

The EU Directive 90/270 on VDU-Work:  
a European State-of-the-Art Overview

Report over the situation in

**Greece**

The EU Directive 90/270/EEC on the Minimum  
Health and Safety Requirements for Work with  
Display Screen Equipment

**edited by**

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**Technical University Eindhoven**



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## **The EU Directive on VDU-Work: a European State-of-the-Art Overview over the situation in Greece**

"The EU Directive on the Minimum Health and Safety Requirements for Work with Display Screen Equipment in Practice - a European Overview"

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# Foreword

The EU Directive 90/270/EEC on the minimum health and safety requirements for work with display screen equipment gives general guidelines on responsibilities and identifies areas for legislation. It does not provide measurable ergonomic standards. These values are being identified in standards such as ISO 9241 and EN 29241.

The International Standards Organisation (ISO) has announced a set of standards called ISO 9241 which provide specific values on which legislation may be based. It also provides system manufacturers, employers and employees with a scientific basis for planning ergonomic working environments. The standard currently comprises 17 parts: Part 1 General Introduction, Part 2 Task design (the way jobs are designed for people working with display equipment), Parts 3-9 Hardware and physical environment, Parts 10-17 Software and usability.

The European Committee for Standardisation (CEN) has decided to issue its own standard, EN 29241, which will be virtually identical to ISO 9241. In this context EN standards are particularly relevant because CEN member countries, which include both EEC and EFTA, have jointly decided that EN standards will replace national standards (e.g. BS 7179) as soon as they are published. ISO-standards are not always introduced as national standards.

Of course, the Directive outlines minimum standards. Many countries will have existing legislation that already meets or exceeds the proposals.

Each member country will review the Directive and having interpreted it to suit local conditions, they will create new legislation. The new ergonomic laws should be in place as soon as possible. Local legislation will refer to local standards bodies' interpretation of ISO 9241 and EN 29241.

The principles behind ergonomic legislation are simple and founded in common sense. However, far reaching implications for manufacturers and employers ensure that their implementation is complex.

The aims of this book are threefold:

- (1) to present the actual state of the national legislation from a theoretical, political and a practical point of view,
- (2) to discuss the range of possible evaluation criteria,
- (3) to give a state of the art overview of the methods and tools in practice.

The authors will give an overview of the national activities and forthcomings of the legislation process.

We hope that this report will help to harmonize the implementation and practice of the EU Directive 90/270/EEC in Europe.

**Matthias Rauterberg**  
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# Greece: Office Work with VDUs

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## 1 Introduction

In this chapter, the situation regarding legislation and the regulation of the use of VDUs in Greece is discussed. Two examples of how employees used the legislation to obtain better wage settlements is offered and concluding observations are made regarding the satisfactoriness of the legislation and the actual situation in the workplace.

With regard to legislation concerning the use of VDUs, there are two related but distinct issues to be discussed, one is the health and safety aspects of working with VDUs and the other is receipt of financial benefits as inducement to work with VDUs and new technologies in general. The latter is closely related to the financial benefits that have been awarded to employees in the informatics sector, and as such, the legislation regulating the use of VDUs has been in some cases linked with the legislation determining the financial benefits to be given to specific classes of workers in the informatics sector.

## 2 Legislation Relating to VDUs

In 1989, following concern that the public sector in Greece was unable to recruit or keep professionals conversant with new technology because it could not compete with wages offered for this type of expertise in the private sector, legislation granting the special financial benefits to be accorded to workers in Informatics Centers of the Public sector was passed. This was directed at employees of public sector Informatics departments as an inducement to undertake employment and to remain in employment. It provided for increases wage benefit over the 1984 wage settlements of 40% for analysts, programmers, electronics engineers and informatics evaluators; of 33% for operators of computers, cutting machines and data entry; and 20% for coders. However, the law specifically states that this decision was arrived at "having taken into consideration the ministerial decision concerning "health and safety of personnel from the civil service, the public institutions and municipal authorities" thus recognising that there was a need to compensate workers for undertaking potentially stressful or hazardous work.

