Welcome to LEV 2020 –
Extracting the Best Practices

Thank you to our exhibitors & supporters
ILEVE Update

Institute of Local Exhaust Ventilation Engineers

Presenter: Dean Greer, MILEVE
New Logo
Membership
Scotland and Northern England Regional Meeting
Membership Development meeting
ILEVE TC01
Industry and Regulatory Forum on LEV
  • Competency Matrix
  • Recirculating LEV.
AGM – Information Day
Strategic Partnerships
TR40
Questions?
BOHS Breathe Freely Update

Tuesday 25th February 2020

Lee Heffernan
BOHS Chartered Member
The Breathe Freely Campaign

• BOHS initiative, aimed at reducing occupational lung disease in the UK, which causes significant ill-health and an estimated 13,000 deaths per year.
• Launched in 2015, initially focusing on the construction industry.
• Programme raises awareness of construction health hazards and gives options to control these hazards.
BREATHE FREELY
INTERESTING STATS...

22 Roadshows

15,000 Miles Travelled

1,550 Attendees

90 Speakers

13 Fantastic Partnerships

Over 120 Company Supporters

[Image of construction site with two workers]
Gone global, Breath Freely Australia launched last year
Breathe Freely in Manufacturing

• Breathe Freely for the manufacturing sector is a campaign which launched in May 2017.
• Launched in partnership with;

  ![Partners Logos]

• Aims to improvement respiratory health protection in the manufacturing industry, focusing on welding.
• Welding is a top ten cause of work-related cancer, causing an estimated 152 deaths a year in the UK.
Welding Fume Control Selector Tool

- Web-based tool.
- Complements the information on the Breathe Freely website.
- Created by a panel of experts.
- BOHS has recently formed a partnership with ILEVE and EMADA to work together for future tool updates.
Breathe Freely in Manufacturing Roadshows

- BOHS has announced the launch of a new series of Breathe Freely in Manufacturing roadshows taking place in various locations in the UK throughout 2020. The **breakfast seminars** will focus on the prevention of lung disease amongst welders in the manufacturing industry.

  - **Free-to-attend** events - provide important information for anyone who is responsible for the protection of welders’ health in the manufacturing industry, especially Senior Managers and Directors.

  - The Roadshows are sponsored by Plymovent, a global supplier of products for the extraction and filtration of polluted indoor air and advocate of ‘clean air at work’.
Roadshow Locations and dates

- **Manchester**, 19 March 2020, Park Inn by Radisson, City Centre
- **Durham**, 13 May 2020, Durham Marriott Hotel Royal County
- **Bristol**, 18 June 2020, Village Hotel Bristol

You can find more information on the Roadshows and register via the Breathe Freely in Manufacturing website

https://www.breathefreely.org.uk/breathefreelymanufacturing.html
https://www.breathefreely.org.uk
Thank you
Controlling exposures to prevent occupational lung disease in manufacturing

Do you breathe freely?
Partners

- TWI
- HSE
- TUC
- MAKE UK
- TOYOTA MANUFACTURING UK
- JCB
- BAE SYSTEMS
Controlling exposures to prevent occupational lung disease in manufacturing

Manufacturing workers are at high risk from fumes given off by welding and hot cutting processes which give off very fine particles that cause cancer, COPD and an increased susceptibility to pneumonia.

New Roadshows

Birmingham 19 February 2020
Manchester 19 March 2020
Durham 13 May 2020
Bristol 18 June 2020
Information hub

Introduction to Welding

An introduction to Welding

Why do workers need protecting?

Welding is one of the most common activities carried out in industry and there are a number of health hazards associated with welding in particular.

Page Includes: Pdf and Powerpoint downloads.

more>>

Welding Guides & Factsheets

Monitoring Exposure to Welding Fume

Air monitoring and measurement may be needed where there is a serious risk to health from the inhalation of welding fume and the likely exposure level of the welders to the fume is not known.

Page Includes: Pdf download.

more>>

NOW LAUNCHED
Control Selector tool
microsite - online tool & PDFs

Control Selector Tool

This toolkit provides information for managers to better recognise the welding hazards and manage and implement the most appropriate controls through an easy to use online tool.

Click here to visit the microsite

Launch the tool
The Selector Tool criteria

- It is an online tool to help you make the right choice of welding fume control.

