立法會
Legislative Council

**Paper for the House Committee Meeting
of the Legislative Council
on 24 November 2000**

**Legal Service Division Report on
Motion under section 42 of the Occupational
Safety and Health Ordinance (Cap. 509)**

The Secretary for Education and Manpower has given notice to move a motion at the Council meeting of 6 December 2000 under section 42(3) of the Occupational Safety and Health Ordinance (Cap. 509).

2.   The motion seeks the Council's approval of the new Occupational Safety and Health (Display Screen Equipment) Regulation made by the Commissioner for Labour on 8 November 2000 under section 42(1) and (2) of the Ordinance.
.
3.   Under the new Regulation, a person responsible for a workplace in which display screen equipment (DSE) users work is required to -

    (a)   perform risk assessment of a workstation where any DSE user works and record the findings;

    (b)   reduce the risks to the safety and health of DSE users at their workstations, e.g. from the DSE and the design of the workstations, which include any chair, desk, work surface, printer, document holder or other item peripheral to the DSE and the immediate working environment around the DSE; and

    (c)   provide adequate safety and health training in the use of their workstation by DSE users.

4.   Non-compliance by a responsible person with the various requirements and non-conformity by a DSE user with any system of work or any practice provided for his safety and health are made offences of strict liability, punishable with a fine at level 3 (not exceeding $10,000) or level 5 (not exceeding $50,000).

5.   Some queries on the effect and drafting of the Regulation have been raised and responded to. The relevant correspondence with the Administration is attached.

6.   As the Administration has explained in its letter dated 20 November 2000, the Regulation is premised on the concept of self-regulation. This might explain the lack of clear standards in the Regulation with which the performance of the risk assessment and reduction can be measured against. Standards will instead be provided in the form of "A Health Guide on Working with Display Screen Equipment" outside the statutory framework, a draft of which is attached to the Administration's letter. Members may wish to take this into account in their consideration of the overall effectiveness of the Regulation.

Encls

Prepared by

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Assistant Legal Adviser
Legislative Council Secretariat
21 November 2000

EMB CR 3/3/3231/95

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20 November, 2000

Mr. Arthur Cheung
Assistant Legal Adviser
Legislative Council
8 Jackson Road
Central

Dear Mr. Cheung,

<div align="center">

**Occupational Safety and Health
(Display Screen Equipment) Regulation**

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Thank you for your letter of 16 November 2000 seeking information on the captioned Regulation. I would like to reply to the points you raised as follows -

(a) Conducting a risk assessment for a workstation, as required by the draft Regulation, is a relatively simple process. The aim is to identify potential hazards arising from working at the workstation and evaluate the risks so that appropriate measures may be taken, if necessary, to safeguard the health of the users.

The assessment may be performed by any person who has good understanding of the use of the workstations and the associated health risks. In doing so, a checklist (sample at Appendix A) may be used to facilitate the process. On occasions where a responsible person considers the risk assessment so complicated that it is beyond his capacity to do so, he may seek assistance or advice from safety and health specialists.

For compliance with sections 4(1) and 4(2), the risk assessment should cover the elements stipulated in section 4(3). There is no "professional" standard as such for the purpose of compliance. Labour Department will issue a health guide at the time when the Regulation comes into

effect. A copy of the draft health guide is at Appendix B for your reference

The draft Regulation is premised on the concept of self-regulation, which has been the underlying philosophy for devising occupational safety and health legislation since the Review of Industrial Safety in Hong Kong in 1995 and has been enshrined in the Occupational Safety and Health Ordinance. This concept improves on the conventional enforcement-based approach in promoting occupational safety and health. Non-compliance with legislative provisions, when revealed during Labour Department inspections, would still be subject to prosecution.

(b)   Yes. Even if the review of the risk assessment conducted in the light of substantial modifications shows no increase in risks, additional safety and health training may be required for the proper use of the new item.