In 1990, the EEC's directive on display screen work was issued. As is known, this directive was one of several which deal with health and safety in the workplace, and it went through several iterations lasting from 1988, until the definitive issue in 1990 (90/270/EOK). This directive and the others that accompany it were intended to set

general requirements for workers and new technology and not to require substantial revision as the technology progressed. The argument was that by introducing concerns for health and safety in connection with new technology, employers would be forced to consider the ergonomics and welfare of their workforce. In this way, mechanism would already be in place to deal with new concerns as they arise, for instance, with the use of virtual reality (VR) headsets.

In Greece, the EU's directive on screen display work was passed into legislation as a presidential decree (no. 398) in December 1994, that is, four years after the publication of the directive, and just in time to be in line with the stipulations of the EU that member states should encourage the adoption and adaptation of the terms of the Directive.

The presidential decree follows closely the text of the directive, but there are some differences which are listed below. Directives from the EU are part of their legislative action and are binding for member states as regards the result to be achieved. However, it is left to national authorities to determine the methods for achieving these results. It therefore says nothing about penalties and enforcement. Thus, the differences between the EU directive and the Greek presidential decree are in some cases simply extensions, in the sense of inclusion and exemption clauses, but in others they stipulate obligations that the employers should fulfil and with which they can actually be asked to demonstrate whether or not they have complied.

## **2.1 Differences between the EU Directive (90/270/EEC) and the Presidential Decree (no.398)**

- Article 1: *General notes*: the decree is specific in extending its coverage to all businesses, enterprises and workplaces of both the public and the private sector, independent of the level of their economic activities. In addition, a clause is introduced specifically exempting members of the armed forces from the decree
- Article 2: *Definitions* the decree adds that the term 'worker' also includes trainees and apprentices
- Article 3: *Employers' Obligations*, the decree specifies that employers are obliged to have a written estimation from their supervisory staff regarding the dangers to health and safety of the work the employers are expected to undertake. This written report is a necessary requirement so that the employer can arrive at a judgement concerning the best way to take steps to reduce any risks identified . It is further stated that employers are to actively seek from the manufacturers of VDUs relevant instructions regarding their use, in order to supply material for the written report.
- A new article is inserted regarding the obligations of manufacturers, suppliers and importers of equipment. They are now required to make certain that the goods they manufacture, supply or import are in accordance with the strict rules laid down to ensure alignment with health and safety specifications; that the relevant literature is supplied, and that it is in Greek; and that this literature is supplied to employers so that they can make the written estimations stipulated under Article 3, *Employers' Obligations*.
- In the section dealing with the organisation of the daily tasks, where the directive states that employers are obliged to plan work activities so that daily interaction with VDUs is periodically interrupted with breaks or other types of activity, the directive adds a new clause. This new clause states that the employer will consult with his workforce, or representatives of the workforce in order to draw up the work-plan and to satisfy the preceding requirement.
- The next clause, *consultation and participation of the workforce* which is part of both the directive and the decree, at first glance appears a repetition. In fact, in the decree,

its emphasis is now on the obligation of the employer to facilitate the consultation process.

- One of the most radical differences between the directive and the decree is the next section. In the directive its title is *„Protection of eyes and vision of the workforce‘*, whereas in the Greek presidential decree, this section is considerably widened and is entitled: *„Protection of the health of the workforce, medical examinations.‘*

The directive details the obligations of the employer as regards providing for eye examinations and for provision of special eye wear for the workforce, and for the employer to underwrite expenses incurred. The decree, on the other hand, lays down that the employer is obliged to provide for his workforce to undergo medical examinations for to check vision and the muscular-skeletal system before entering employment and thereafter at regular yearly intervals, as well as whenever a member of the workforce has any disturbances which could be attributed to his work. Further, this article stipulates that workers belonging to a high risk group, should be given additional information and shown extra concern in order to better confront the problems caused by VDUs. In this group fall pregnant and lactating women.

