WELCOME TO

ACTION ON SITE HEALTH

SCOTLAND

Supported by:

HSE

health in CONSTRUCTION leadership group

BOHS British Occupational Hygiene Society

CONSTRUCTION INDUSTRY PARTNERSHIP

RVTGROUP

A Welcome from RVT Group

Kevin Dupont

Technical Consultant
RVT Group

RVTGROUP™
Protecting people and our environment

ACTION ON SITE HEALTH SCOTLAND

ACTION ON RESPIRATORY HEALTH

ACTION ON SITE HEALTH SCOTLAND

Dust

Noise

Fumes

Exhaust

Ventilation

Monitoring

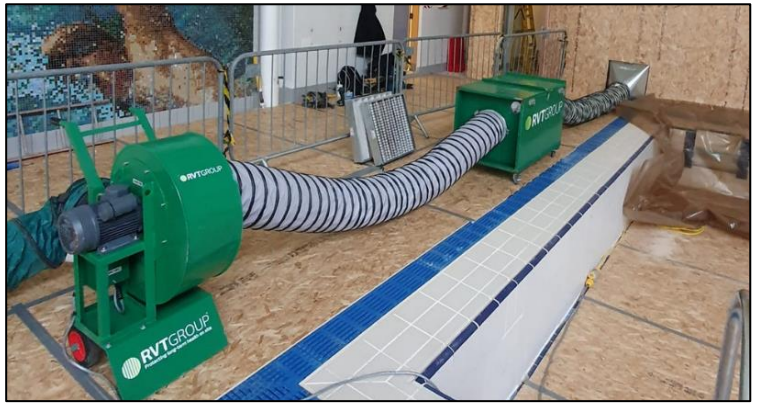
Climate

Water Treatment

ACTION ON SITE HEALTH SCOTLAND

Heating
Care Facility Development, Outer Hebrides

Noise Control
Shieldhall Strategic Tunnel, Glasgow

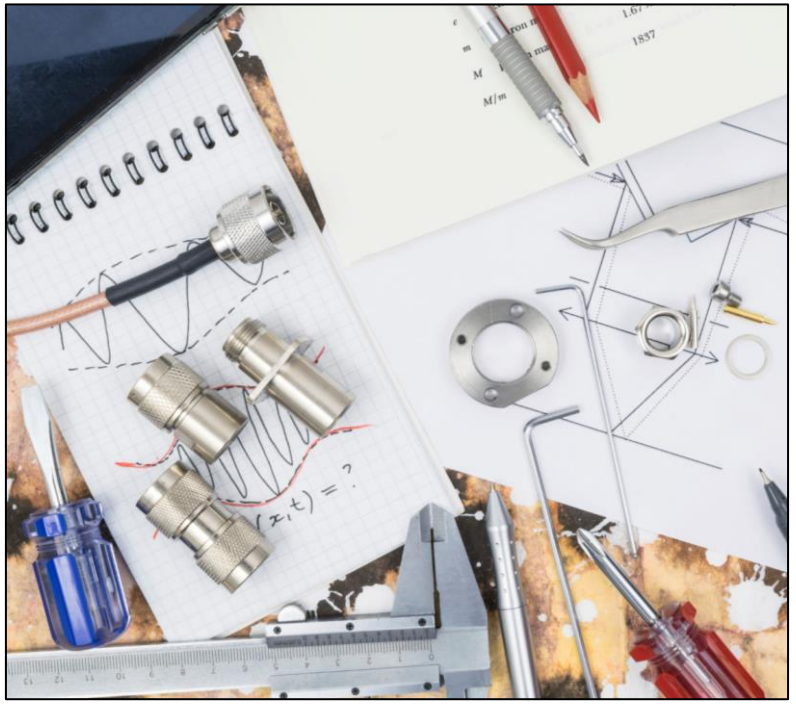


Dust and Noise Control
Leisure Centre, Glasgow

Ventilation
Queen Street Rail Tunnel, Glasgow

Heating
Royal Bank of Scotland, Edinburgh

ACTION ON SITE HEALTH SCOTLAND

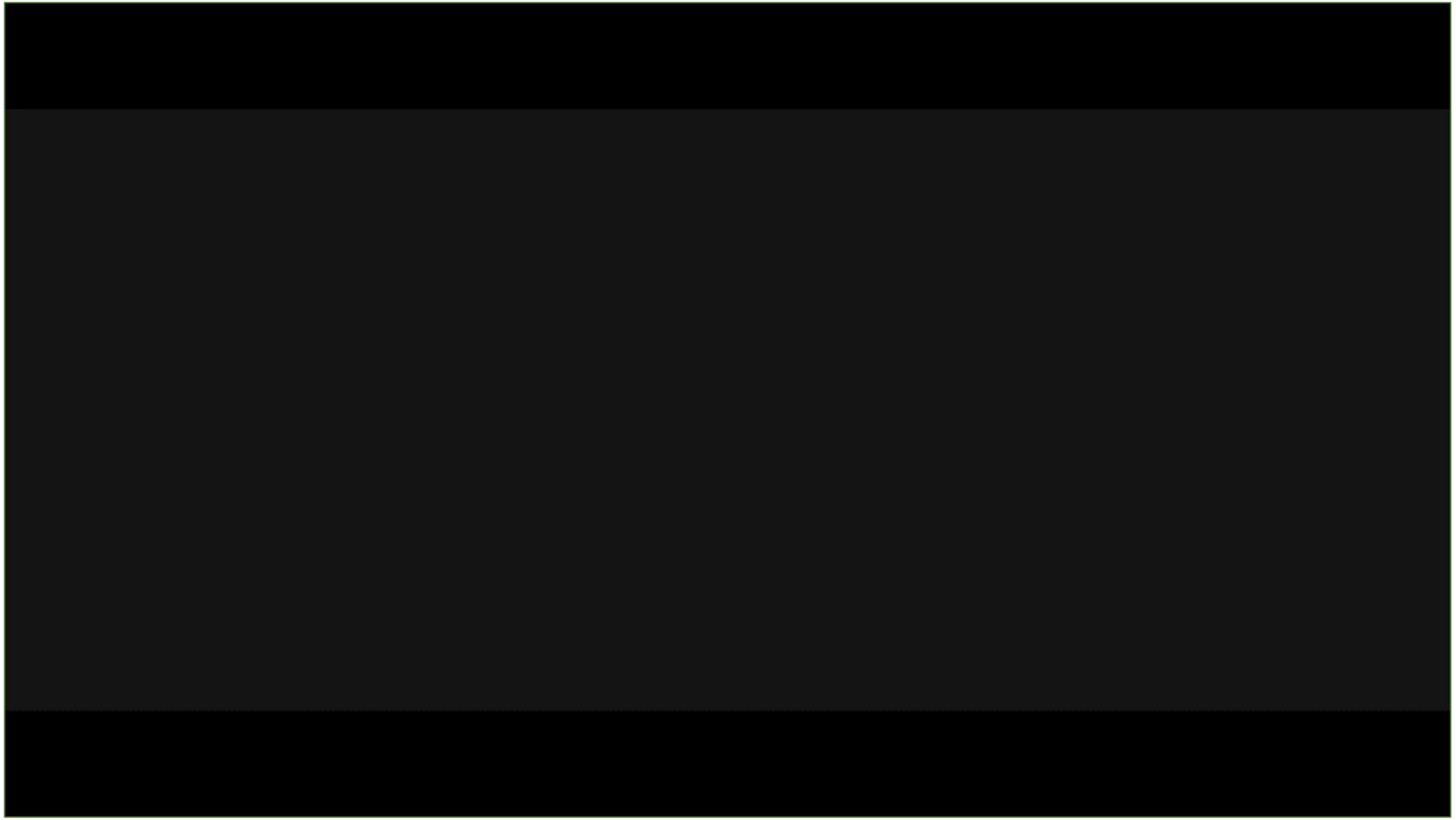


ACTION ON SITE HEALTH SCOTLAND

- ✓ **Case Studies**
- ✓ **Whitepapers**
- ✓ **Best Practice Guides**
- ✓ **Toolbox Talks**
- ✓ **H&S Posters**

CPD CERTIFIED
The CPD Certification Service
Collective Mark

ACTION ON SITE HEALTH SCOTLAND



ACTION ON SITE HEALTH SCOTLAND

Event Introduction

Colin Nottage

Chair
Construction Dust Partnership

ACTION ON SITE HEALTH SCOTLAND

Agenda

09.00 am - Event Open and Welcome from RVT Group

09.10 am - Keynote Speech; Respirable Site Hazards

09.50 am - Three Things You Should Know About Construction Noise

10.10 am - Preventing Stress in Construction

10.30 am - Quiz Master; Construction Edition

10.50 am - Networking and Exhibition Break

ACTION ON SITE HEALTH SCOTLAND

Agenda

11.20 am - Construction Dust and 20 years of COSHH; Are We in Control?

11.40 am - Tackling MSDs Head On

12.00 pm - Implementing Best Practice On Site; A Contractor's Perspective

12.20 pm - What do YOU think?

13.00 pm - Networking Lunch and Meetings with RVT Group

14.00 pm - Event Close

ACTION ON SITE HEALTH SCOTLAND

Keynote Speech; Respirable Site Hazards

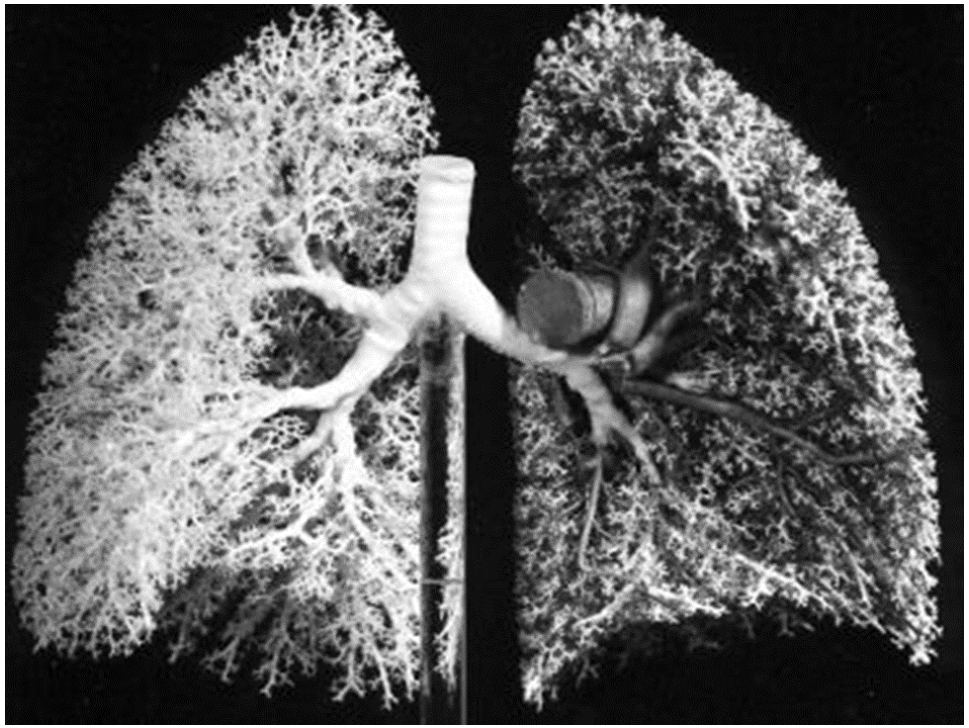
Dr David Fishwick

Chief Medical Adviser
HSE

ACTION ON SITE HEALTH SCOTLAND

The Lungs at Work

formidable yet fragile



Professor David Fishwick d.fishwick@sheffield.ac.uk

University of Sheffield, HSE and Emeritus Sheffield Teaching Hospitals NHS FT

THIS PART OF THE PRESENTATION HAS BEEN REMOVED DUE TO SENSITIVE INFORMATION

Three Things You Should Know About Construction Noise

Chris Steel

Specialist Inspector (Noise & Vibration)
HSE

ACTION ON SITE HEALTH SCOTLAND

Three things you should know about construction noise

Chris Steel

Principal Specialist Inspector (Noise & Vibration)

April 2023 (15-20)

1. Do we have a workplace noise problem?

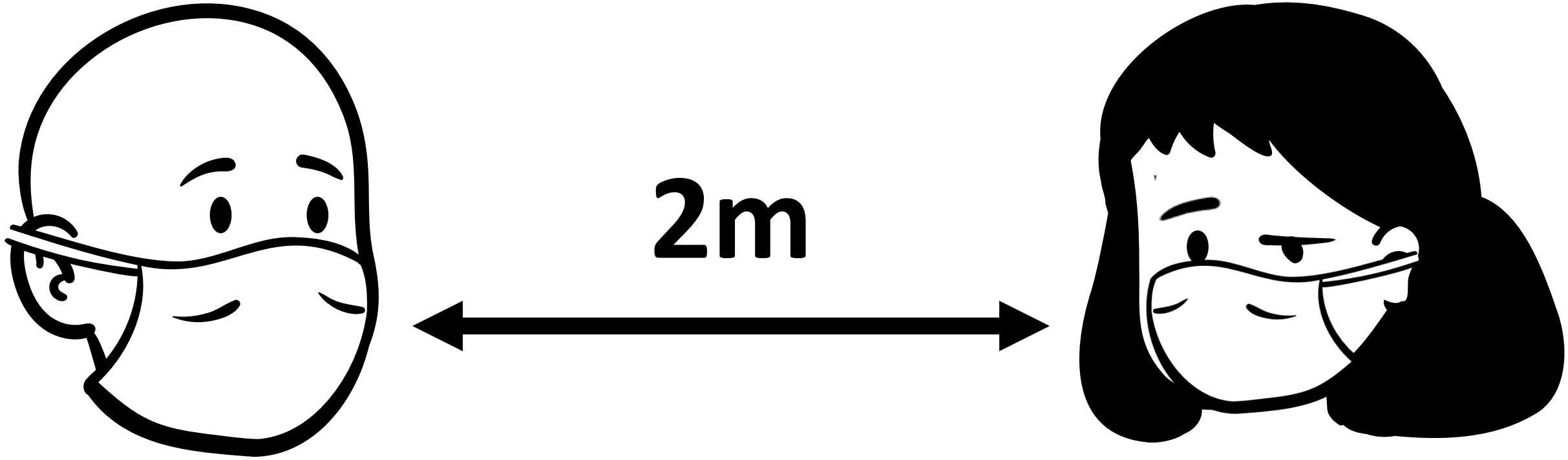
2. Is the hearing protection working?