(c)   "A previous assessment" means the assessment that came before a certain date or the latest assessment. There is therefore no discrepancy between the English and the Chinese text.

Yours sincerely,

(K K Lam)
for Secretary for Education & Manpower

c.c.   C for L   (Attn: Dr. L M Leung)
         DoJ   (Attn: Ms Marie Siu)

Computer Workstation Risk Assessment Checklist

Department of the organization : _____

Workstation number / location : _____

Description of computer tasks : _____

Part A : Assessment

Display screen equipment and peripherals	Yes	No
1. Can the position of the screen, and the brightness and contrast of the image be adjusted easily to suit the working situation ?	☐	☐
2. Is the keyboard tiltable and detachable ?	☐	☐

Work desk and chair

	Yes	No
3. Is the work desk providing adequate leg clearance and the chair adjustable to allow proper work postures ?	☐	☐

Environment

	Yes	No
4. Are glare and reflections being avoided ?	☐	☐
5. Is the lighting level adequate, and the environment free of noise disturbance ?	☐	☐

Other workstation problems that may need attention :

_____

_____

Part B : Conclusions and Follow-up
(a "No" answer for any of the above questions or the reporting of workstation problems may indicate the presence of safety and health risks requiring follow-up actions)

_____

_____

_____

Assessor : _____   Date:_____

<u>**DRAFT**</u>

A Health Guide on Working with Display Screen Equipment

Preface

      This booklet is intended to help employers and employees minimize health risks associated with prolonged work with display screen equipment in the office environment.

      Part I explains the meaning of 'display screen equipment' (DSE), 'workstation' and 'user' in the context of the Occupational Safety and Health (Display Screen Equipment) Regulation. It also discusses various health issues related to prolonged work with DSE. Part II discusses the importance of risk assessment of workstations and provides easy-to-follow steps for conducting such an assessment. Part III gives practical guidance on the ergonomic requirements of workstations and measures for preventing common ill-health problems.

Occupational Safety and Health Branch
Labour Department
November 2000

Part I

What is Display Screen Equipment (DSE) ?

1.1   Under the Occupational Safety and Health (Display Screen Equipment) Regulation (the Regulation), 'display screen equipment' means any display screen which shows letters, numbers, characters or graphics, regardless of the display process involved. It covers conventional display screens, whether based on cathode ray tube displays, flat panels or any other display technology, e.g. ordinary computer displays and microfilm viewers.

1.2   However, the following DSE applications that would pose minimal health risks are excluded from regulatory control :

a)   DSE that is used mainly to show pictures, television or films;

b)   drivers' cabs or control cabs for vehicles or machinery;

c)   DSE on board a means of public transport;

d)   portable systems not in prolonged use;

e)   calculators, cash registers or any equipment having a small data or measurement display required for direct use of the equipment; or

f)   window typewriters.

What is a workstation?

1.3   Under the Regulation, 'workstation' means an assembly comprising the DSE, any chair, desk, work surface, printer, document holder or other item peripheral to the DSE, and the immediate working environment around the DSE, e.g. lighting, temperature and humidity, noise and ventilation.

Who and how are employees affected by the use of DSE ?

1.4   Employees using DSE only occasionally are unlikely to suffer significant health problems arising from the use of such equipment. However, some employees are normally using DSE as a significant part of their normal work ('user' under the Regulation). These users are usually highly dependent on the use of DSE to do their jobs, and spend long hours more or less daily on DSE work. Examples of users are word processing operators, data input operators, telecommunication operators, computer graphic designers, financial dealers, etc. As a result of prolonged DSE work, they could suffer discomfort and other short-term health problems like upper limb pains and discomfort, eyestrain, fatigue and stress. Whilst many of these problems are temporary and may go away after work, they can and should be avoided.   If the temporary ailments are ignored, such symptoms can deteriorate into chronic health problems requiring long-term treatment which is expensive to both employers and employees, and ultimately to the health care service at large. Further information on DSE-related health issues is at Appendix A.