- A few additions are made to the *minimum specifications* annexe of the directive. In the *environment* section, reference is made to the need to eliminate unpleasant effects of electrostatic fields between the user and the screen; in the *human computer interaction* section, the use of any software which can monitor the qualitative or quantitative progress of the user is forbidden; and finally, a whole new section, entitled *„Activity changes and Work breaks‘* is introduced. This states that as it is often difficult or impractical to introduce natural changes in activity, so as to have a break from the screen work, it is suggested that a break should be made every two hours, according to the type of work. However, under no circumstances should the breaks be allowed to be saved up and taken all at once. The recommended allowed time for breaks, either from the workplace, or for occupation with other tasks, is 15 minutes.

## 2.2 Recommended specifications (following ISO 9241)

In second separate annexe, the decree gives the recommended specifications for equipment and workplace. The recommendations also cover how to apply of the measures in the first annexe. It is emphasised within the text that these proposed methods are suggestions and not mandatory. They follow fairly closely the format of the ISO 9241 Ergonomics Requirements for office work with visual display terminals (VDTs). They are presented below:

1. Screen
  - 1.1. character size: it should be possible to choose the size of the characters. Recommended choice of characters larger than 3.5 millimetres for a user-screen distance of 50cm and larger than 4.3 for user screen distance of 70 cm
  - 1.2. line spacing: recommended that it be possible to choose the size of line spacing
  - 1.3. presentation of characters: recommended dark characters on a light-coloured background
2. Lighting
  - 2.3 Lighting should be natural
  - 2.4 If fluorescent lights are use, they should be triphasic or biphasic
  - 2.5 Contrast

- 2.3.6. the ratio of contrast between the surface of the central optical field of the user to be less than 3:1
- 2.3.7. the central optical field of the user to be brighter than the surrounding area
- 2.3.8. the ratio of contrast between the central optical field of the user and the surrounding area to be less than 10:1
- 2.3.9. the contrast between surfaces of the surrounding area to be less than 10:1
- 2.3.10. the ratio of contrast between surface of illuminated equipment and the surrounding equipment to be less than 20:1
- 2.3.11. the greatest source of light anywhere in the room to be less than 40:1
- 2.3.12. the angle of direct light (vertical plane) and the gaze of the user on a horizontal plane be greater than 40 degrees.
- 2.13 Average level of lighting: the average level of lighting should be as much as possible the strongest possible but without infringing on the bounds of contrast and to prevent blurring
- 2.14 Observations:
  - 2.5.15. With light coloured screens it is possible to accept a lighting level of 1000 lux, recommended is something greater than 500-700 lux
  - 2.5.16. With dark coloured screens the lighting levels are necessarily constrained by the requirements of dealing with contrast. Here however, the lighting level should be greater than 300 lux
  - 2.5.17. The required average lighting level increases greatly with the increase in the average age of members of the workforce
  - 2.5.18. The above mentioned lighting values refer to background light and not to lighting during the beginning of operations
- 3. Noise: the background noise from the workstation should be less than 50dB
- 4. Temperature - Humidity
  - 4.5 The value of relative humidity should be between 50% and 70%
  - 4.6 Air speed: the indicative value of the speed of air currents should be less than 0,1 m/s for temp = 20° C  
less than 0,1 m/s for temp = 26° C
  - 4.7 Temperature spherical thermometer: recommended temperature to be between 20° C and 26° C
  - 4.8 The temperature differences between areas of the work area to be less than 2° C
  - 4.9 The lower temperatures are recommended for cold days and the higher for hot days.
  - 4.10 It is recommended to combine the lower temperatures with the high levels of humidity, and the higher temperatures with the lower levels of humidity. A basic indicator of the combining of temperature and humidity should be the feeling of the majority of the workforce.
- 5. Electro static fields

If unpleasant effects are not eased by the humidity or the cleanliness of the work place or the use of anti-static surfaces, then anti contrast filters with anti static inducing properties may be placed in front of the screens. Care should be taken with the choice of screen

filters. Their task is on the one hand to reduce the electro-static field and on the other to improve or at least not to worsen the screen display.