3. How do we reduce noise?

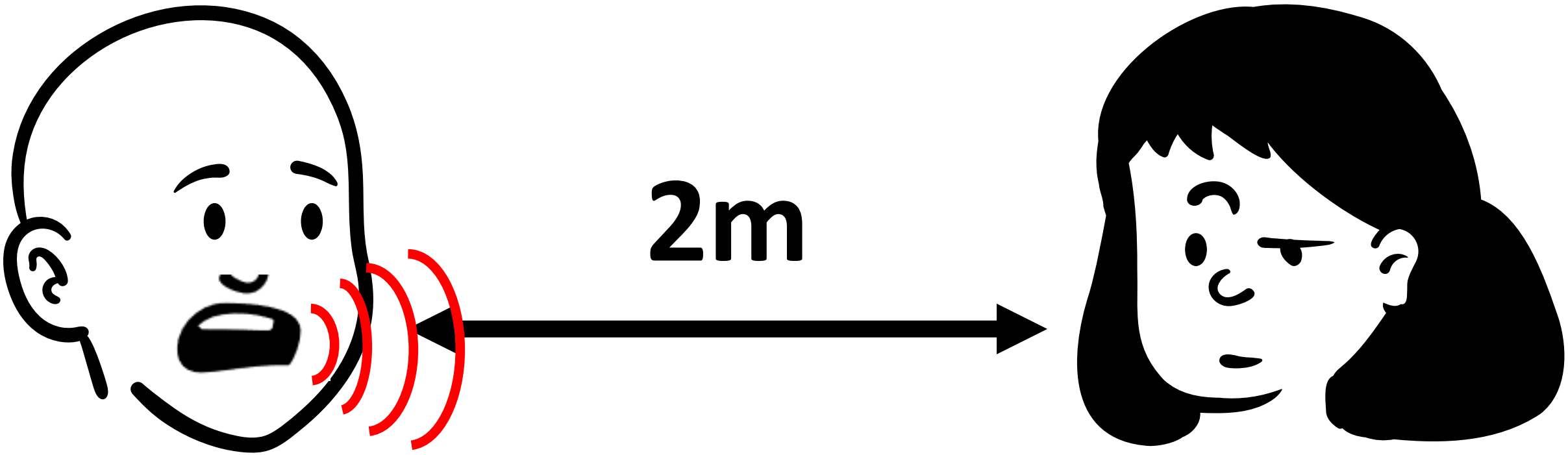
How do we know if I have a workplace noise problem?

Task[1] name / description	Noise level[1] L_{Aeq} (dB(A))	Time (in hh:mm) to	
		LEAV	UEAV
Plate Compactor	89	1:00	3:11
Circular Saw	91	0:38	2:00
Multi-Tool92	92	0:30	1:35
Hammer Drill	102	0:03	0:09

Coronavirus
Covid-19



Shout to be heard. 2 hours. Need's a risk assessment



How much do you have to shout	Should have a risk assessment
Have to shout at 2 m to talk	about 85dB, If they do the job for at least 2 hours it should have a risk assessment

Hammer Drill

Noise Level

1984 – L_{Aeq} 102dB

2019 – L_{Aeq} 101dB

Task[1] name / description	Noise level[1] L_{Aeq} (dB(A))	Time (in hh:mm) to	
		LEAV	UEAV
Plate Compactor	89	1:00	3:11
Circular Saw	91	0:38	2:00
Multi-Tool92	92	0:30	1:35
Hammer Drill	102	0:03	0:09


YOUR EARS NEED THESE!
Protect your hearing now, while you can still hear.

Is the hearing protection working?

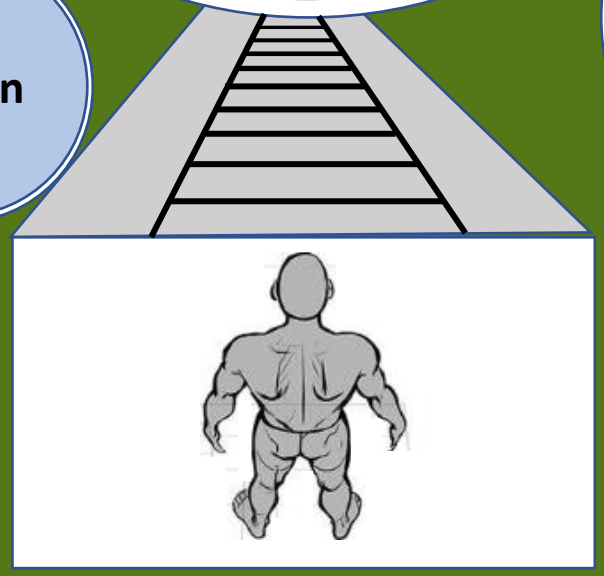
PPE

Eliminate

Substitute

Admin

Engineering Control



When checking hearing protection think

C.U.F.F.

C - Condition

U – Use

F – Fit the ear

F – Fit for purpose


Noise level dB(A)	Select a protector with an SNR of ...
85-90	20 or less
90-95	20-30
95-100	25-35
100-105	30 or more

C - Condition

U – Use

F – Fit the ear

F – Fit for purpose

C - Condition

U – Use

F – Fit the ear

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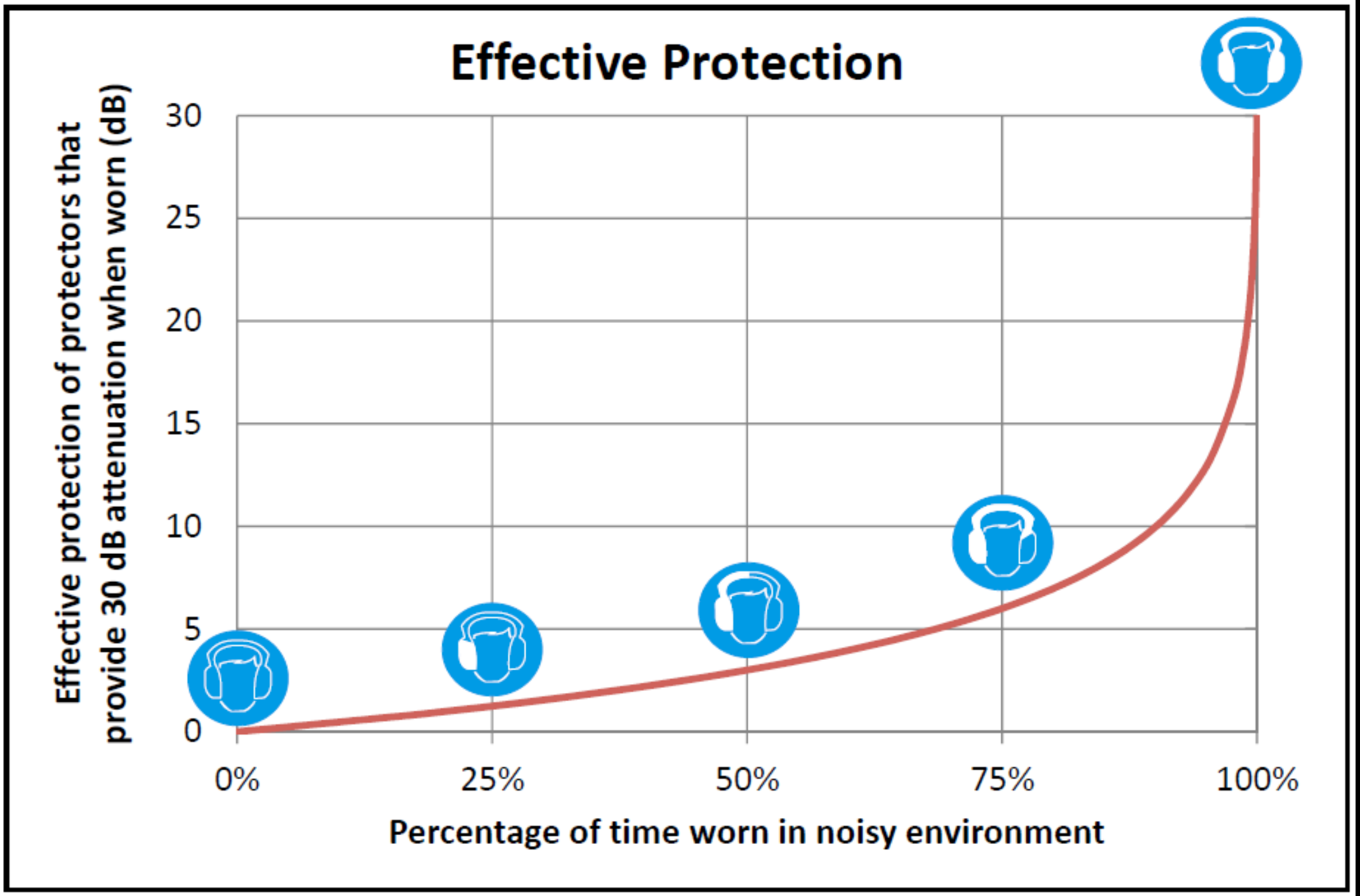

Effective Protection
Effective protection of protectors that provide 30 dB attenuation when worn (dB)
30
25
20
15
10
5
0
0%
25%
50%
75%
100%
Percentage of time worn in noisy environment

C - Condition

U – Use

F – Fit the ear

F – Fit for purpose

Figure 17 Correct fitting of earplugs

Figure 18 Incorrect fitting of earplugs

C - Condition

U – Use

F – Fit the ear

F – Fit for purpose

Hearing Protection Calculator - SNR method

Version 1.0

The SNR method of hearing protection calculation uses:

- **SNR value**, available from the hearing protector supplier
- **C-weighted (L_C or L_{Ceq}) noise levels at the workplace**

NOTE: the L_{Ceq} value should not be confused with the peak noise level L_{Cpeak}, which is also measured in units of dB(C)

HEARING PROTECTOR	WORKPLACE NOISE			
Make/Model:	*Location/Machine:*			
SNR value ***SNR*** dB	C-weighted Level L_C dB(C)	Protected noise level at the ear $(L'_A = L_C - SNR)$ dB	HSE recommended value for the likely noise level at the ear $(L'_A + 4)$ dB(A)	Protection rating ?
28	93	65	**69**	*Over-protection*

How do we reduce workplace noise?

An actual concern raised by an employee to the HSE……..

“I am working on a project where they are using a percussive piling rig and it is not clear who needs to wear hearing protection ”

“I think they could have used a quieter piling system but how do I get them to change?”