Part II

As a person responsible for a workplace, how can I ensure that DSE users are not at risk ?

2.1   To ensure that the health of DSE users is adequately protected, a person responsible for a workplace should perform a risk assessment of a workstation in the workplace before it is first used by the users. The assessment serves to identify the potential hazards and evaluate their risks so that appropriate measures can be taken to safeguard the health of the users.

2.2   In the assessment, the responsible person should identify the potential hazards arising from work in the workstation, which may be related to the DSE, the peripheral items, the furniture, or the immediate working environment around the DSE. He should also decide who may be at risk and how the person is affected, evaluate the risks arising from the potential hazards and decide whether existing precautions are adequate. He could then draw conclusions from the assessment to help identify and plan any improvement measures that may be required.

2.3   A sample computer workstation assessment checklist is at Appendix B. It helps responsible persons conduct the risk assessment for common computer tasks in the office. Responsible persons may use this checklist to assess the workstations in which DSE users normally use. Based on the results, the responsible person can formulate and implement follow-up actions, if necessary, to reduce the risks. Please note that the sample checklist may not cover every work condition. Responsible persons may need to add more questions or modify them according to the characteristics of their work situations. In complex cases, responsible persons may have to seek expert advice.

2.4   The responsible person should review the risk assessment performed in respect of a workstation whenever there has been a significant change in the workstation or in the conditions of the previous assessment, for example:

    a)   workstation furniture;

    b)   hardware devices particularly the screen, keyboard or other input devices;

    c)   software in use;

    d)   work pattern or task requirement; and

    e)   working environment.

2.5   After completing a risk assessment of a workstation, the responsible person should record the findings. If the risk assessment has been reviewed, he should revise the record accordingly. He should also keep and retain that record for a period of at least 2 years after the workstation ceases to be used by any user.

2.6   The responsible person should produce the risk assessment records for inspection by an occupational safety officer upon request. He should, within the specified

period, deliver a copy of those records to the occupational safety officer upon the latter's request in writing.

Part III

How to control the risks ?

3.1   Under the Regulation, the person responsible for a workplace is required to reduce any risks identified in a risk assessment of a workstation to the lowest extent as is reasonably practicable. For the information of the users concerned, he should inform them the findings of the risk assessment and the actions he has taken to reduce the risks. He should also, so far as reasonably practicable, ensure that workstations normally used by users in the workplace are suitable with regard to the safety, health and welfare of those users. The guidance in the following paragraphs describes the general requirements for setting up such a workstation. The responsible person may need to reduce the risks through modifying the work organization or work practice.

General Requirements for a Display Screen Equipment Workstation

3.2   A DSE workstation is best designed ergonomically such that the safety, health and welfare of the user are secured, apart from fulfilling the inherent requirements of the task.*   The main features of such a workstation and some suggested precautionary measures are as follows (please also see the diagram) :

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* *In general, the requirements are fully applicable to a typical office environment. However, there are special situations where some of these requirements may not be applicable because of the inherent characteristics of the task or some practical considerations, for example :*

  a)   when a user needs to rapidly locate and operate emergency controls, a detachable keyboard may not be suitable;

  b)   a user who is on wheelchair normally could not adjust the seat height of the chair;

  c)   when the original document is of poor quality, the scanned image on screen may not be clear.

  In these special situations, the responsible person may need to make some other arrangements to ensure the safety, health and welfare of the worker when the latter performs DSE work.

Screen

The screen should give a clear, sharp and steady image.

- Replace aging monitors or repair defective ones.
- Clean the screen if necessary.
- Move the computer away from any source of strong electromagnetic fields.
- Choose a LCD monitor to avoid the effects of external electromagnetic fields.
- Turn the display to light characters on a dark background to make the flicker less perceptible.
- Users who are susceptible to the flickering effect should look for other screen models which produce a more stable display.

The characters should be of adequate size, with adequate spacing between the characters and the lines.