## 2.3 Enforcing the legislation and the penalties for non-compliance

In as far as enforcing of the regulations goes, the decree states that checks to ascertain whether or not the regulations have been followed are the responsibility of relevant health and safety officers of various organisations and in particular the Centre for Prevention of Professional Dangers. Penalties for employers, manufacturers, suppliers and importers who infringe the decree, whether from premeditation or out of ignorance are subject to penalties under the penal code.

The two years time limit for the implementation of the measures, proposed in the directive as the end of 1992 is correspondingly lengthened by 2 years to end of December 1996 in the presidential decree. This was the deadline for compliance by member states with the EU directive. As a measure of comparison, in the UK the regulations enforcing the recommendations of the directive came into effect on the 1<sup>st</sup> January 1993.

## 2.4 Case Studies

In this first case study is described how the directive was used by an employees union to negotiate better wage settlement for its workers.

### ***Union of Bank Employees versus Greek Union of Banks (employers)***

During the second half of the ,80s, the banking sector in Greece, in common with other banking systems throughout the world, went ,online'. Union representatives began to hearing increasingly from their work force complaints the use of new technologies and health and work practices. These ranged from questions to serious complaints to do with the the proven effects upon the health of those employees working with VDUs. The subject was especially acute where the users were pregnant or lactating women.

There was increasing pressure on the representatives of the trades union to persuade employers to grant some compensation measures for those employers working with VDUs, as well as granting them other privileges such as an increase in the number of leave days, increase in rest breaks throughout the working day, etc.

In order to get a hearing for their claims, the bank employees unions commissioned and funded the carrying out of a study on the effects of VDUs, for the purpose of using the results of the study to the benefit of its members. The writers of the report were a group of scientists who were members of the Health and Safety committee of the union. The study took place between 1992-3.

In particular the committee made use of the records of such institutions as The European Foundation for Living and Working Conditions, based in Ireland and FIET the global trade union federation for private services, the professions and industry, with headquarters in Switzerland. It is one of the ITSs (International Trade Secretariat) and has 11 million members from more than 400 trade unions in over 120 countries. The study collated international experiments and the gathered and recorded opinions, directions and actions world-wide.

Its objective of the study was to make a record of the state of the art in terms of international standards on the subject of the effects of visual display units on the health of workers and to suggest ways of implementing controls of the use of VDUs and improving the working conditions of those working with VDUs in the banking sector.

This report also drew upon the EC directive, although this was still not part of Greek Law, and the study was conducted two years after the final publication of the directive.

Up until 1989, there was no provision in the wage settlements between the employers, represented by the Greek Union of Banks, and the workforce for benefits to be paid to employees using VDUs as part of their job, and no regulations governing the norms and conditions of use of VDUs with regard to health and safety for employees in the Banking Sector.

In the work contract of 1989 was included for the first time a paragraph which stated

*(...) for employees working with VDUs, special protective measures are to be observed, and these are mandatory for both management and the employees. The actual measures will be determined by a three member committee consisting of one representative from the employers, one from the employees and one representative from the Ministry of Labour's Health and Safety Department.*

In the wage negotiations of 1993, in spite of the fact that the directive had been published three years previously, and laid down a series of important health and safety measures, the only mention that was made was to make obligatory the use of a screen filter for all workers using a VDU and to some provisions for limiting the use of VDU work for pregnant women.

It can be seen, that the choice of extempore measures can be characterised as piecemeal, and giving priority to measures which have the lowest implementation cost (purchase of filters) and which would seem to an unsuspecting and uninformed public to be efficacious.

However, in the two year contract of 1994-5 are included paragraphs which state:

*(...)the banks, beyond the implementation of already existing agreements as stated by the current legislation are reconciled to the spirit of the guidelines and the specifications as given by the European Union's directive 90/270 in so far as the working stance it takes on the subject of VDUs.*

In this way the Greek Union of Banks has accepted the regulations laid out in the directive, but which in the meantime had become part of a the presidential decree of December 1994.

### ***Civil Servants versus the letter of the law.***

The second case study concerns civil servants working in public institutions. They stood up for their rights, claiming that the letter of the law, rather than the spirit, was being upheld.