AWF Development 1

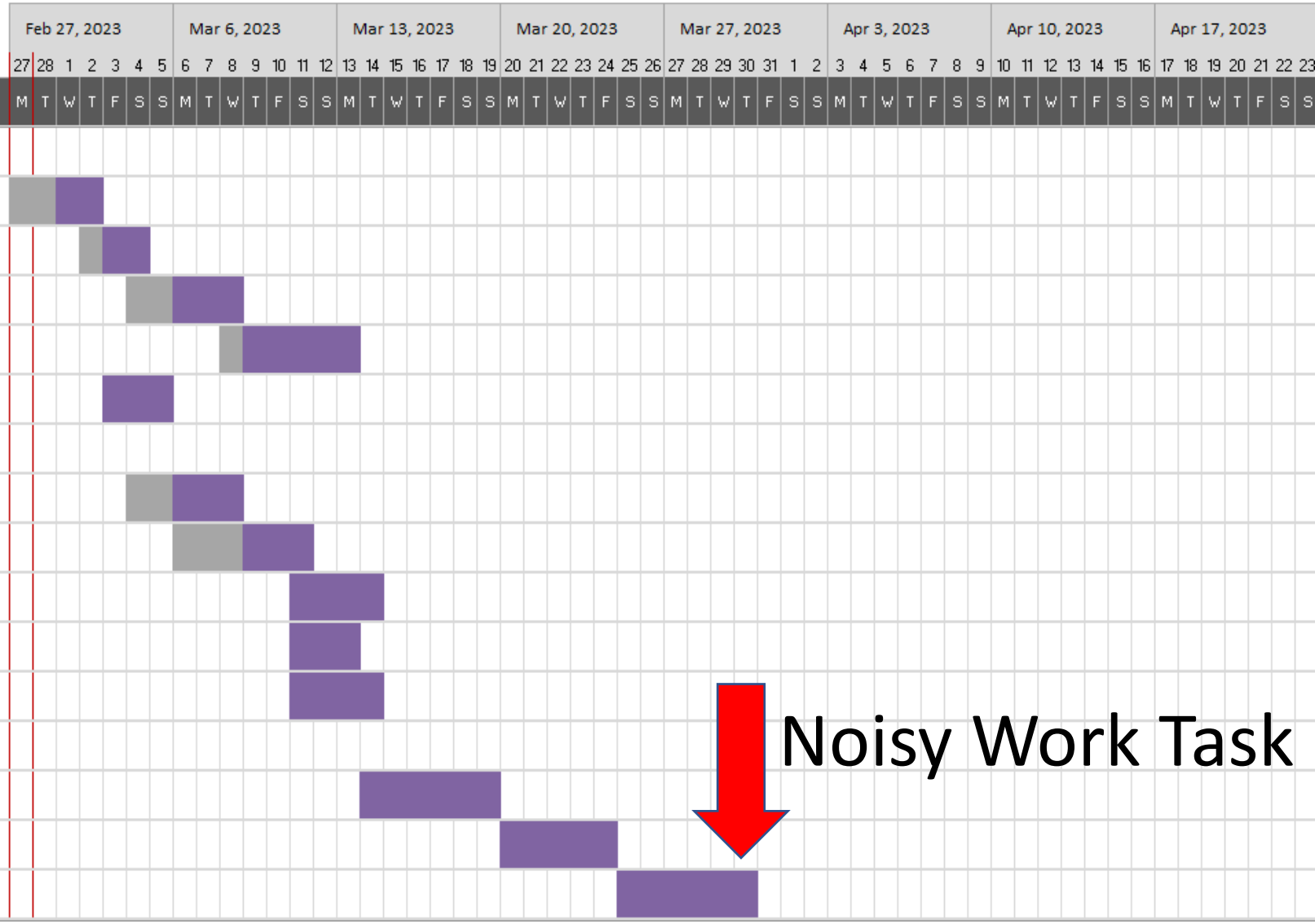
AWF Construction
B Bainbridge

SIMPLE GANTT CHART by Vertex42.com
https://www.vertex42.com/ExcelTemplates/simple-gantt-chart.html

Project Start: Mon, 2/27/2023

Display Week: 1

TASK	ASSIGNED TO	PROGRESS	START	END
Design				
Scoping	AWF construction	50%	2/27/23	3/2/23
Initial site survey	AWF surveying	60%	3/2/23	3/4/23
Planning	AWF Design team	50%	3/4/23	3/8/23
Detailed design	AWF Design team	25%	3/8/23	3/13/23
Financing	AWF Finance	30%	3/3/23	3/5/23
Site Preperation				
Physical Survey		50%	3/4/23	3/8/23
Enviromental Survey		50%	3/6/23	3/11/23
Ground Survey			3/11/23	3/14/23
Site Security + Facilities			3/11/23	3/13/23
Setting out			3/11/23	3/14/23
Consturction				
Ground works			3/14/23	3/19/23
Foundations			3/20/23	3/24/23
Structure			3/25/23	3/30/23



AWF Development 1

AWF Construction
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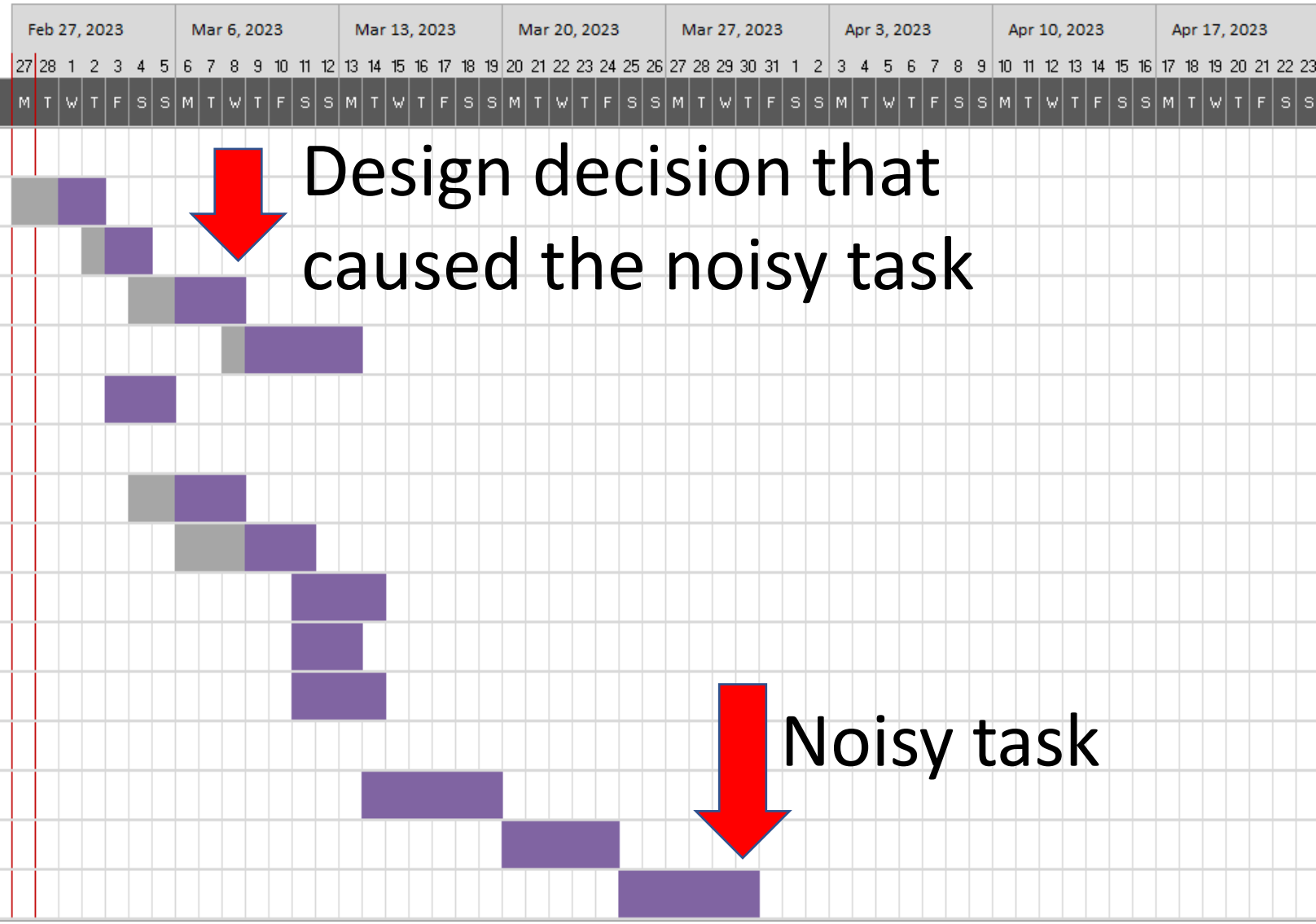
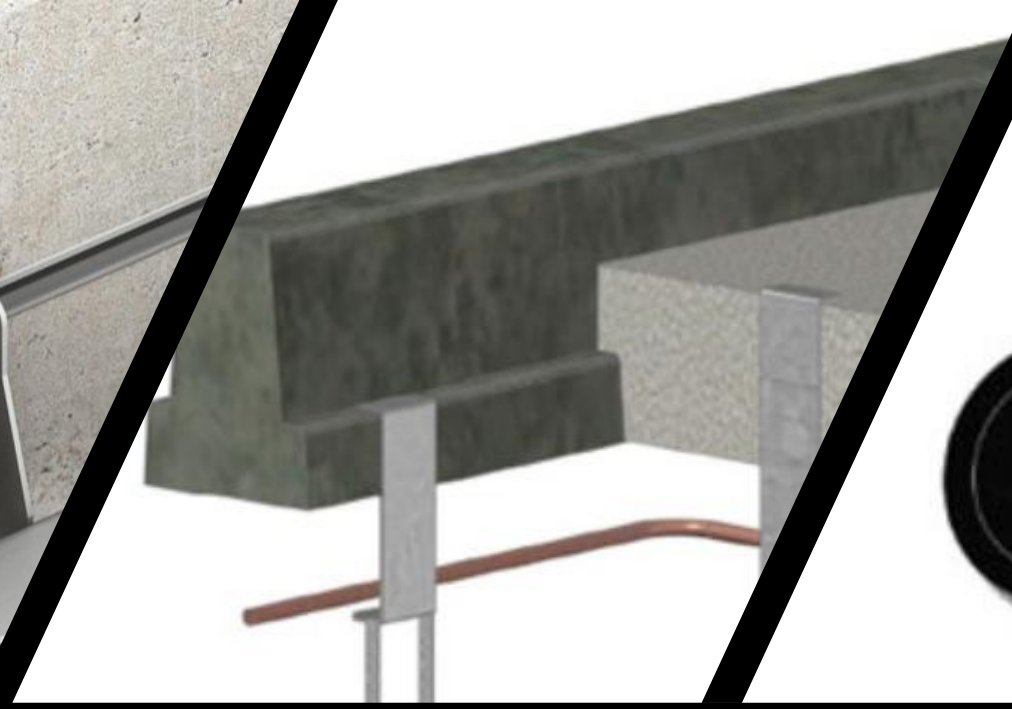
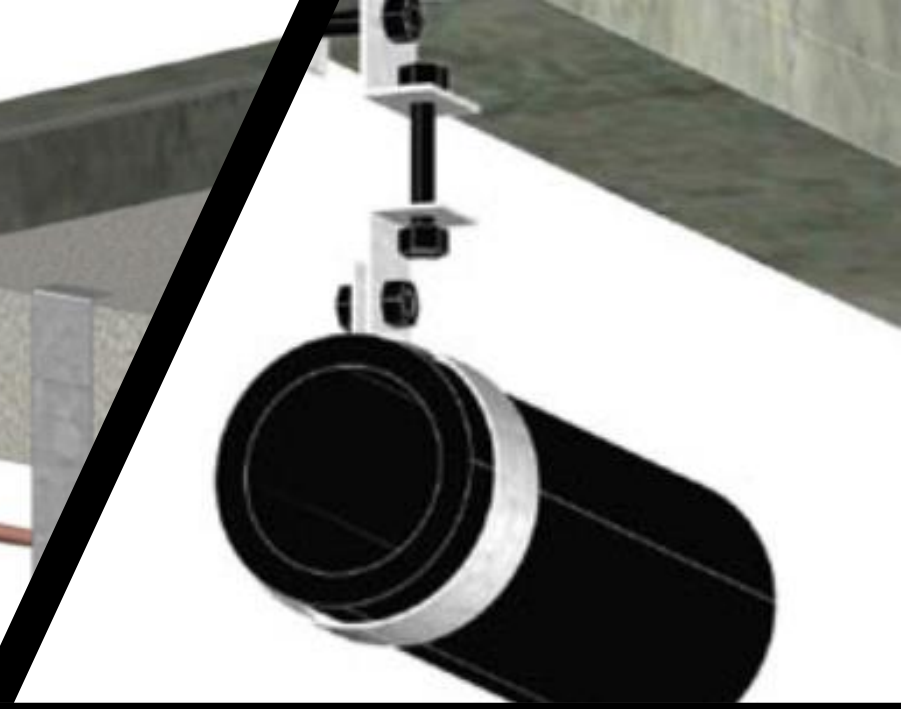
Financing	AWF Finance	30%	3/3/23	3/5/23
Site Preperation				
Physical Survey		50%	3/4/23	3/8/23
Enviromental Survey		50%	3/6/23	3/11/23
Ground Survey			3/11/23	3/14/23
Site Security + Facilities			3/11/23	3/13/23
Setting out			3/11/23	3/14/23
Consturction				
Ground works			3/14/23	3/19/23
Foundations			3/20/23	3/24/23
Structure			3/25/23	3/30/23



Could the process change?

Could the design change?