- Use a monitor of adequate screen size.
- Adjust the image size and spacing by software control.
- Adopt a viewing distance where the image can be comfortably read.

The brightness and contrast of the image should be easily adjustable.

- Choose a screen with brightness and contrast controls.
- Always set the brightness and contrast to the optimum level.

The screen should be easily swiveled and tilted to suit the needs of the user.

- Choose a screen with swivel and tilt adjustment.
- Adjust the screen to make viewing comfortable.

Keyboard

The keyboard should be tiltable and detachable from the display screen so that the user may adopt a comfortable working posture.

The surfaces of the keyboard and keytops should be non-reflective. The letters and symbols on the key tops should be clear and easily recognizable.

There should be sufficient space in front of the keyboard to provide support for the hands.

- The table edge should be rounded.
- A wrist support pad may be considered if the user finds it more comfortable.

Work Surface

The work surface should be large enough for the screen, keyboard, document and peripheral equipment.

- If the mouse is used intensively, the work surface or the keyboard shelf, if provided, should be large enough to hold the mouse as well. This allows the mouse to be within easy reach.
- If the work surface is limited, try to reorganize the surface layout. Less frequently used items may be taken away.
- Try to use compact equipment.
- Before new DSE is installed, the space allocation for the workstations should be anticipated.

The heights of the work surfaces for the screen and keyboard should be set to suit the needs of the user.

- For screen positioning, the first line of screen display should be at or slightly below the eye level. In addition, the screen should be placed in front of the user.
- The screen height may be adjusted simply by placing the monitor on a stable object, e.g. the computer case. Other options like using height adjustable monitor arms can also be considered.
- The keyboard and the mouse should be positioned at a height that allows the user to adopt a natural hand-arm posture, i.e. the upper arms held vertical and the forearms approximately horizontal.

- So far as reasonably practicable, a height adjustable desk should be used to support the keyboard, the mouse or other input devices so that the natural hand-arm posture can be adopted.

- If a desk of fixed height is used and it is too high, an adjustable keyboard shelf can be installed under the desk to keep the keyboard at the right level. Alternatively, one may raise the chair to suit the height of the table and provide a suitable footrest to compensate for the raised seat height.

There should be adequate legroom below the work surface.

- Ensure that the workstation has sufficient legroom so that the user may stretch his legs or change posture.

- Clear any obstructing materials beneath the work surface.

If document reading is required, a suitable document holder should be provided. It should be stable and adjustable, and be properly positioned to avoid awkward neck posture and movement.

Chair

The chair should be adjustable in height to suit the body size of the user.

- The chair should be so adjusted that the user can sit with thighs in a horizontal position when the lower legs are vertical and the feet are resting firmly on the floor.

- The seat height control should preferably be operable from the normal sitting position, and excessive force or tools should not be required.

The backrest should be easily adjustable in both height and tilt to provide adequate support to the lower back.

The seat pan should be of appropriate hardness and the front edge should be scrolled.

Armrests, if provided, should not interfere with keyboard operation.

The chair should have a stable base. Smooth castors should be provided at its base to allow easy movement if mobility is required.

- A five-pronged base is generally recommended to prevent the chair from toppling over.

- The type of castor should suit the properties of the floor surface. Castors with low resistance should not be used on a hard floor surface.

Footrest

A stable footrest should be made available to the user if the chair is too high for the feet to rest firmly on the floor.

- The footrest should be stable, should have a non-slip surface and be of sufficient size to allow some freedom of movement. The inclination of the support surface should preferably be adjustable.

Illumination

General lighting or task lighting should be suitably provided in accordance with the nature of the work and the visual demand on the user.

- The wall, ceiling and floor surfaces should be of medium reflectance to avoid gloom or glare.
- When documents are read in conjunction with computer work, it is best to use low lighting for the surrounding and a desk lamp for reading the documents.

Reflections and Glare

Reflections and glare should be avoided.

- Re-position the screen and/or control the light sources appropriately to prevent glare and reflections.