- It asks the following key questions:
  
  - What type of welding or cutting is it?
  - What type of metal is it?
  - What size is the workpiece?
  - How long will the welding take (arc time)?
Optimum control solution

• The Selector Tool provides advice on the best available control solution for the task criteria selected by the user.

• This could include:
  • Extracted bench
  • On-torch
  • Flexible extraction arm
  • Respiratory protective equipment (RPE)

• It also provides links to other suitable alternative fume control solutions, as it is recognised that for one-off jobs it may not always be possible to have the optimum control solution available.

• With every fume control solution there are limitations to its use and its ability to adequately capture fume and these are addressed on each control sheet.
Control sheet example
Familiar 5-star rating system

• Now for welding fume extraction systems
• Each Control Sheet has been awarded a 5-star rating to show overall effectiveness
Management advice sheets

In addition to the Control Sheets, there are management sheets available via links in the text of the control sheet which provide appropriate advice on the following topics:

- General Ventilation
- Design of LEV
- LEV Installation, Commissioning, Maintenance and Testing
- Measurement of Welding Fume Exposure
- Health Surveillance
- Information, Instruction and Training for Welders
What are we waiting for?

• Use your mobile phone to access this tool now
• No need to download – it is responsive site!
• Lets work through an example:
  • [www.breathefreely](http://www.breathefreely.org.uk/wst/)
What can YOU do?
The next phase?

Working Group met again on the 13th February, forming a partnership with ILEVE and EMADA.

2020 to bring more

• **Functionality**
• **Welding/cutting technique control solutions**
• **Control and management sheets**
Feedback?

Send to: breathefreely@bohs.org
Join us and be part of the solution!

breathefreely.org.uk
Controlling exposures to prevent occupational lung disease in MANUFACTURING

Do you breathe freely?
BOHS ILEVE 5th LEV Conference

HSE – Noise Control for LEV Systems

January 2020

Chris Steel – Noise & Vibration Inspector

chris.steel@hse.gov.uk
What is so bad about occupational noise exposure?
CRU – Compensation Recovery Unit, part of DWP
They collect Employer Insurance Liability Claim statistics
Does occupational hearing loss make it into the Employers Liability Claims Health Top 10?
These are the diseases where claims are being made.

- Mesothelioma, 3,020
- Asbestos, 1,195
- HAVS, 1,433
- Asthma, 362
- Carpal Tunnel Syndrome/Tennosynovitis, 300
- Occupa... Stress/Depress... Anxiety, 284
- WRUL... 241
- Cancer, 241

2015-2016 - Top 10 Occupational Diseases by Employer Liability Insurance Claim (CRU at DWP)
Why am I talking to you about noise from LEV now?
NIHL Claims by Industry per 10,000 employees
(based civil claims snapshot 2019 expert witness cases)

- Wood
- Steel Fab
- Construction
- Textiles
- Automotive
- Military
- Food
- Bottling
- Printing
Why would an increase in the use of LEV in metal fabrication be a cause of concern for a Noise Inspector.
Let's have a look at what we see in the wood industry for comparison.
Spot the Difference

Identical saws bought at the same time
99dB at operators position cutting timber

90dB (A) at operators position cutting timber
99dB at operators position cutting timber

97dB at operators position LEV only

90dB (A) at operators position cutting timber
99dB at operators position cutting timber

97dB at operators position LEV only

90dB (A) at operators position cutting timber
We made a quick adjustment, now spot the difference
99dB at operators position cutting timber

96dB (A) at operators position cutting timber (-3dB = half the risk)
99dB at operators position cutting timber

96dB (A) at operators position cutting timber
(-3dB = half the risk)
Do you think the noise level will be higher or lower?
Cutting wood – LEV on

100dB (A)
Not cutting wood – LEV on

Higher or Lower than 100dB (A)?
Not cutting wood – LEV on

Higher or Lower than 100dB (A)?

105 dB (A)
Not cutting wood – LEV on

Higher or Lower than 100dB (A)?