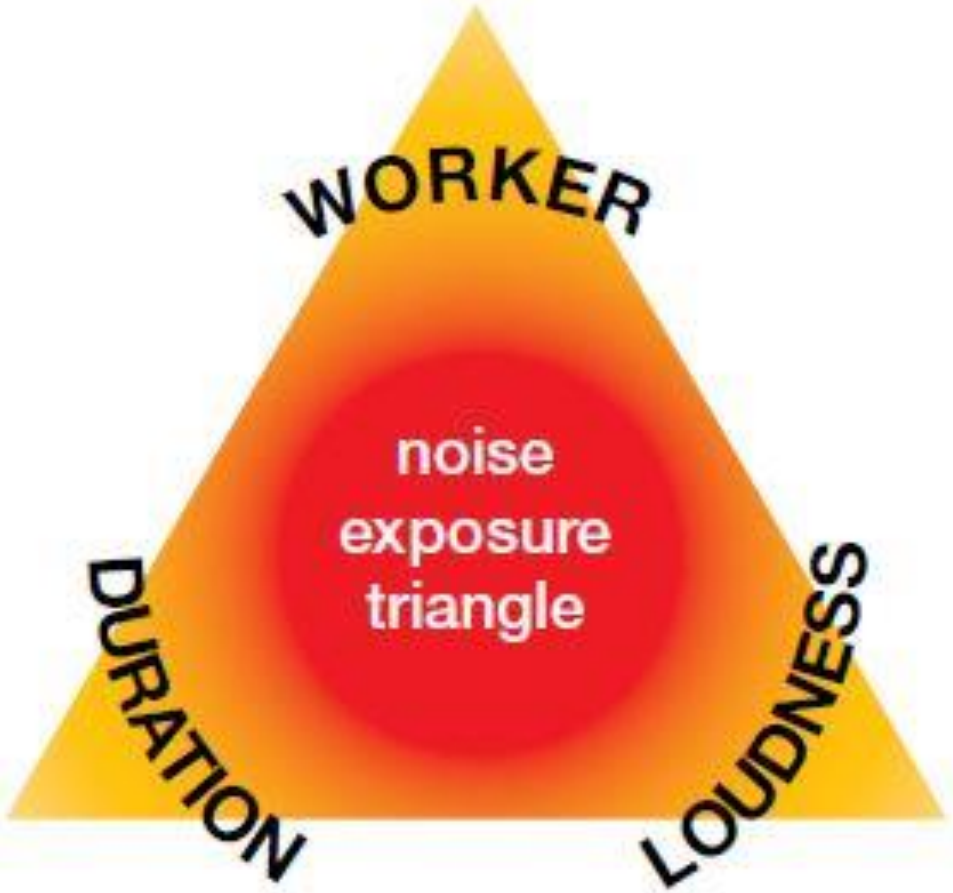


Hammer Drill

Noise Level

1984 – L_{Aeq} 102dB

2019 – L_{Aeq} 101dB



Remove any element and overexposure
to noise is prevented

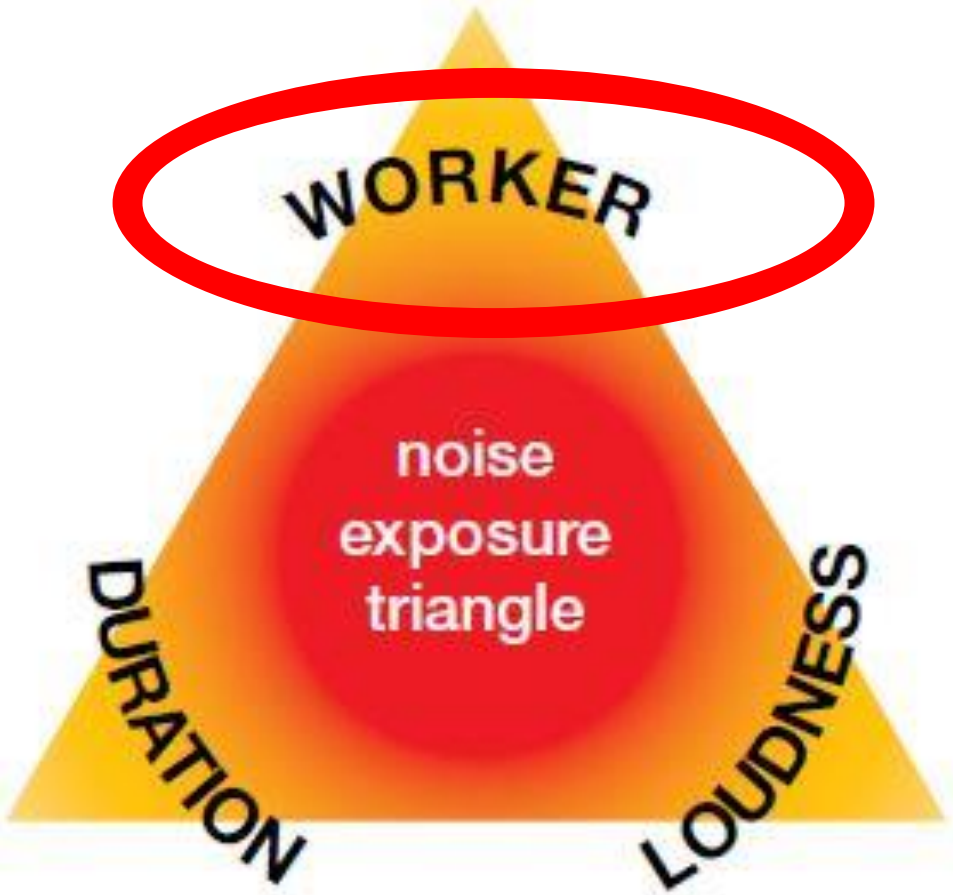
Reduce **loudness** or **duration**
and exposure is reduced

Remove any element and overexposure
to noise is prevented

Reduce **loudness** or **duration**
and exposure is reduced

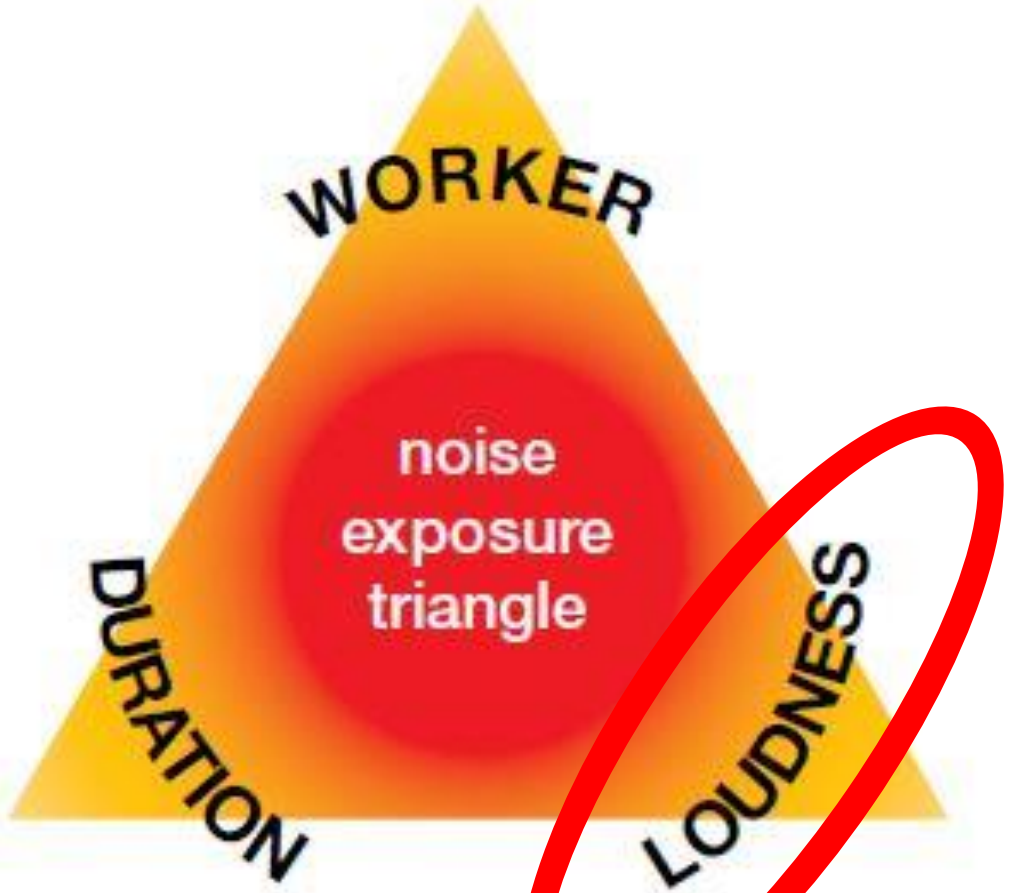
LAeq 93dB
(18 sec)

LAeq 96dB
(3 sec)



Remove any element and overexposure to noise is prevented

Reduce **loudness** or **duration** and exposure is reduced



Remove any element and overexposure
to noise is prevented

Reduce **loudness** or **duration**
and exposure is reduced

L_{Aeq} 98dB (18 sec)

Stud Cutter

1. Do I have a workplace noise problem?

2. Is the hearing protection working?

3. How do I reduce noise?

1. Do I have a workplace noise problem?

2. Is the hearing protection working?

3. How do I reduce noise?

1. Do I have a workplace noise problem? (Shout)

2. Is the hearing protection working?

3. How do I reduce noise?

1. Do I have a workplace noise problem? (Shout)

2. Is the hearing protection working?

3. How do I reduce noise?

1. Do I have a workplace noise problem? (Shout)

2. Is the hearing protection working? (CUFF)

3. How do I reduce noise?

1. Do I have a workplace noise problem? (Shout)

2. Is the hearing protection working? (CUFF)

3. How do I reduce noise?

1. Do I have a workplace noise problem? (Shout)

2. Is the hearing protection working? (CUFF)

3. How do I reduce noise? (Next time)

Preventing Stress in Construction

Mark Ashby

Senior Policy Advisor, Construction Division
HSE

ACTION ON SITE HEALTH SCOTLAND

WORKING MINDS

MAKE IT ROUTINE

REACH OUT → RECOGNISE → RESPOND → REFLECT

Preventing Work Related Stress in Construction

Mark Ashby
Senior Policy Advisor
Health and Safety Executive
Construction Division

What I will cover

- Mental health in construction and HSE's role
- HSE Working Minds campaign

The Video has been removed from this part of the presentation

Background

- Stress depression and anxiety accounts for **27%** of all work-related illness in construction industry
- Tight deadlines identified as the number **1** cause of poor mental health (CN Mind Matters Survey 2022)
- **36%** of workers felt compelled to work despite suffering with their mental health (CN Mind Matters Survey 2022)
- More than **1 in 10** workers said they took time out because of either mental health problems or unmanageable stress, or both. And almost **3 in 5** said they did not disclose the true reason to their employer (CN Mind Matters Survey 2022)

Common Stressors in Construction

- Demanding workloads
- Long hours
- Tight deadlines
- Excessive travelling and commuting
- Client demands
- Working away from home
- Bullying and Harassment
- Drugs and alcohol
- Poor welfare facilities
- Work Environment Issues (such as noise and other hazards, weather conditions)
- Late payments
- Emails etc.
- Material shortages and inflation

Mates in Mind

Construction Leadership Council

Leading Transformation Across The Construction Industry

Lighthouse The Construction Industry Charity CLUB

Building Mental Health

#MakeItVisible

MAKING WELLBEING SUPPORT VISIBLE IN CONSTRUCTION

Mental Health First Aider

MHFA England

HSE

health in CONSTRUCTION leadership group

WORKING MINDS

MAKE IT ROUTINE

REACH OUT→ RECOGNISE→ RESPOND→ REFLECT

Prevent, Promote and Support

Prevent work-related stress to promote, support and sustain good mental health in the workplace

WORKING MINDS

MAKE IT ROUTINE

REACH OUT → RECOGNISE → RESPOND → REFLECT

WORKING MINDS

MAKE IT ROUTINE

REACH OUT→ RECOGNISE→ RESPOND→ REFLECT

We're calling for a culture change across Britain's workplaces where recognising and responding to the signs of stress becomes as routine as managing workplace safety.

Employers often **not aware of their legal duties** or how to recognise and respond to the signs of stress

Risks from work-related stress are not treated in the workplace the same way as physical risks are.

HSE

WORKING MINDS

MAKE IT ROUTINE

REACH OUT→ RECOGNISE→ RESPOND→ REFLECT

Why take action?

- Stress can lead to chronic physical and mental health conditions that can seriously impact workers health
- It's a legal duty for employers
- It's good for your business
- It's the right thing to do

WORKING MINDS
MAKE IT ROUTINE
REACH OUT→ RECOGNISE→ RESPOND→ REFLECT

WORKING MINDS

MAKE IT ROUTINE

REACH OUT → RECOGNISE → RESPOND → REFLECT

- Reach out
- Recognise
- Respond
- Reflect
- Make Routine

What should small construction businesses be doing?

- Be aware of the key issues and the importance of good mental health at work.
- Use the talking toolkit and other tools to start having a conversation about / assessing the risks in their workplace
- To start to act on key findings by taking positive action
- Address other important contributory issues such as poor environmental factors (like welfare and noise)
- Co-operate, co-ordinate and communicate with all involved in a project. (CDM)

HSE

WORKING MINDS
MAKE IT ROUTINE
REACH OUT→ RECOGNISE→ RESPOND→ REFLECT

Help and resources

Working Minds and the 5Rs:
www.workright.campaign.gov.uk

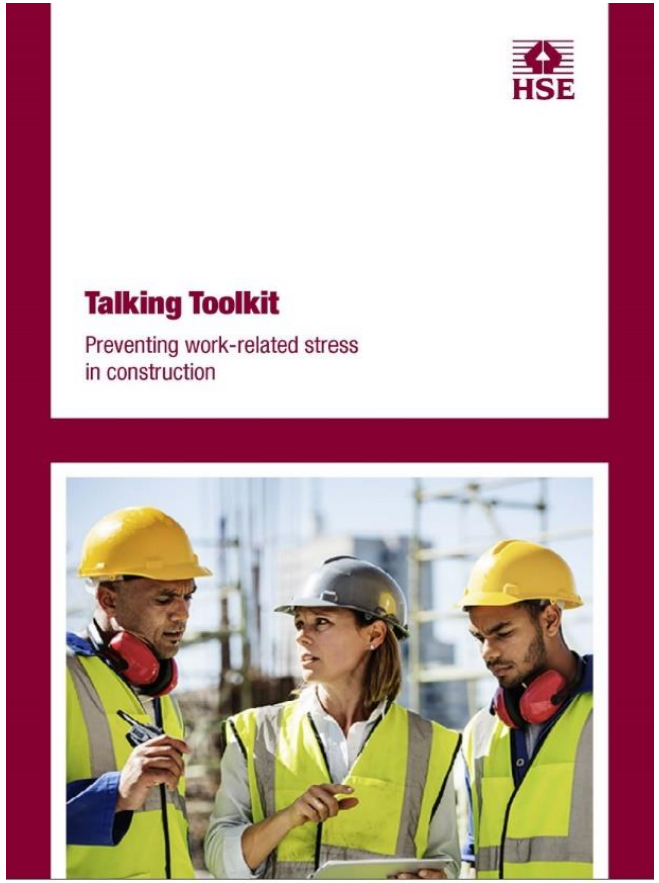
- HSE mobile app
- Talking Toolkits
- Risk assessment template
- HSE Management Standards
- Become a Working Minds champion
  (monthly updates)

Twitter @H_S_E

Facebook @hsegovuk

LinkedIn health and safety executive

WORKING MINDS
MAKE IT ROUTINE
REACH OUT→ RECOGNISE→ RESPOND→ REFLECT



Thank you for listening

and any questions?