Civil servants have also been accorded financial benefits because of working with VDUs. Here the problem of job description became all important. The letter rather than the spirit of the law was followed and employees whose job description described them as 'data entry operators' were entitled to the benefit, whereas 'secretaries' were not, even though the actual tasks that secretarial staff carry out in the workplace may involve spending considerable periods of time in front of VDUs.

This unfairness has been pointed out in the case of the workers in the Research Unit, the Chancellery and Technical Services of the University of the Aegean. After a hearing, it was decreed by the courts that the law needed updating, and the regulations were changed to allow the financial benefit to be awarded to all workers whose tasks include working with accounting spread sheets, using word processing packages, etc. in other words, using VDUs to perform the basic tasks in their job description.

The authors of this chapter are not aware of any court cases where an employee has sued an employer over contraventions of the presidential decree. Of course, this can be

attributed to the fact that only since December 1996 have employers been obliged by law to implement the regulations laid down by the presidential decree.

However, it should be a serious source of concern for employers that they could be subject to legal action and forced to pay out large sums in compensation, if they do not make provisions for the health and safety measures stipulation by the decree. This fear of being penalised is in actuality the only real motivation for employers, as the enforcement agencies are not normally very pro-active. Practically speaking, a 'laissez-faire' attitude prevails, where it is up to the employees themselves, with the help of their trade union representatives, to demand their rights.

A small informal survey has been conducted by the authors amongst opticians operating in the Athens area. Athens, contains by far the largest concentration of the population in Greece, and in such a centralised society, most all of the ministries and bureaucracies are located in or near the capital. The results of the survey revealed that many customers came asking for spectacles for wear when working with computers and that of these, for small number, the cost of the spectacles was met by the employers. Interestingly, in that small number, a good proportion of claims were met by employers in the private sector.

### 3 Conclusions

The two case studies mentioned above give some idea of the use that has been made of the EU directive and the subsequent presidential decree. It appears however that the financial privileges accorded by the law are of much more interest to the worker than those which are concerned with health and safety. The reasons for this could be said to be both cultural and topical.

For the cultural part, it is necessary to understand something of the working practices that prevail in Greece, and possibly to some extent in other countries of the EU. In the case of work breaks, for example. In many of the public, as well as private sector offices, there is no set routine or timetable for breaks. Instead, this is left to the discretion of the individual, and the common practice is for snacks and drinks to be consumed at the workstation, often while working, rather than being taken in a separate "coffee room" or canteen, and thus ensuring a real break in work.

In this way it can be seen that although the presidential decree, faithful to the EU directive, discusses longer breaks in the working day, practically speaking there is sometimes no framework in which to set such a system of breaks. This is not to say that shorter working hours for pregnant or lactating women do not exist, or the complaints of those who are experiencing discomfort which they attribute to working for long periods of time in front of a screen are not heard and accommodated,- they generally are. The point is that unless the workforce itself demands its rights, there is no real 'push' for employers. However, it is probably true to say that this is often the case in other countries and not just in Greece.

As for the topical reasons, one can point to the dying down of agitation in the public press over the possible damaging effects of VDUs. It is from such sources, as has been noted above, that the working public received most of its information, and this anxiety was fuelled by the ever increasing ubiquitousness of the computer screen. In the mid-nineties, the new public scare might be said to be the use of the cellular telephone, if one were to judge by the number of bad press reports it gets, both in the popular and in scientific press.

A second topical reason is the noticeably less militant tendency amongst the work force, probably in part due to rising unemployment as well as to the acceptance of computers and display screens as a part of everyday life. Perhaps from this one can conclude that the majority of workers who use VDUs are, by and large, content to receive financial benefit due to them, and it is up to the individual to seek out any other entitlements.

## 4 A Final Word

In March 1997, the most recent law, (Law 2470/FEK 400 of 21/March/1997) gives the conditions pertaining to eligibility for the so-called "Informatics Allowance". This applies to all personnel who are members of informatics professional societies and organisations, and/or who are working in recognised services, directions, sectors and centres of informatics, as well as air traffic controllers. It allows 30,000GRD a month for programmers, systems analysts, and electronic engineers; 25,000GRD for computer operators, data entry and computer support personnel, 15,000 for coders and operators of cutting machines in organised informatics centres.