105 dB (A)

This machine is louder when it is doing nothing (it is 15dB quieter when cutting with LEV off)
There have been some significant improvements in noise control from (some) machinery manufacturers (particularly in woodworking)
So are HSE inspectors seeing instances where air systems are the primary source of workplace noise?
LEV system for 4 occasionally used planers

- 90dB(A) at 1 m
- Levels of 80-85dB(A) in surrounding workshop area just from LEV
- Poor state of maintenance
- Running full tilt all day
LEV system for 4 occasionally used planers

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LEV system for 4 occasionally used planers

- 90dB(A) at 1 m
- Levels of 80-85dB(A) in surrounding work shop area just from LEV
- Poor state of maintenance
- Running full tilt all day
That one is a bit old and scabby, a newer system should be better?
Basic wood shop extraction units bought as a replacement system

- 90-93 dB (A) at operators position, rated at 83 dB(A)
- Loudest item in the workshop
- Not a great design
- Could it be improved?
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Multi-head saw – Air fan at operators position

- 91dB(A) at operators position
- 84dB (A) with air fan off
Multi-head saw – Air fan at operators position

- 91dB(A) at operators position
- 84B (A) with air fan off
Noise from LEV is becoming a dominant noise source in some industries and it is being used with few breaks in operation?
What is particularly frustrating is that we sometimes see noisy systems that don’t manage to perform the task for which they were built?
95 dB(A) in this area where staff were required to sweep up excess dust

A machine with an LEV system that had just had a “thorough” examination
Should we expect more control of noise from LEV systems?
Noise control for other air handling systems is well established.
“Guide B provides guidance on the practical design of heating, ventilation and air conditioning systems. It represents a consensus on what constitutes relevant good practice guidance. This has developed over more than 70 years”
You are expected to control noise from air movement systems for the occupants of almost every type of building.
You tend only to get asked to control industrial noise when it affects the neighbours.
We don’t see basic design for noise
Avoid turbulence, isolate plant, 2 ½ times diameter between fan and junction and lag ductwork...
Should employers be considering noise control on LEV if it is likely to create a workplace noise issue?
Control of Noise at Work Regulations 2005

6.—(1) The employer shall ensure that risk from the exposure of his employees to noise is either eliminated at source or, where this is not reasonably practicable, reduced to as low a level as is reasonably practicable.

6 (3) The actions taken by the employer in compliance with paragraphs (1) and (2) shall include consideration of—

(b) choice of appropriate work equipment emitting the least possible noise, taking account of the work to be done

(f) appropriate maintenance programmes for work equipment, the workplace and workplace systems;
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(b) choice of appropriate work equipment emitting the least possible noise, taking account of the work to be done

(f) appropriate maintenance programmes for work equipment, the workplace and workplace systems;
We also spent a good amount of time producing EU wide advice on how to buy quiet equipment

Should suppliers and manufactures of LEV systems be considering noise control if it is likely to cause a workplace noise issue?
Health & Safety at Work etc. Act – Section 3(1)
...ensure so far as is reasonably practicable, that persons not in his employment...are not thereby exposed to risk to their health or safety

The Supply of Machinery (Safety) Regulations 2008 – Schedule 1 annex 1
Machinery must be designed and constructed in such a way that risks resulting from the emission of airborne noise are reduced to the lowest level, taking account of technical progress and the availability of means of reducing noise, in particular at source.
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Can these issues not just be dealt with through the use of hearing protection?
Hierarchy of Control

- Eliminate - don’t do it
- Substitution – find a safer way to do it
- Engineering controls - Source safer tools or equipment/adaptations
- Administrative Controls – Job rotation, time limiting
- PPE
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- Eliminate - don’t do it
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This photo was taken on site last year by one of our inspectors.
Estimated Successful use of hearing protection in the UK as a % of the exposed workforce (HSL report RR720)

- Successfully using hearing protection (60%)
- Unsuccessfully using hearing protection (40%)
So what is the root cause of the LEV noise problem
The problem

- Systems are often put together by duty holders who has little or no experience in LEV design.

- We need LEV specialists to add noise control to the reasons why good design is necessary.
The problem

• Systems are often put together by duty holders who has little or no experience in LEV design.

• We need LEV specialists to add noise control to the reasons why good design is necessary.
What is HSE’s aim...
We would like to see compliance with the Noise regulations
We would like to see the LEV industry place some focus on noise control
The noise & vibration inspectors will be undertaking priority local inspections for noise in metal fabrication. If we see LEV noise issues we will take action.
What is HSE’s aim...
Eliminate by 2030 as an occupational disease, new cases of noise induced hearing damage....

http://www.hse.gov.uk/noise/workingwithus.htm