HSE

WORKING MINDS

MAKE IT ROUTINE

REACH OUT→ RECOGNISE→ RESPOND→ REFLECT

Quiz Master;
Construction Edition

ACTION ON SITE HEALTH SCOTLAND

Please access Quiz Master; Construction Edition with this QR Code;

Alternatively, please visit https://app.sli.do/ and enter the following event code;

2594313

ACTION ON SITE HEALTH SCOTLAND

SEE YOU AT 11.20AM

ACTION ON SITE HEALTH SCOTLAND

Supported by:

HSE

health in CONSTRUCTION leadership group

BOHS British Occupational Hygiene Society

CONSTRUCTION INDUSTRY PARTNERSHIP

RVTGROUP

Construction Dust and 20 years of COSHH; Are We in Control?

Robert Bradford

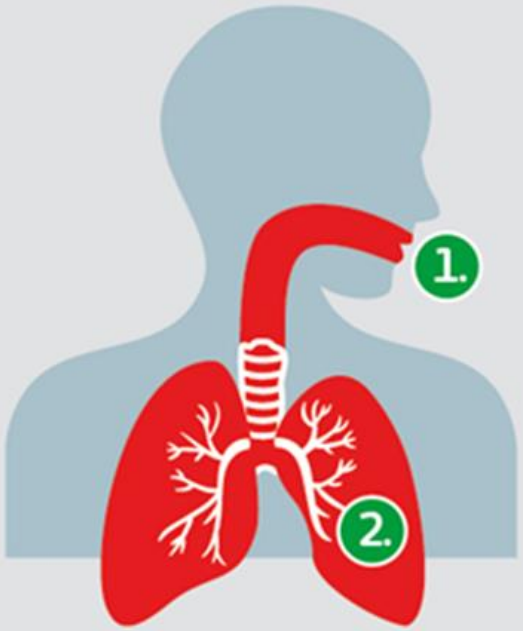
Senior Occupational Health, and Safety Advisor
BAM Nuttall

ACTION ON SITE HEALTH SCOTLAND

20 Years of CoSHH
Are we in ‘Control’?

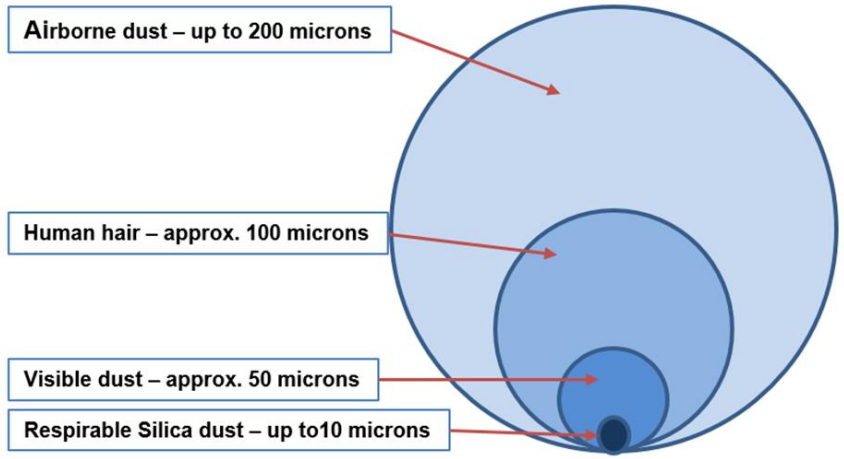
Would we consider this as acceptable?

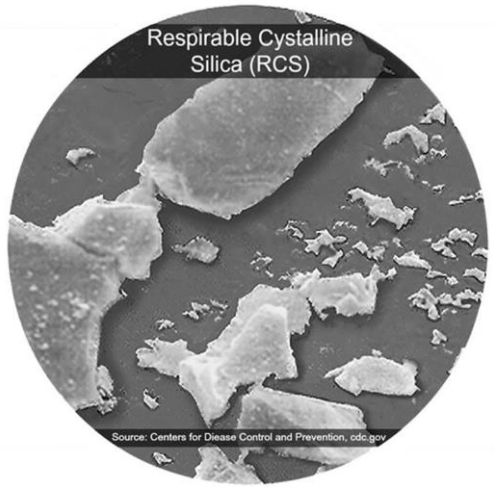
Would we react in the same way to these?



1. Inhalable dust
breathed in the nose or mouth; usually cleared via mucus.

2. Respirable dust
small enough to get deep into the lungs, in the alveoli.





Freshly cut or broken Silica dust has sharp edges

1µm (micrometre) = 1 micron = 0.001mm


THE RELATIVE SIZE
OF PARTICLES
From the COVID-19 pandemic to the U.S. West Coast wildfires, some of the biggest threats now are also the most microscopic.
A particle needs to be 10 microns (µm) or less before it can be inhaled into your respiratory tract. But just how small are these specks?
Here's a look at the relative sizes of some familiar particles ↘
HUMAN HAIR 50-180µm ›
FOR SCALE
FINE BEACH SAND 90µm ›
GRAIN OF SALT 60µm ›
WHITE BLOOD CELL 25µm ›
GRAIN OF POLLEN 15µm ›
DUST PARTICLE (PM10) <10µm ›
RED BLOOD CELL 7-8µm ›
RESPIRATORY DROPLETS 5-10µm ›
DUST PARTICLE (PM2.5) 2.5µm ›
BACTERIUM 1-3µm ›
WILDFIRE SMOKE 0.4-0.7µm ›
CORONAVIRUS 0.1-0.5µm ›
T4 BACTERIOPHAGE 0.225µm ›
ZIKA VIRUS 0.045µm ›
Pollen can trigger allergic reactions and hay fever—which 1 in 5 Americans experience every year.
The visibility limits for what the naked eye can see hovers around 10-40µm.
Respiratory droplets have the potential to carry smaller particles within them, such as dust or coronavirus.
Wildfire smoke can persist in the air for several days, and even months.
SOURCES
COLLABORATORS
VISUAL CAPITALIST
/visualcapitalist @visualcap visualcapitalist.com

Comparison

Cyanide

5.0

Arsenic

0.1

Respirable Crystalline Silica

Heath & Safety Executive picture

0.1

Lead (fume or dust)

0.15

EH 40 Milligrammes per cubic metre of air, time weighted average over 8 hours


Kerbstone Uncontrolled
70 mg/m3
Share
MORE VIDEOS
0.1
0 mg/m3
0:09 / 0:21
YouTube


Kerbstone Uncontrolled
70 mg/m3
Share
MORE VIDEOS
0.1
0 mg/m3
0:14 / 0:21
YouTube


Dry Sweeping
5 mg/m3
Share
0.1
MORE VIDEOS
0:02 / 0:21
0 mg/m3
YouTube

HSE

Health and Safety Executive

Control of substances hazardous to health

The Control of Substances Hazardous to Health Regulations 2002 (as amended)

Approved Code of Practice and guidance

HSE

Health and Safety Executive

Construction dust

HSE information sheet

Construction Information Sheet No 36 (Revision 2)

Construction dust is not just a nuisance; it can seriously damage your health and some types can eventually even kill. Regularly breathing these dusts over a long time can therefore cause life-changing lung diseases.

This sheet tells employers what they need to know to prevent or adequately control construction dust risks. It also provides advice for safety representatives and workers.

Construction dust

This is a general term used to describe different dusts that you may find on a construction site. There are three main types:

- silica dust – created when working on silica-containing materials like concrete, mortar and sandstone (also known as respirable crystalline silica or RCS);
- wood dust – created when working on softwood, hardwood and wood-based products like MDF and plywood;
- lower toxicity dusts – created when working on materials containing very little or no silica. The most common include gypsum (eg in plasterboard), limestone, marble and dolomite.

Health risks

Anyone who breathes in these dusts should know the damage they can do to the lungs and airways. The main dust-related diseases affecting construction workers are:

- lung cancer;
- silicosis;
- chronic obstructive pulmonary disease (COPD);
- asthma.

Some lung disease, like advanced silicosis or asthma, can come on quite quickly.

Figure 1 Common tasks like cutting can create very high dust levels

However, most of these diseases take a long time to develop. Dust can build up in the lungs and harm them gradually over time. The effects are often not immediately obvious. Unfortunately, by the time it is noticed the total damage done may already be serious and life changing. It may mean permanent disability and early death.

Construction workers have a high risk of developing these diseases because many common construction tasks can create high dust levels. Over 500 construction workers are believed to die from exposure to silica dust every year. The amounts needed to cause this damage are not large. The largest amount of silica someone should be breathing in a day **after using the right controls** is shown below next to the penny.

Figure 2 Your maximum daily silica exposure is tiny when compared to a penny

HSE

Health and Safety Executive

Construction Dust: Inspection and Enforcement Guidance

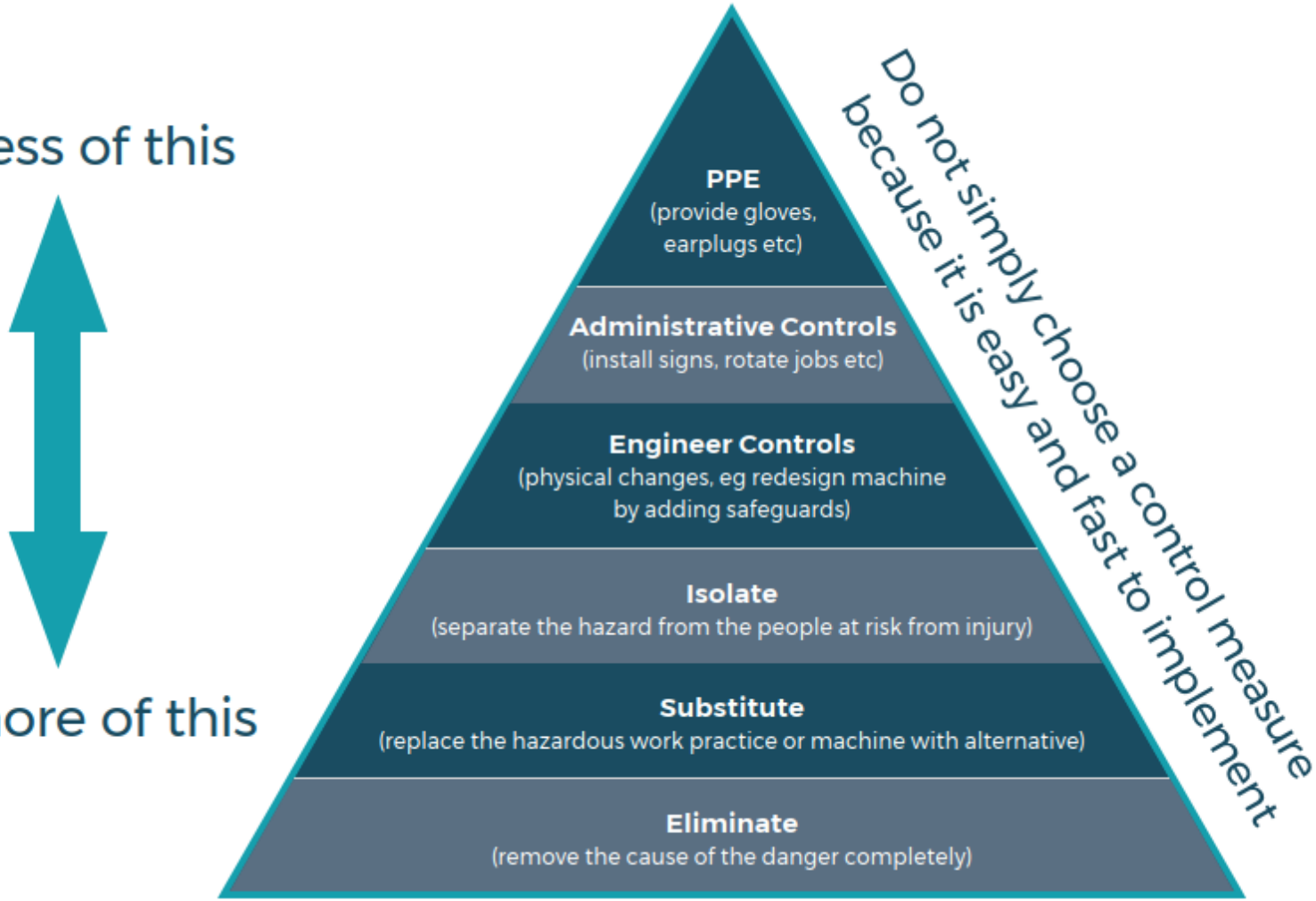
Open Government status

Fully Open

Target audience

FOD Construction Inspectors (Bands 0-4)
SG Specialist (Occupational Hygiene) Inspectors (Bands 0-3)

Do less of this



Do more of this

Containment enclosures and extract u

Cutting enclosure

Construction enclosure

Maxi enclosure

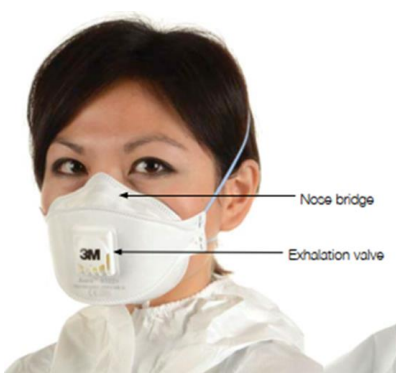
Posable capture head extract unit

Dust extraction

Dust extraction & negative pressure


Wear
dust mask

?



