HSE
Health & Safety Executive

NOISE IN CONSTRUCTION

Further guidance on the Noise at Work Regulations 1989

This booklet provides further guidance to The Noise at Work (NAW) Regulations 1989.* Although aimed primarily at construction workers, this guidance is equally relevant to all types of industry.

* Refer to *Introducing the Noise at Work Regulations: A brief guide to the requirements for controlling noise at work*

EMPLOYERS SHOULD:

- decide if a noise assessment is needed

If people have difficulty speaking to each other over approximately 2 m then you will need to make a *noise assessment.* This should take account of others who may be affected as well as your own employees.

- assess the noise

The assessment should be made by a *competent person* - someone who understands the NAW Regulations and the Health and Safety Executive's (HSE) guidance on assessments and how to apply it.

An initial, estimated assessment can be made either by using manufacturers' data or other reliable information which is available. This would be a 'first step' towards complying with the NAW Regulations and would enable you to identify workers who need personal protection straight away. Also, on multi-contractor sites, the various employers will need to agree who should co-ordinate compliance with the Regulations. Usually the contractor in overall charge of the site does this.

Action levels are values of 'daily personal exposure to noise-$L_{EP,d}$' which depend on working area noise levels and exposure times. *The first action level* is 85 dB(A),$L_{EP,d}$ and the *second action level* is 90 dB(A),$L_{EP,d}$.

The *peak action level* is the maximum pressure allowed to be reached by a sound wave, specified as 140 dB (without A weighting). This action level causes concern when cartridge tools are being used where 140 dB could be exceeded although 85 dB(A),$L_{EP,d}$ has not.

- reduce noise as far as reasonably practicable

The most effective and reliable way of controlling exposure is by engineering measures at source. This can be achieved by making sure that noise reduction is built into machinery when you are buying

it. Ask for information on machine noise before you decide to buy (regulation 12 duties).

- provide ear protection

Ear muffs or ear plugs should be worn by people exposed at or above 90 dB(A),$L_{EP,d}$ or the 140 dB, peak action level. This is *not* an alternative to controlling noise at source.

Between the 85 dB(A) and 90 dB(A) action levels you should make sure:

(a) ear protection is freely available;

(b) people know that unless the protection is worn there is some risk to their hearing.

Ear protection is not mandatory below the second action level, but must be worn when entering an ear protection zone.

- inform workers about the level of their personal $L_{EP,d}$ exposure

If your noise assessment shows personal exposure at or above any of the action levels inform your employees there is a noise hazard and tell them what you want them to do to minimise their risk of hearing damage.

- mark ear protection zones

Zones should be marked wherever employees are likely to be exposed to the second action level or above.

EMPLOYEES SHOULD:

- wear ear protection (ear muffs or ear plugs) provided (in the absence or pending noise control) whenever you are exposed at or above the second or peak action levels, as well as when entering an ear protection zone, to meet your duties under the NAW Regulations (regulation 10).

- use any other equipment your employer provides under these Regulations, eg machines fitted with silencers - *don't* take them off!

- take care of equipment provided under these Regulations. If you discover any defects reducing their performance, you should report them!

- see your doctor if you think that your hearing has become damaged

ACTIVITY		LIKELY NOISE EXPOSURE $L_{EP,d}$ Average	Range
Agent (up to 50% day on site)		<80	
Asphalt paving		<85	
Blasting		100+	
Bricklayer		83	81–85
Carpenter		92	86–96
Concrete	chipping/drilling	85+	
	floor finishing	85	
	grinding	85+	
Concrete worker		89	
Crushing	mill worker	85+	
Driver	crawler tractor	85+	
	dumper	85+	
	excavator	<85	
	grader	85+	
	loader	<85	
	roller	85+	
	wheeled loader	89	
	wheeled tractor	<85	
Engineer	supervising pour	96	
	surveying	<80	
Foreman	supervising workers	80	
Formwork setter		92	89–93
Ganger	concrete pour	93	92–93
	general work	94	
Guniting		85+	
Labourer	concrete pour	97	95–98
	digging/scabbling	100	
	general work	84	
	shovelling hardcore	94	
	shuttering	91	
M&E installer			
	general	89	82–96
	small work	84	78–89
Piling operator		85+	
Piling worker		100+	
Reinforcement worker			
	building site	86	82–89
	bending yard	84	77–87
Sandblasting		85+	

FURTHER READING

HSE *Introducing the Noise at Work Regulations: A brief guide to the requirements for controlling noise at work* 1992 IND(G)75L