Other than those mentioned above, the allowance is not given to other specialists, such as users of computers or PCs nor to education personnel in the field of informatics.

Significantly, the term VDUs is not mentioned.

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# Appendix



# English Version of the EU Directive 90/270/EEC

**COUNCIL DIRECTIVE of 29 May 1990 on the minimum safety and health requirements for work with display screen equipment (fifth individual Directive within the meaning of Article 16 (1) of Directive 87/391/EEC).**

**(90/270/EEC)**

**THE COUNCIL OF THE EUROPEAN COMMUNITIES,**

Having regard to the Treaty establishing the European Economic Community, and in particular Article 118a thereof,

Having regard to the Commission proposal (1) drawn up after consultation with the Advisory Committee on Safety, Hygiene and Health Protection at Work,

In cooperation with the European Parliament(2)

Having regard to the opinion of the Economic and Social Committee(3)

Whereas Article 118a of the Treaty provides that the Council shall adopt, by means of Directives, minimum requirements designed to encourage improvements, especially in the working environment, to ensure a better level of protection of workers' safety and health;

Whereas, under the terms of that Article, those Directives shall avoid imposing administrative, financial and legal constraints, in a way which would hinder the creation and development of small and medium-sized undertakings;

Whereas the communication from the Commission on its programme concerning safety, hygiene and health at work (4) provides for the adoption of measures in respect of new technologies; whereas the Council has taken note thereof in resolution of 21 December 1987 on safety, hygiene and health at work (5);

Whereas compliance with the minimum requirements for ensuring a better level of safety at workstations with display screens is essential for ensuring the safety and health of workers;

Whereas this Directive is an individual Directive within the meaning of Article 16 (1) of Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work (6); whereas the provisions of the latter are therefore fully applicable to the use by workers of display screen equipment, without prejudice to more stringent and/or specific provisions contained in the present Directive;

Whereas employers are obliged to keep themselves informed of the latest advances in technology and scientific findings concerning workstation design so that they can make

any changes necessary so as to be able to guarantee a better level of protection of workers' safety and health;

Whereas the ergonomic aspects are of particular importance for a workstation with display screen equipment;

Whereas this Directive is a practical contribution towards creating the social dimension of the internal market;

Whereas, pursuant to Decision 74/325/EEC(7), the Advisory Committee on Safety, Hygiene and Health Protection at Work shall be consulted by the Commission on the drawing-up of proposals in this field,

**HAS ADOPTED THIS DIRECTIVE**

## **SECTION I: GENERAL PROVISIONS**

### **ARTICLE 1**

#### ***SUBJECT***

1. This Directive, which is the fifth individual Directive within the meaning of Article 16 (1) of Directive 89/391/EEC, lays down minimum safety and health requirements for work with display screen equipment as defined in Article 2.
2. The provisions of Directive 89/391/EEC are fully applicable to the whole field referred to in paragraph 1, without prejudice to more stringent and/or specific provisions contained in the present Directive.

This directive shall not apply to:

- a) drivers' cabs or control cabs for vehicles or machinery;
- b) computer systems on board a means of transport;
- c) portable systems not in prolonged use at a workstation;
- e) calculators, cash registers and any equipment having a small data or measurement display required for direct use of the equipment;
- f) typewriters of traditional design, of the type known as 'typewriter with window'

### **ARTICLE 2**

#### ***Definitions***

For the purpose of this Directive, the following terms shall have the following meanings;

- a) display screen equipment; an alphanumeric or graphic display screen, regardless of the display process employed;
- b) workstation; an assembly comprising display screen equipment, which may be provided with a keyboard or input device and/or software determining the operator/machine interface, optional accessories, peripherals including the diskette drive, telephone, modem, printer, document holder, work chair and work desk or work surface, and immediate work environment;

- c) worker; any worker as defined in Article 3 (a) of Directive 89/391/EEC who habitually uses display screen equipment as a significant part of his normal work.