YOUR SAFETY IS MY SAFETY

bam nuttall

BAM Nuttall management system
Safety form

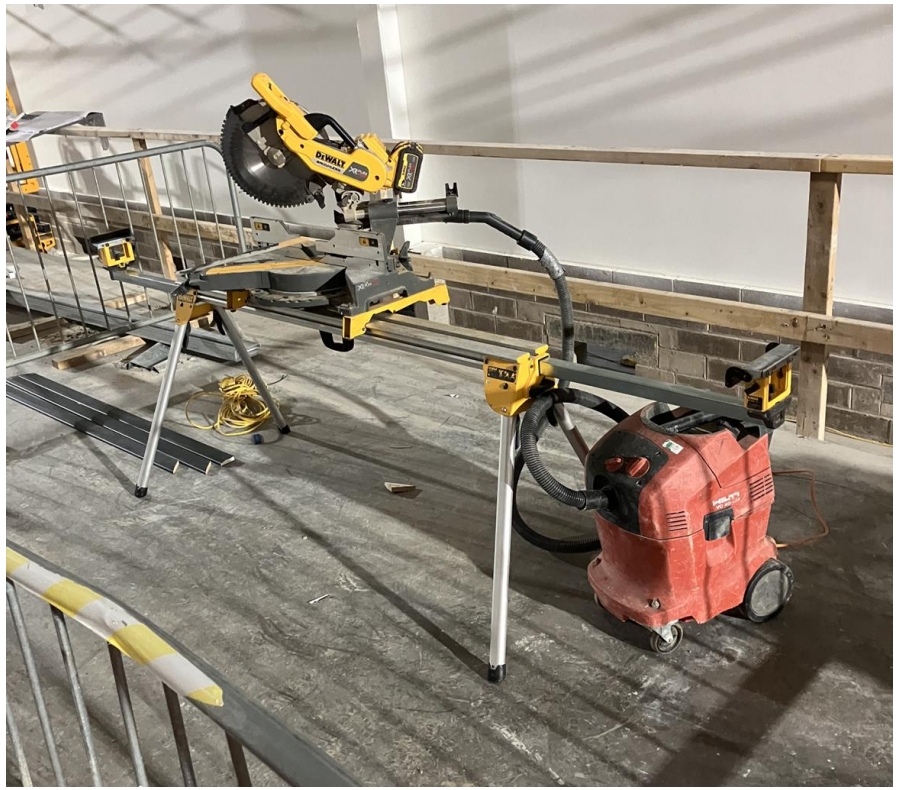
SFXXX Tight fitting RPE Permit

The use of any RPE must be IN ADDITION to appropriate engineering controls for the task / activity.			
Contract name:		**Contract no:**	
Date:		**Permit no:**	
As a result of risk assessment* the use of a tight fitting respirator is deemed appropriate for the following activity:	*(attach RA, CoSHH assessment and detail engineering controls)*		
At location(s):			
Testing, Suitability and Duration: If the answer is 'No' to any question – the permit cannot be issued			
The wearer is free from pre-existing medical condition affecting their breathing?		Yes	No
Evidence of recent face fit testing for make and model (& size) proposed?		Yes	No
The wearer is clean shaven in the area of the mask seal? (*NOTE*)		Yes	No
The task will require continuous wearing for less than 1 hour?		Yes	No
The tight fitting RPE is compatible with other PPE? (E.g. eye protection)		Yes	No
Details of individual who will wear the tight fitting RPE			
Name:			
Employer:			
Type of tight fitting RPE to be used:	Manufacturer / make		
	Model (& size) (from face fit test cert.)		
	Filter type (from CoSHH assessment)		

Permit Validity – can only be issued for single shift where clean shaven need has been established (*NOTE*)			
Date & time of issue:	Date	Time	
On behalf of BAM Nuttall by:	Print	Sign	
Expiry date		**Expiry time**	
Receipt of Permit			
RPE wearer	Print	Sign	
Task supervisor	Print	Sign	
Date			

Risk Assessment RPE selector tool - Healthy Working Lives OR process within HSG 53 Section 3*
NOTE – H&S legislation cannot be used to require an individual to be clean shaven.

Notes:
1. *Permits are to be numbered consecutively.*
2. *Copies of completed permits are to be filed*


DEWALT

Engineering controls

Engineering controls

Engineering controls

?

All Party Parliamentary Group
For Respiratory Health
Report published Feb 2020
Revised January 2023

Tackling MSDs Head On

George Mosey

Head of Health and Safety Europe
Laing O' Rourke

ACTION ON SITE HEALTH SCOTLAND

LAING O'ROURKE

Tackling Occupational Ill Health through MMC

George Mosey
Head of Health & Safety, Europe

Traditional construction

- Uncontrolled noise levels, defaulting to poor attenuation & PPE
- Poor air quality and airborne particulates / dust
- Poor mechanisation - increases manual handling, MSD's, HAVS and RSI exposure
- Reduced cleanliness resulting in risk of contamination
- Increased confined space / restricted working, leading to poor ergonomics
- Exposure to UV & extremes of temperature
- Mental ill health and work related stress

- In 2021 the HSE reported 74,000 construction workers continued to suffer from work-related ill health.
- Of these 54% related to Musculoskeletal disorders, 27% related to stress, depression or anxiety and 19% other conditions.
- There were 39 fatalities; around 50% of these were from falls from height.

Insanity is doing the same thing, over and over again, but expecting different results…..

We need to rethink Construction…

Modern Methods of Construction (MMC)

"Modern Methods of Construction' (MMC) is a wide term, embracing a range of offsite manufacturing techniques that provide alternatives to traditional building methodologies.

MMC can range from whole assets being constructed from factory-built volumetric modules, through to the use of innovative techniques for laying concrete and installing finishes".

NHBC Foundation – MMC 'Who's doing what'

Design for Manufacture and Assembly (DfMA) – ‘off-site’

70:60:30

QUALITY
70% of components are manufactured offsite

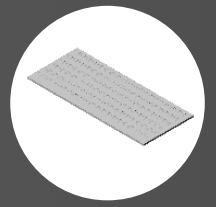
PRODUCTIVITY
60% reduction in required staff and workforce on site

CERTAINTY
30% improvement in schedule

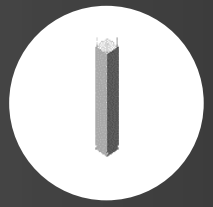
Deployable volumetric products

Structural


Delta Beams

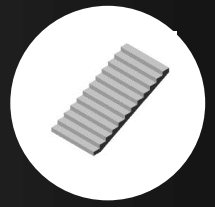

Lattice Slabs


Hollow core Slabs


Precast Columns

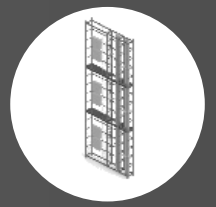

Precast Twin wall

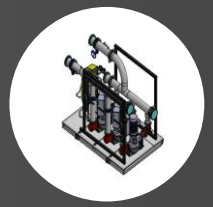

Precast Solid wall

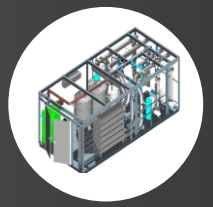

Precast Stairs

MEICA


Service Cupboards


Modular Distribution


Plant Skids

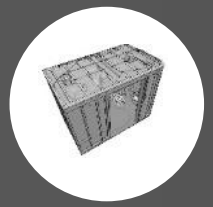

Energy Centres

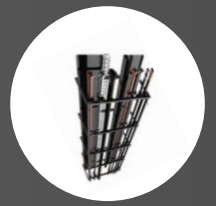

Modular Wiring


Air Handling Units


Pipework Spools

Arch. & Fac.


