BUILDING A

DEFENSIBLE

COMMISSIONING STRATEGY

Designing with LEV Commissioning in Mind

25 minutes + questions

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“So, you want an LEV system?”.....

“But we don’t actually do commissioning”

Purchasing an LEV system that is the wrong design..

Results in:

- Failed commissioning
- Time and money wasted on wrong equipment
- Lack of control
- Time and money wasted on contract issues/ civil action

Step 1 - Do you need LEV ?

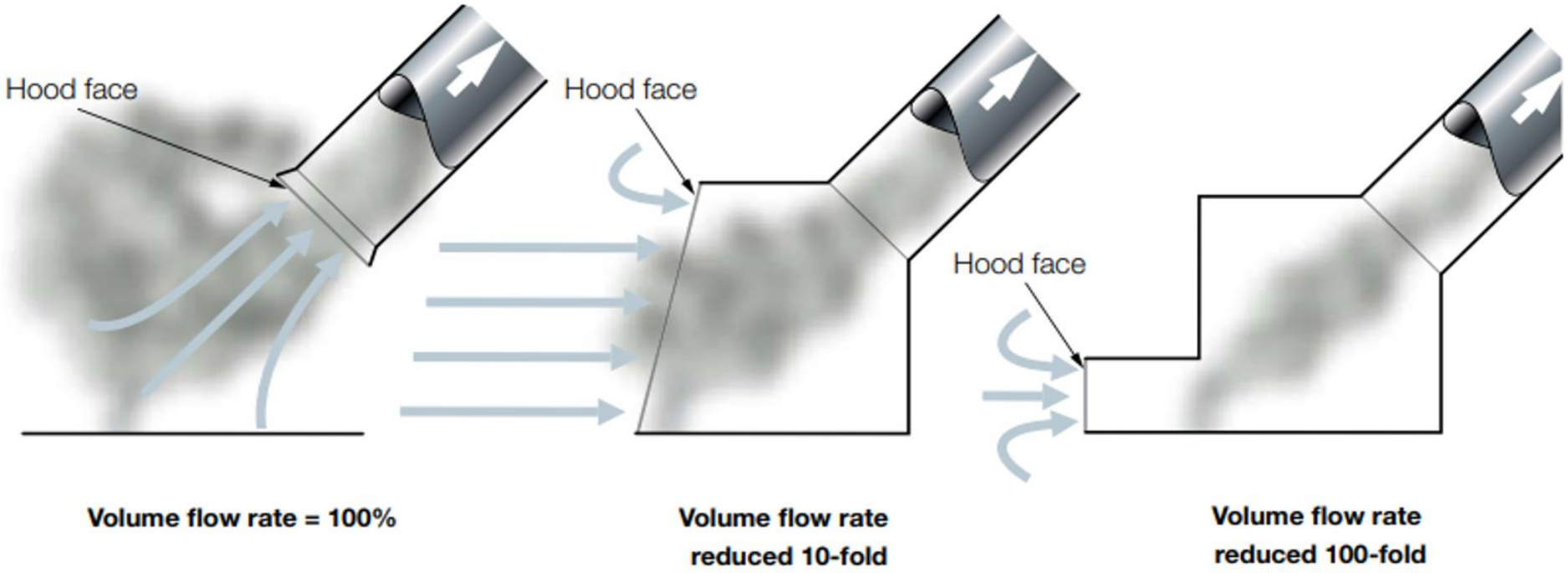
For some scenarios water suppression may be better

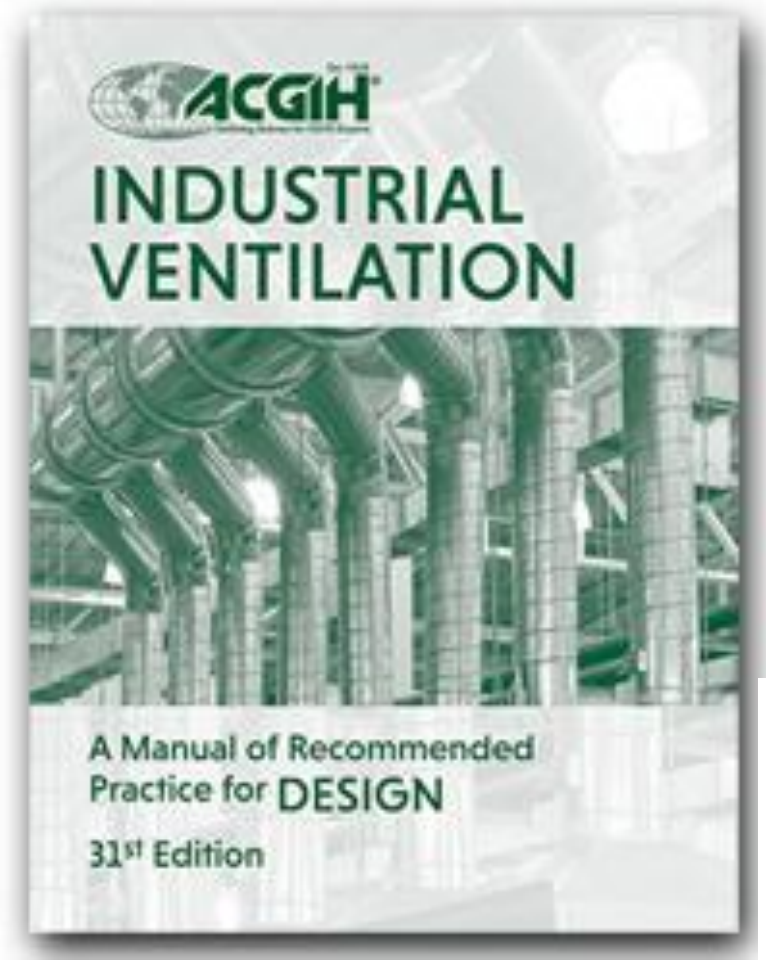
You may want both

Step 2 - Can you use on tool extraction?