HSE Noise at Work guides
Noise guide no 1: Legal duties of employers to prevent damage to hearing
Noise guide no 2: Legal duties of designers, manufacturers, importers and suppliers to prevent damage to hearing. ***The Noise at Work Regulations 1989***
1989 ISBN 011 885512 3

HSE *Noise at work: Noise assessment, information and control Noise guides 3 to 8* HS(G)56
1990 ISBN 011 885430 5

HSC *Noise from portable breakers*
IAC L21 1986

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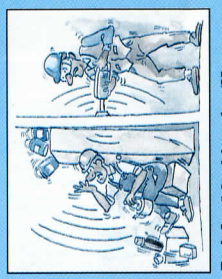
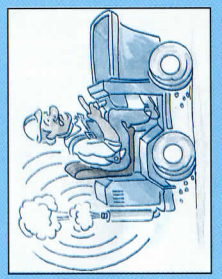
What is noise assessment

(Noise at Work Regulations 1989)



Task 3 - Meal breaks (Hammer drill at other side of wall) 1 hour 88dB(A)



Task 2 - Driving dumper truck 4 hours 93dB(A)

Task 1 - Concrete breaking 3 hours 98dB(A)

Example of noise assessment
By: Competent Person
Date: 12th of Now
Employee: Mr I Don-Muffs
Site: Hush-Hush Land
No of operators/ employees: Many

Task	Sample Leq dB(A)	Exposure Time - Hrs	Fractional Exposure "f" values*
Task 1	98	3.0	2.37
Task 2	93	4.0	1.00
Task 3	88(est)	1.0	0.08
			Total f = 3.45
			Assessed $L_{EP,d}$ = 95dB(A)

**Fractional exposure values calculated using information on page 6 of the Noise Guide no. 3 to the NAW Regulations*

REGULATION 4[1](a)

Details of proposed measures by employers facilitating compliance with regulations 7, 8, 9 and 11

Regulation 7 - Fit pneumatic pick/breaker with exhaust silencer and also dampened chisels. Renew dumper truck exhaust silencer. Reroute dumper through quieter site areas. Employees (where possible) to use mess huts or alternatively quieter mess areas for breaks.

Regulation 8 - Cosmic and Macho (helmet muffs) calculated to be appropriate ear protection from octave band analysis of site noise.

Regulation 9 - Position at 12 m distance from concrete breaking an 'Ear Protection Zone' boundary, using BS 5378 pt 1 : 1980 signs. Ear protection must be worn by employees entering such zones.

Regulation 11 - Inform employee/s personal $L_{EP,d}$ is 95 dB(A) giving nearly four times the risk to hearing damage to that of the 90 dB(A) second action level. Suitable and efficient ear protection is available and must be worn. Regulation 10 places a duty on employees to comply with the Regulations, and also requires the reporting of defects in any noise control equipment.

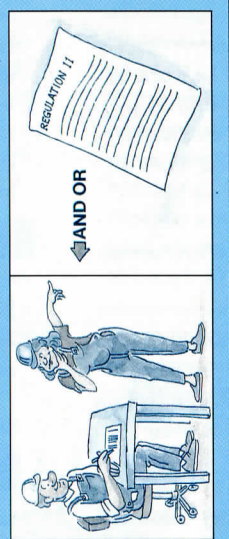
REGULATION 4[1](b)

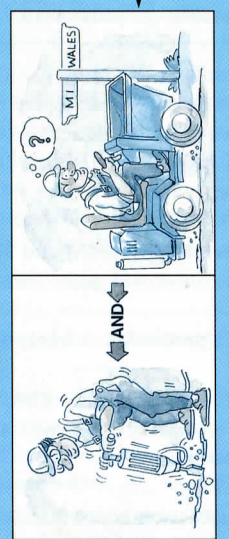
Regulation 7 - reasonable & practicable noise control measures

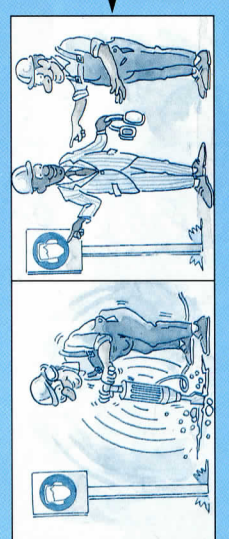
Regulations 8 & 9 - pending noise control at source

Further control measures needed?

Reg 11







Reassessment afterwards (Record of assessments - Regulation 5)

Addressing most significant 'f' value first