Bathroom Pods


Modular Lifts

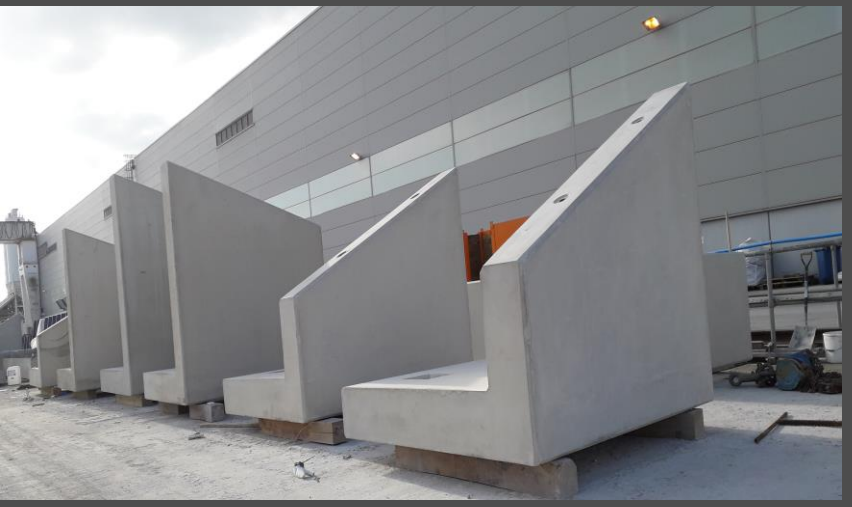

Single Skin Facades

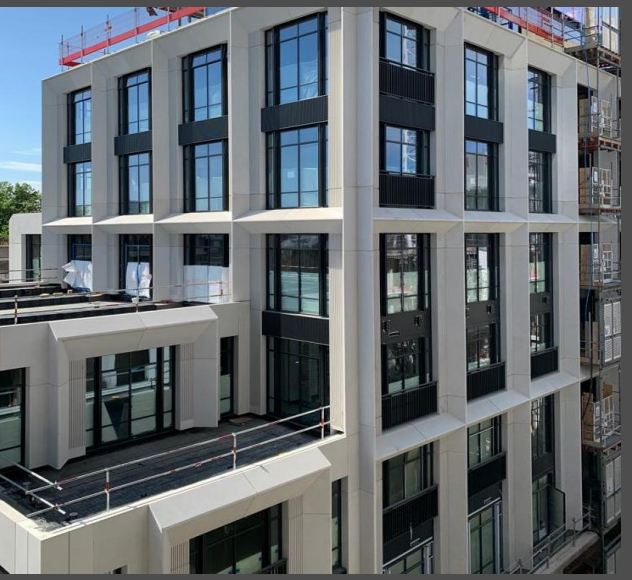

Unitised Facades

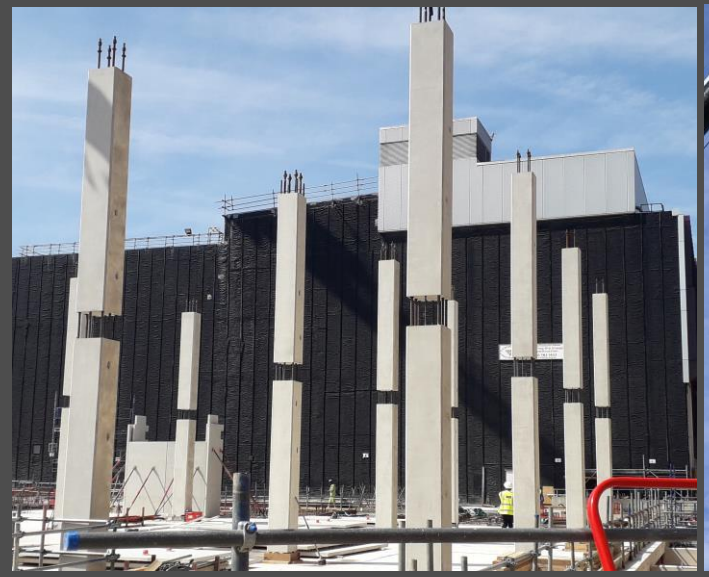

Smartwall


Kitchen Pods

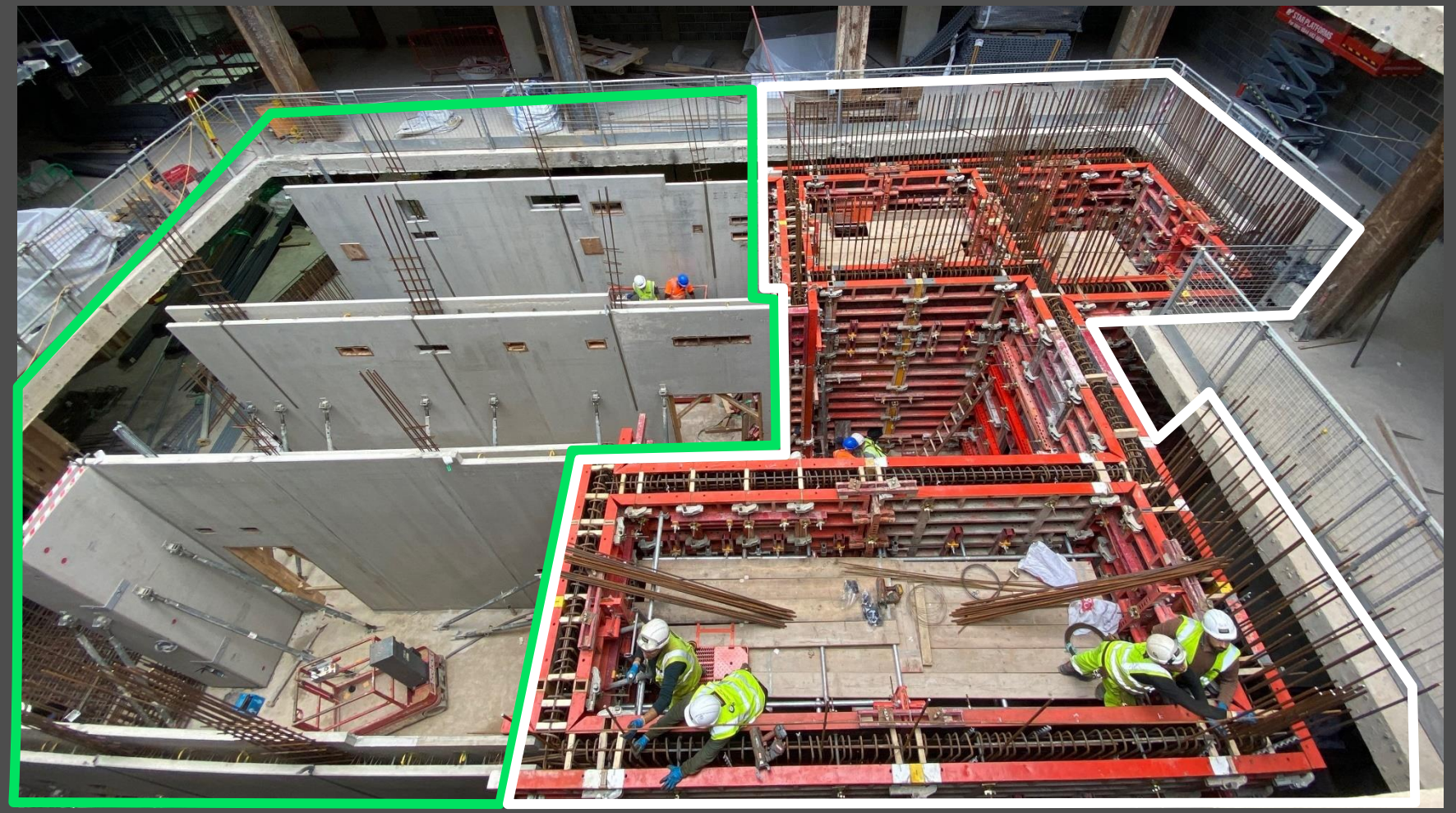
Products







The compelling case for change in construction



Crossrail DfMA

H&S benefits

Tottenham Court Road – Insitu

- Installation team - 57
- 'Tunnel' hours – 36,882
- Safety incidents – 3

'Traditionally manual'

Liverpool street - DfMA

- Installation team - 7
- 'Tunnel' hours – 2,973
- Safety incidents – 0

'Mechanically enabled'

Offsite Manufacture and MMC

Project Risk

"Dynamic and unpredictable work environments"

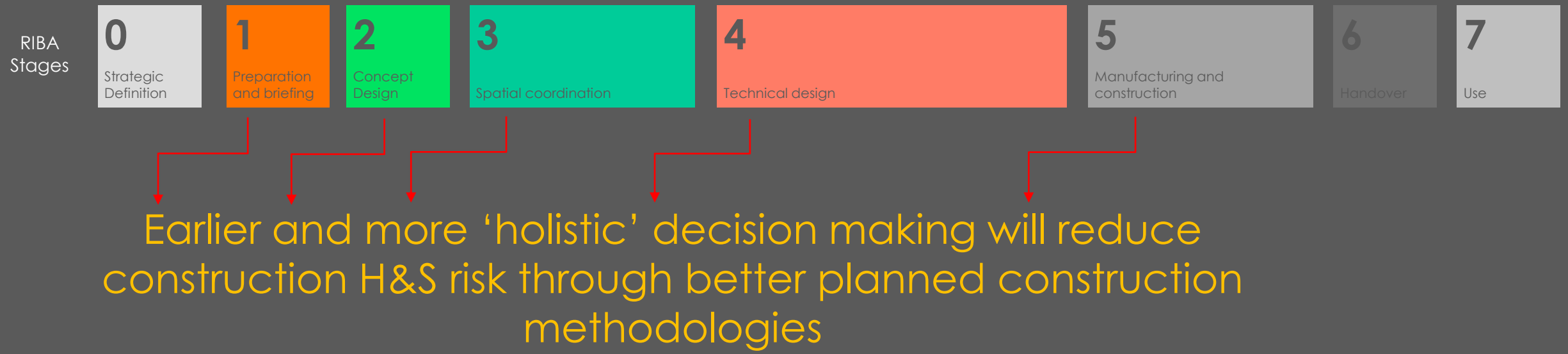
Manufacture Risk

"Static, controlled and consistent facilities"

Better protects the long term health of our people

Earlier ‘Engineered Safety’

- A ‘manufacturing mindset’ demands earlier decision making
- Where we can Engineer out risk and Engineer in health

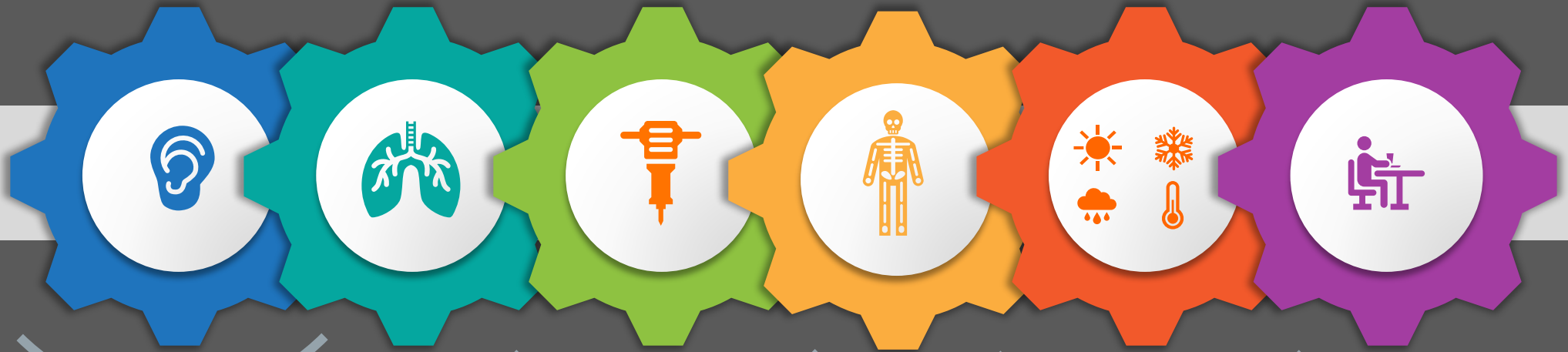


Occupational Health benefits from MMC

NOISE
Reduced noise exposure through engineered acoustic control measures for work process

MANUAL HANDLING
Reduction in manual handling & associated MSD's through the mechanisation of work processes

ERGONOMICS
Improved work environment reduces RSI through engineered production lines & ergonomic workstations



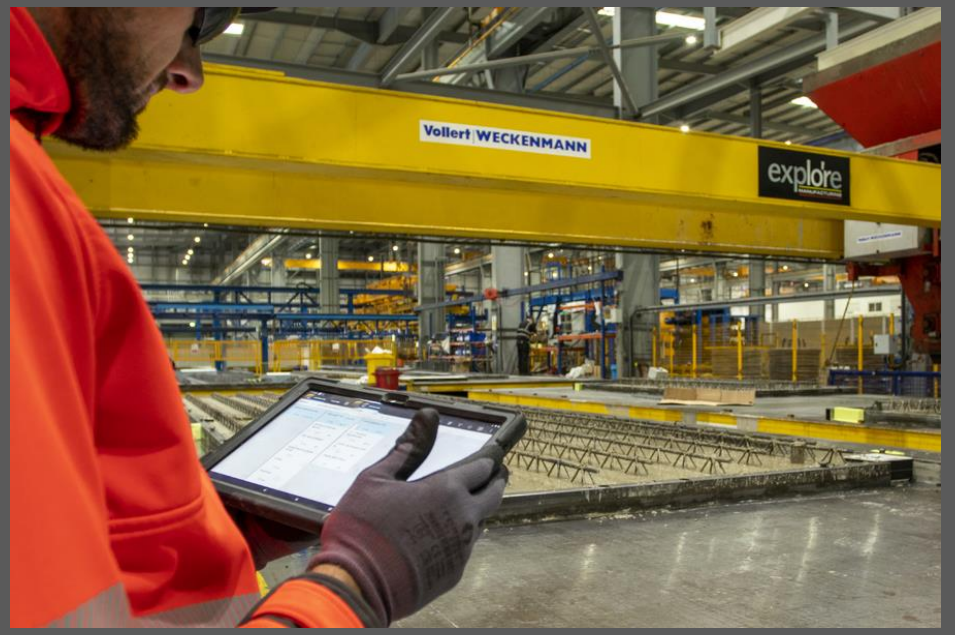
RESPIRATORY
Reduced respiratory risks through the reduction in cutting / drilling & the use of on tool extraction & control of welding operations through the use of LEV

HAND-ARM VIBRATION
Reduced vibration exposure through the reduction in cutting / drilling & the use of engineered solutions that eliminate repetitive tasks

ENVIRONMENT
Reduction in UV & extreme temperature exposure by working in a thermally controlled environment

A manufacturing environment

- Standardised components improves handling, access and erection practices
- Delineation of work areas improves logistics and ergonomic working
- Job rotation minimises repetition of tasks, while developing a multi-skilled workforce
- Exclusive mechanical handling of materials
- Local workforce with flexible shift patterns
- Enhanced welfare facilities



Our vision for supporting our people

35 : 46 : 50/50

Hours per week : Weeks per year : Gender balance

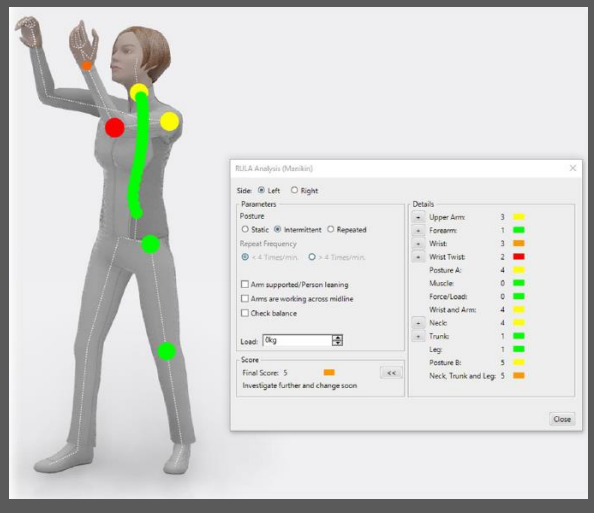
2030

Sustainable and diverse workforce, locally employed with first-class wellbeing support.
Supporting skills advancement from **'Trades to Technicians'**.