## **SECTION II: EMPLOYERS OBLIGATIONS**

### **ARTICLE 3**

Analysis of workstations

1. Employers shall be obliged to perform an analysis of workstations in order to evaluate the safety and health conditions to which they give rise for their workers, particularly as regards possible risks to eyesight, physical problems and problems of mental stress.
2. Employers shall take appropriate measures to remedy the risks found, on the basis of the evaluation referred to in paragraph 1, taking account of the additional and/or combined effects of the risks so found.

### **ARTICLE 4**

Workstations put into service for the first time

Employers must take the appropriate steps to ensure that workstations first put into service after 31 December 1992, meet the minimum requirements laid down in the Annex.

### **ARTICLE 5**

Workstations already put into service

Employers must take the appropriate steps to ensure that workstations already put into service on or before 31 December 1992 adapted to comply with the minimum requirements laid down in the Annex not later than four years after that date.

### **ARTICLE 6**

Information for, and training of, workers

1. Without prejudice to Article 10 of Directive 89/391/EEC, workers shall receive information on all aspects of safety and health relating to their workstations as are implemented under Articles 3, 7 and 9.

In all cases workers or their representatives shall be informed of any health and safety measure taken in compliance with this Directive.

2. Without prejudice to Article 12 of Directive 89/391/EEC, every worker shall also receive training in use of the workstation before commencing this type of work and whenever the organization of the workstation is substantially modified.

### **ARTICLE 7**

Daily work routine

The employer must plan the worker's activities in such a way that daily work on a display screen is periodically interrupted by breaks or changes of activity reducing the workload at the display screen.

## **ARTICLE 8**

Worker consultation and participation

Consultation and participation of workers and/or their representative shall take place in accordance with Article 11 of Directive 89/391/EEC on the matters covered by this Directive, including its Annex.

## **ARTICLE 9**

Protection of workers eyes and eyesight

1. Workers shall be entitled to an appropriate eye and eyesight test carried out by a person with the necessary capabilities:
  - before commencing display screen work,
  - at regular intervals thereafter, and
  - if they experience visual difficulties which may be due to display screen work.
2. Workers shall be entitled to an ophthalmological examination if the result of the test referred to in paragraph 1 show that this is necessary.
3. If the results of the test referred to in paragraph 1 or of the examination referred to in paragraph 2 show that it is necessary and if normal corrective appliances cannot be used, workers must be provided with special corrective appliances appropriate for the work concerned.
4. Measures taken pursuant to this Article may in no circumstances involve workers in additional financial cost.
5. Protection of worker's eyes and eyesight may be provided as part of a national health system.

## **SECTION III: MISCELLANEOUS PROVISIONS**

### **ARTICLE 10**

Adaptations to the Annex

The strictly technical adaptations to the Annex to take account of technical progress, developments in international regulations and specifications and knowledge in the field of display screen equipment shall be adopted in accordance with the procedure laid down in Article 17 of Directive 89/391/EEC.

### **ARTICLE 11**

Final provisions

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 31 December 1992.

They shall forthwith inform the Commission thereof,

2. Member States shall communicate to the Commission the texts of the provisions of national law which they adopt or have already adopted, in the field covered by this Directive.

3. Member States shall report to the Commission every four years on the practical implementation of the provisions of this Directive, indicating the points of view of employers and workers.

The Commission shall inform the European Parliament, the Council, the Economic and Social Committee and the Advisory Committee on Safety, Hygiene and Health Protection at Work.

4. The Commission shall submit a report on the implementation of this Directive at regular intervals to the European Parliament, the Council and the Economic and Social Committee, taking into account paragraphs 1, 2 and 3.

## ARTICLE 12

This Directive is addressed to the Member States

Done at Brussels

29 May 1990.

For the Council

The President

B. AHERN

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### Footnotes

(1) OJ No C 113, 29, 4? 1988? P.7 and OJ No C 130, 26.5. 1989, P.5

(2) OJ No C 12, 16.1. 1989, P.92 and OJ No C 113, 7.5 1990

(3) OJ No C 318, 12, 12, 1988, P.32

(4) OJ No C 28, 3.2. 1988, P.3

(5) OJ No C 28, 3.2. 1988, P.1.

