

**LEGAL USE OF PERSONAL PROTECTIVE EQUIPMENT
AND ASSESSMENTS OF RISK**

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INTRODUCTION

When selecting personal protective equipment (ppe), and assessing its suitability, employers **will be** concerned with its ability to provide adequate protection. Usually **less** attention is paid to ergonomics and to the risks created by the ppe itself. Then? is increasing legal emphasis on applying ergonomics to improve the health and safety of workers in hostile environments.

THREE RELEVANT EUROPEAN DIRECTIVES

1. Use by workers of personal protective equipment (ppe) (1) - by 31 **December 1992**
2. PPE Product Directive (2) - by 1 July **1992**
3. The Framework Directive to encourage improvements in the safety and health of workers (3) - by 31 December **1992**

Directive (1) requires employers to assess **risks, to** select ppe which gives the necessary protection and is suitable for the worker. All ppe must **also** "take account of ergonomic requirements". Information **instruciton** and training in the use of ppe must also be provided.

The complementary Product Directive (2) **requires** testing of products and the **use** of a "CE" mark for products to conform for **legal** sales in the market. These include any device **or** appliance designed **to be** worn or held for protection against any safety or health hazard, **specifically** fire, heat, cold, radiation, noise and unbreathable atmospheres.

The Framework Directive (3) requires designated **competant** personnel or external services to **assess risks**. Included is an evaluation of **risks** to the safety and health of workers in the choice of work equipment and other work factors. Subsequent UK proposed Regulations require the assessment of risks to be in writing, if there **are** more than four employees.

The assessment (from 1) should involve any risks which the ppe itself may create. Associated guidance published by the UK Health & Safety Executive (HSE) states that the assessment should **be** in writing in certain cases. **These** include complex ppe or ppe in high risk situation e.g. some diving equipment. Industry **is** concerned that varying legal instruments, specifying **risk** assessments, require different approaches and records. A unified approach is needed urgently.

RISK ASSESSMENT TECHNIQUES

Specific enquiries within UK industries, ranging across chemical and metal manufacture, suggest that ppe risk assessments **are** vague and limited **in** scope. **As a rule, the** risks created by the ppe itself appear not to **be** evaluated.

The UK Health & Safety Executive (HSE) has pointed out (4) that there is no general formula for rating **risks** in relative importance. However, five systems were listed, together with a simplified method of **estimating** relative **risk** viz :

$$\text{RISK} = \text{HAZARD SEVERITY} \times \text{LIKELIHOOD OF OCCURENCE}$$

Quantitative **risk** assessment techniques may be used **as** a basis for decisions **in** more complex industries.

A risk survey **table** to help select suitable ppe is provided in the **use** of ppe Directive (1). This **has** 294 boxes to **be** checked, based upon 'workplace risks' - physical, **chemcial** and biological - against the parts of the body endangered. After defining risks, non-exhaustive guide lists of more than 150 activities and related ppe items, can **be** compared.

Stubbs (5) has suggested that ergonomics should be given away **to others** for **them to** undertake much of the ergonomics themselves. The knowledge and methods **of** ergonomics should be **transferred to** others who are closer to the places where changes have to be made. A European Ergonomic Directive **was** recommended for general applications, instead of the various pieces **of** specific legislation. **Associated** European Directives on manual handling and display **screen** equipment also require assessments **of risk** in the working environment.

There is a need **for clarity**. The Framework Directive (3) requires employers, after **risk** evaluation, to consider the person's capabilities when **tasks are** entrusted to a worker. It has been highlighted (6) that a ppe programme shifts responsibility from management to employees - a possible "exploitation of the workforce". In addition the Directive (3) requires consultation and participation of workers - to take part in a balanced way.

RATIN Y M

A clear method to assess risks **is** wanted. In European standards on ergonomics (7) a **3 zone** rating system has been established. This could provide a useful basis for the use **of** ppe. The red/yellow/green system defines the yellow **zone as** conditionally acceptable. Here user (wearer) guidelines may be needed for specially trained/selected groups who **use** the equipment, possibly **for** a specified maximum time. Examples **are** given where ppe may be used when impairments of safety or functions are likely.

CONCLUSION

Ergonomists in different countries have already developed this technique above **for** the assessment of **risks**. Similar international cooperation could also focus the yellow zone upon ppe. **As** a consequence the use **of** ppe could become both legal and ergonomic!

REFERENCES :

1. Commission of the European Communities. 1989, Council Directiveuse by workers of ppe. 89/656/EEC.
2. Commission of the European Communities (1989), Council Directive. The PPE Product Directive. 89/686/EEC.
3. Commission of the European Communities. 1989 Council Directive on the introduction of measures to encourage improvements in the safety and health of workers at work 89/391/EEC.
4. Health and Safety Executive. 1991, Successful Health & Safety Management, HS(G)65 (HMSO, London)
5. Stubbs, D.A. 1992, Ergonomics, health and **safety**: a function of management, in E.J. Lovesey (ed.) Contemporary Ergonomics 1992 (Taylor and Frances, London), 16-27.
6. Glendon, A.I. 1991, Influencing behaviour: a framework for action, Journal of Health and Safety, 6, 23-38.
7. CEN European Committee for Standardisation. 1991, Safety of Machinery - ergonomic design principles pr EN 614-1:1991.