Kinematics simulation

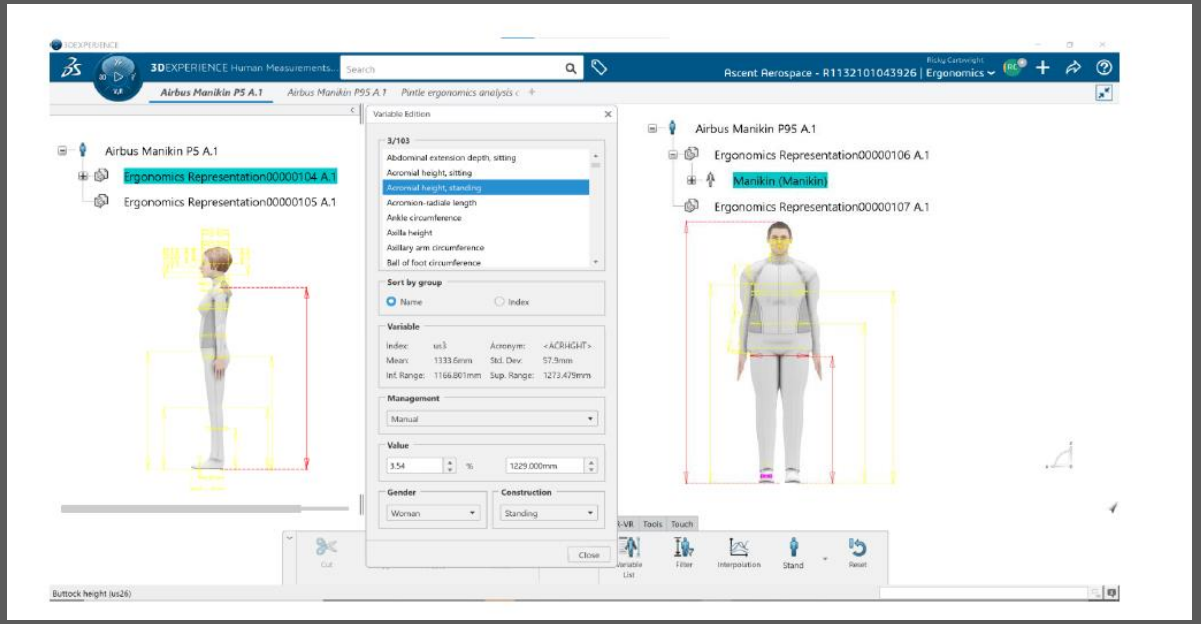
Ergonomic audits – Rapid upper limb assessments

- Used to identify Ergonomic risk factors associated with MSD's
- Measures the amount of risk among workers
- Can be use to reduce risk of injury around repetitive site tasks
- Reduces time lost through work related injuries
- Borrowed from Manufacturing environments



Specifications for Ergonomics in Production

Number	Name	P5 [mm]	P95 [mm]
1.1	Grip reach (forward)	587	815
1.3	Grip reach (up)	1840	2205
1.4	Body height	1494	1855
1.5	Eye height	1393	1735
1.6	Shoulder height	1229	1550
1.7	Elbow height	913	1175
1.8	Crotch height	710	905
1.9	Grip height (down)	647	825
1.10	Hip width (standing)	299	400
2.1	Body height (sitting)	772	965
2.2	Eye height (sitting)	673	855
2.6	Lower leg foot length	356	490
2.8	Buttock hollow-of-the-knee length	450	540
2.9	Buttock knee length	530	655
2.12	Elbow width	346	555
2.13	Hip width (sitting)	312	460



Proof of concept ergonomic assessment of Smartwall installation on The Grange Hospital design

How can we collectively accelerate our experience of MMC to realise the significant H&S benefits?

THE POWER OF EXPERIENCE

LAINGOROURKE.COM

Implementing Best Practice On Site; A Contractor's Perspective

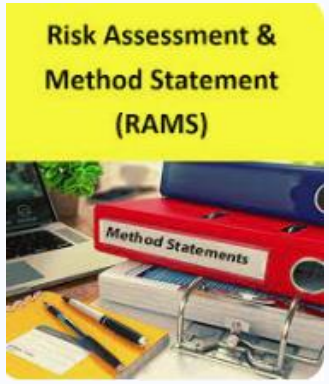
Stewart Morrison

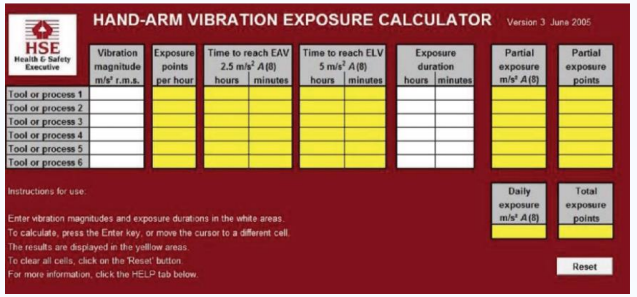
Group Health and Safety Manager
Ogilvie Group

ACTION ON SITE HEALTH SCOTLAND

Case Study – Construction of Block Work Lift Shaft

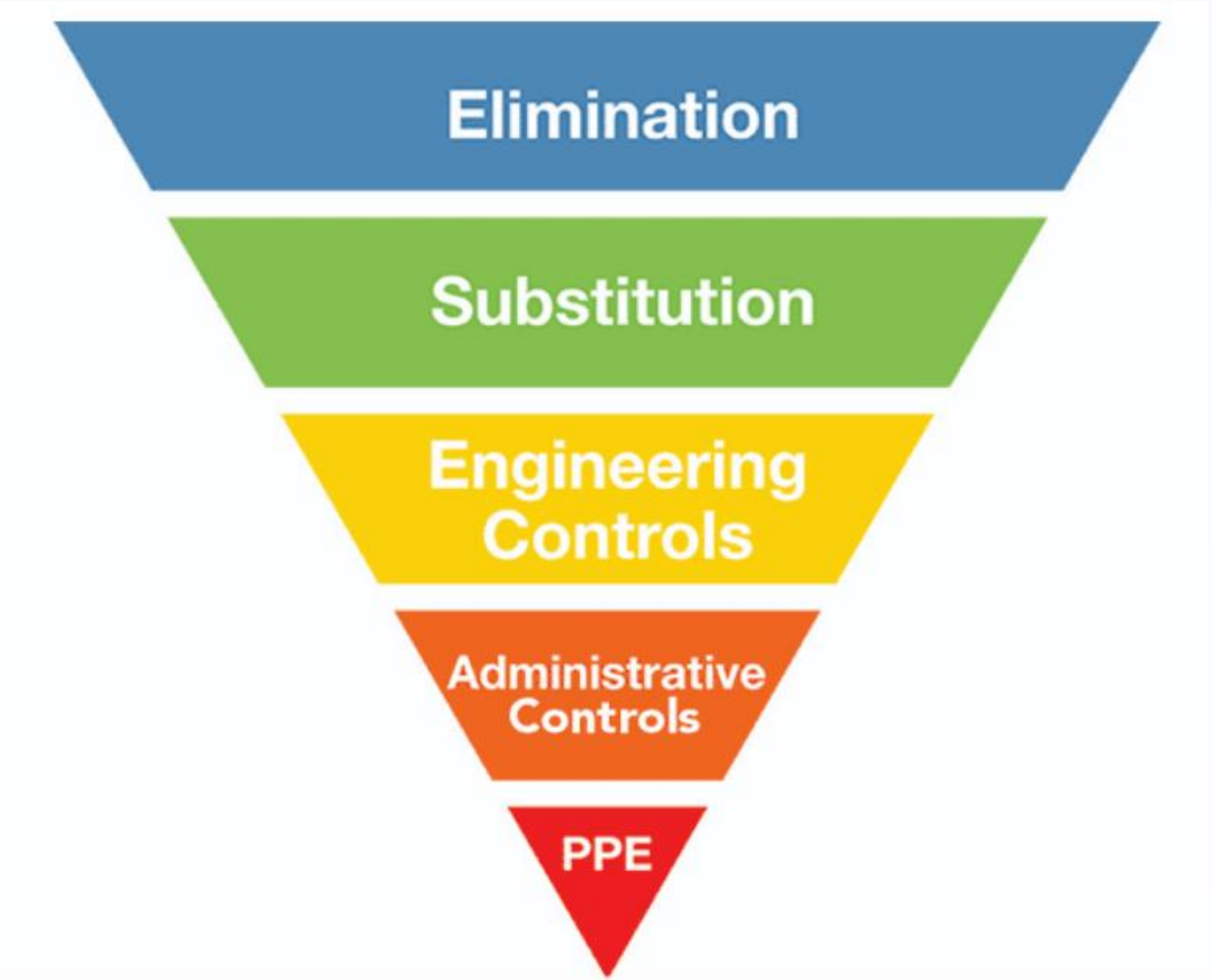
Case Study – Construction of Block Work Lift Shaft





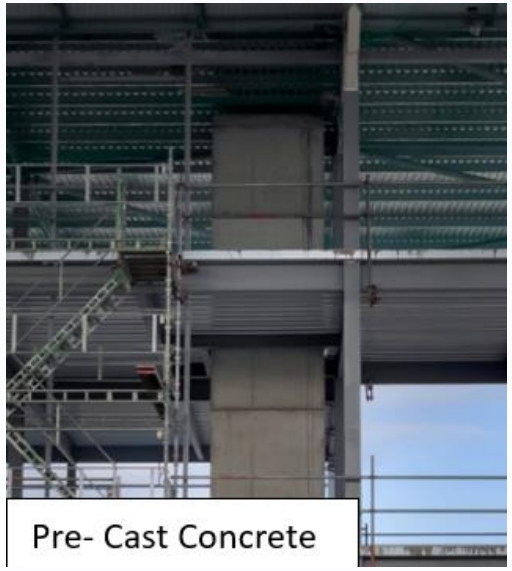
ogilvie GROUP

Case Study – Construction of Block Work Lift Shaft



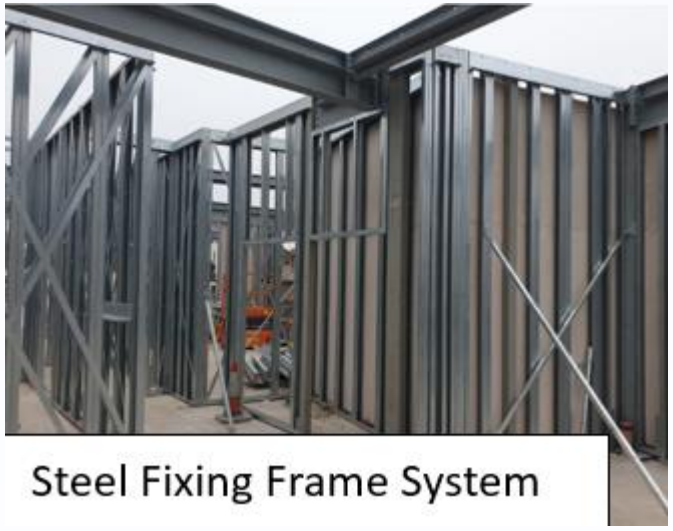
Case Study – Construction of Block Work Lift Shaft

Elimination/ Substitution ?



Pre- Cast Concrete

In situ concrete



Steel Fixing Frame System

Case Study – Construction of Block Work Lift Shaft

Substitution/Engineering Controls ?

Selecting the lightest block that meets performance criteria for the design

440mm x 215mm x 100mm **(4" Block)** – Weights all usually less than 20kg

440mm x 215mm x 140mm **(6" Block)** – Weights range from **19kg – 28kg** due to strength/ density/ sound/ thermal/ fire requirements.

Brand Name	Dimensions	Compressive Strength	Density Type	Weight	Cost
AI 1862	440 x 215 x 140mm	7.3 N	Medium	21.1 KG	£6.00
AI 1764	440 x 215 x 140mm	7.3 N	Dense	26.5 KG	£2.90

ogilvie GROUP

Case Study – Construction of Block Work Lift Shaft

Substitution/Engineering Controls ?

Cement Mortar/ Mixing

V

ogilvie GROUP

Case Study – Construction of Block Work Lift Shaft

Elimination/ Substitution

Design out the need to cut by using dimensions that suit standard block sizes and half block sizes

Block Splitters

ogilvie GROUP

Case Study – Construction of Block Work Lift Shaft

GUIDE TO VIBRATION AND NOISE

TOOL	USED FOR	SAFE WORKING TIME (Vibration)	MAXIMUM WORKING TIME (Vibration)	NOISE LEVELS GENERATED (at 1 metre)
Cut Off Saw 	Used for cutting metal, brick, stone and masonry products.	Vibration Magnitude 3.9m/s		109 dB(A) 
		3hrs 17mins	13hrs 9 mins	

Case Study – Construction of Block Work Lift Shaft

Noise Control

Eliminate – Use Block Splitter?

Control Measures

Case Study – Construction of Block Work Lift Shaft

Vibration Exposure Control

Eliminate – Use Block Splitter?

Control Measures

STIHL®

Hand - Arm - Vibration: Calculator

	Maximum vibration magnitude $a_{hv,eq}$ [m/s²]	Time to reach the exposure action value A(8) = 2.5 m/s² hours	minutes	Time to reach the exposure limit value A(8) = 5 m/s² hours	minutes	Exposure duration hours	minutes	Partial exposure A(8) [m/s²]
Machine 1	3.9	3	17	13	9	1	30	1.4
Machine 2								
Machine 3								
Machine 4								
Machine 5								
Machine 6								

Instructions:

Enter the maximum vibration magnitudes and the daily exposure durations in the white areas.

To calculate, press the Enter key, or move the cursor to a different cell.

The results are displayed in the coloured areas.

To clear all cells, click the "Reset" button.

Reset

Daily exposure A(8) [m/s²]: 1.4

No action required.

Case Study – Construction of Block Work Lift Shaft

Challenges

- Challenge health issues in the same manner as we do with obvious safety breaches
- Big improvements required at design stages to eliminate the exposure to health risks
- Around 340,000 construction small/ medium enterprises and 1.4 million construction related workers in GB
- How many others are actually out there?
- What standards are they working to and how can this be improved?

What do YOU think?

ACTION ON SITE HEALTH SCOTLAND

How do we improve health control buy in from smaller contractors who are limited by cost?

How do we ensure that clients are factoring health investment into their tendering process?

How do contractors ensure a minimum health standard is in place on site?

ACTION ON SITE HEALTH SCOTLAND

Your Digital Resource Pack will be emailed to you after the event

However, if you have any unanswered questions, please contact us at;
marketing@rvtgroup.co.uk
and we will ensure it gets to the right person

ACTION ON SITE HEALTH SCOTLAND

THANK YOU FOR ATTENDING

ACTION ON SITE HEALTH

SCOTLAND

Supported by:

HSE

health in CONSTRUCTION leadership group

BOHS British Occupational Hygiene Society

CONSTRUCTION INDUSTRY PARTNERSHIP

RVTGROUP