(6) OJ No L 183, 29? 6. 1989? P.1

(7) OJ No L 185, 9.7. 1974, P.15.

## Annex

### MINIMUM REQUIREMENTS

(articles 4 and 5)

## **Preliminary remark**

The obligations laid down in this Annex shall apply in order to achieve the objectives of this Directive and to the extent that, firstly, the components concerned are present at the workstation, and secondly, the inherent requirements or characteristics of the task do not preclude it.

## **1. EQUIPMENT**

### **a) General comment**

The use as such of the equipment must not be a source of risk for workers.

### **b) Display screen**

The characters on the screen shall be well-defined and clearly formed, of adequate spacing between the characters and lines. The image on the screen should be stable, with no flickering or other forms of instability. The brightness and/or contrast between the characters and the background shall be easily adjustable by the operator, and also be easily adjustable to ambient conditions. It shall be possible to use a separate base for the screen or an adjustable table. The screen shall be free of reflective glare and reflections liable to cause discomfort to the user.

### **c) Keyboard**

The keyboard shall be tiltable and separate from the screen so as to allow the worker to find a comfortable working position avoiding fatigue in the arms or hands. The space in front of the keyboard shall be sufficient to provide support for the hands and arms of the operator. The keyboard shall have a matt surface to avoid reflective glare. The arrangement of the keyboard and the characteristics of the keys shall be such as to facilitate the use of the keyboard. The symbols on the keys shall be adequately contrasted and legible from the design working position.

### **d) Work desks or work surface**

The work desk or work surface shall have a sufficiently large, low-reflectance surface and allow a flexible arrangement of the screen, keyboard, documents and related equipment. The document holder shall be stable and adjustable and shall be positioned so as to minimize the need for uncomfortable head and eye movements. There shall be adequate space for workers to find a comfortable position.

### **e) Work chair**

The work chair shall be stable and allow the operator easy freedom of movement and a comfortable position. The seat shall be adjustable in height. The seat back shall be adjustable in both height and tilt. A footrest shall be made available to any one who wishes for one.

## **2. ENVIRONMENT**

### **a) Space requirements**

The workstation shall be dimensioned and designed so as to provide sufficient space for the user to change position and vary movements.

### **b) Lighting**

Room lighting and/or spot lighting (work lamps) shall ensure satisfactory lighting conditions and an appropriate contrast between the screen and the background environment, taking into account the type of work and the user's vision requirements. Possible disturbing glare and reflections on the screen or other equipment shall be

prevented by coordinating workplace and workstation layout with the positioning and technical characteristics of the artificial light sources.

c). Reflections and glare

Workstations shall be so designed the sources of light, such as windows and other openings, transparent or translucent walls, and brightly coloured fixtures or walls cause not direct glare and, as far as possible, no reflections on the screen. Windows shall be fitted with a suitable system of adjustable covering to attenuate the daylight that falls on the workstation.

d) Noise

Noise emitted by equipment belonging to workstation(s) shall be taken into account when a workstation is being equipped, in particular so as not to distract attention or disturb speech.

e) Heat

Equipment belonging to workstation(s) shall not produce excess heat which could cause discomfort to workers.

f) Radiation

All radiation with the exception of the visible part of the electromagnetic spectrum shall be reduced to negligible levels from the point of view of the protection of workers safety and health.

g) Humidity

An adequate level of humidity shall be established and maintained.

### **3. OPERATOR/COMPUTER**

In designing, selecting, commissioning and modifying software, and in designing tasks using display screen equipment, the employer shall take into account the following principles;

- a) software must be suitable for the task;
- b) software must be easy to use and, where appropriate, adaptable to the operators level of knowledge or experience, no quantitative or qualitative checking facility may be used without the knowledge of the workers;
- c) systems must provide feedback to workers on their performance;
- d) systems must display information in a format and at a pace which are adapted to operators;
- e) the principles of software ergonomics must be applied, in particular to human data processing.