photos of Grease Contaminated Ducts



Damper



Behind the Canopy Filters



Duct component covered in Grease



Discharge Grille



Blocked Fan



Grease in Duct Close-up