Step 3 - How are you going to capture the contaminant?

- Control banding v operational issues
- The more we can enclose the process the better control at a lower energy cost





HSE

Health and Safety Executive

Controlling airborne contaminants at work

A guide to local exhaust ventilation (LEV)

HSG258 (Third edition)
Published 2017

This is a free-to-download, web-friendly version of HSG258 (Third edition, published 2017). This version has been adapted for online use from HSE's current printed version.

You can buy the book at https://books.hse.gov.uk/ and most good bookshops.

ISBN 978 0 7176 6613 3
Price £20.00

This book provides guidance on the design of new local exhaust ventilation (LEV) equipment. It describes the principles of deciding on, designing, commissioning and testing effective LEV.

This guidance is written for employers who use or intend to use LEV. The guidance will also help suppliers of LEV, managers, trade union and employee safety representatives. All of these groups need to work together to provide, maintain and use effective LEV and to reduce exposure from the inhalation of hazardous substances.

The book contains information about the roles and legal responsibilities of employers and suppliers; competence; principles of good design practice for effective LEV hoods and their classification; ducts, air movers; air cleaners; and system documentation – with checking and maintenance schedules and the marking of defective equipment.

It also includes guidance on the specification of LEV; commissioning; zone marking; the user manual and logbook; testing and hood labels.

This third edition has been updated and contains minor amendments and clarifications, but the advice is broadly unchanged and includes the updates made in the second edition based on feedback from industry.

Also CoSHH ESSENTIALS DESIGNS


Bench

Step 4 - What is the material(s) it needs to handle?

Asthmagens and Mutagens… HSG258 - para 233

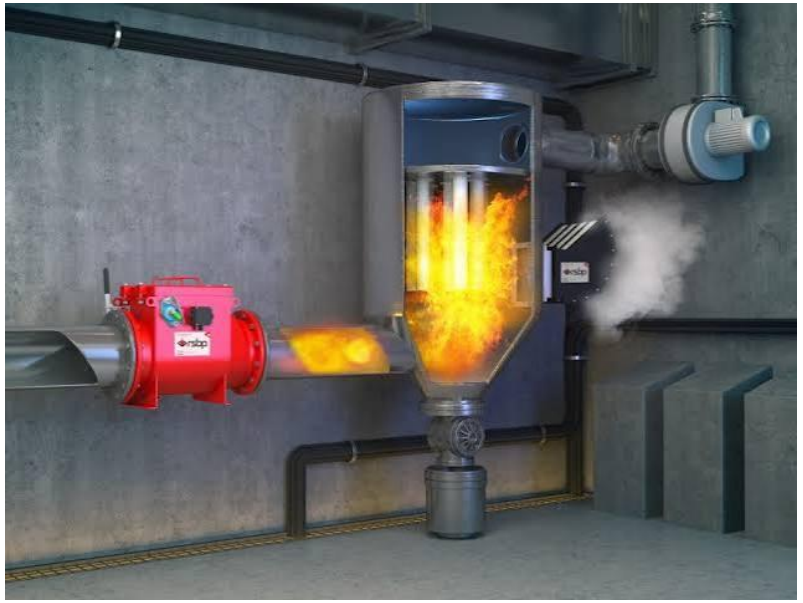
"Recirculation is acceptable as long as the air is thoroughly cleaned.

When failure of a component such as an air cleaner could result in dangerous conditions, any recirculation system should incorporate monitoring and alerts, for example…"

Potential of explosive dust or vapour…. DSEAR/ATEX

- If system is inside, explosion venting to safe place/ flameless venting or explosion suppression

- If outside, position of explosion vent



If vapour then stack height and dispersal is important!

Step 5 - where can I site any filter system?

- If only sited internally?
- Then bear in mind costs will be higher if …. DSEAR or HSG258 para 333 applies

If initial the Design is correct then ‘Commissioning’ should be…

However, Commissioning does not mean you don't need RPE

- It only verifies that system gives the level of control it is designed for
- Hardwood dust, RCS and isocyanates have low WEL's
- RPE will often still be necessary

When it goes wrong!

- Non-ATEx system for fine dry wood dust
- Fan is not of non-sparking construction
- Explosion panel vents onto Emergency escape door
- No isolation valves on main ducts from and back to factory
- No HEPA filtration of recirculated air
- Construction of thin galv. sheet which bowed with pressure
- Leaking dust after 3 months

Competent designers needed!!!

But .....

You need to supply the data on:-

- what you are handling

  and

- how it is handled.

Designing LEV with Commissioning in Mind