- The finishes of walls and furniture located near the workstation should not be highly reflective. Walls should be painted in subdued colours.
- The work area should preferably be located away from windows. The screen should be placed at right angle to windows. Sunlight through windows should be screened by blinds.
- Light fixtures should be equipped with diffusers or louvres.
- Avoid placing the screen under rows of light fittings to eliminate light images.
- Turn the screen display to dark characters on a light background to make reflections less perceptible.
- Using a screen glare filter is another way of reducing screen reflections. In general, screen glare filters reduce the brightness of the image. Therefore the user should ensure that the image's brightness can be adjusted to an acceptable level if a filter is to be added. Nowadays the screens of some monitors are anti-reflective

and do not need filters at all. Using a screen filter is not a substitute for proper lighting, but a supplementary solution only.

Noise

Noise produced by the workstation or other equipment in the work area should be controlled to avoid disturbance to the user.

Temperature and humidity

The temperature and humidity at the work area should be controlled at a suitable level to avoid discomfort to the user.

- Please refer to the "Guidelines for Good Occupational Hygiene Practice in a Workplace" for detailed requirements on temperature and humidity of a workplace.

Fresh Air Supply

Adequate fresh air should be provided for the workplace.

- Please refer to the "Guidelines for Good Occupational Hygiene Practice in a Workplace" for requirements on the provision of fresh air to a workplace.
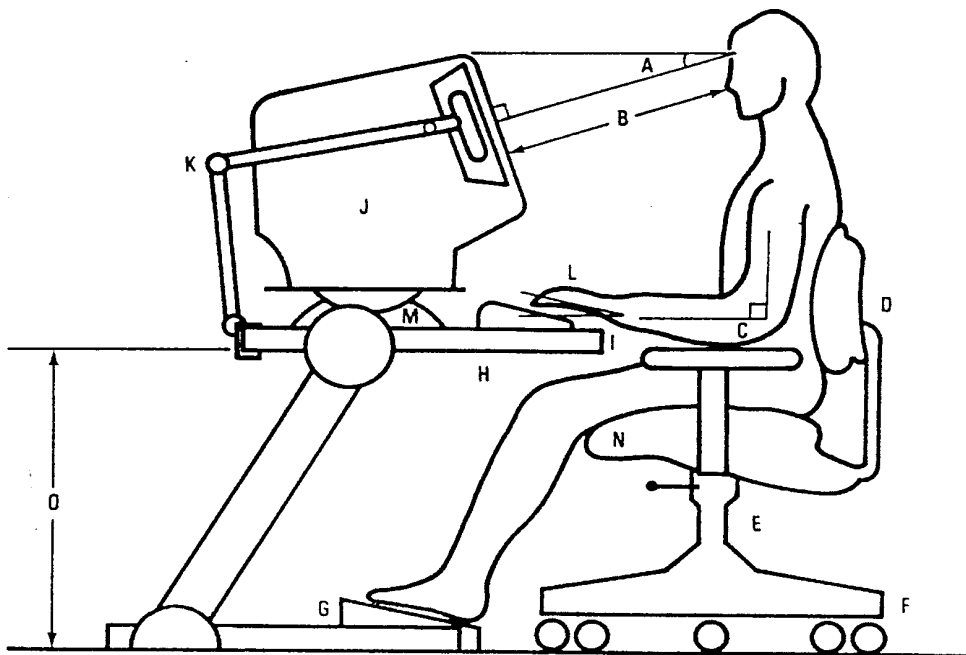
Diagram : The recommended workstation and working posture

A   First line on screen at about or just below eye level
B   Comfortable viewing distance e.g. 35 - 60 cm for text of normal font size
C   Forearm at about right angle to arm
D   Backrest adjustable in height and tilt
E   Adjustable seat height : allowing the user to sit with thighs
       approximately horizontal, lower legs vertical and feet resting
       firmly on the floor
F   Stable base, with castors if necessary
G   Firm footrest if required
H   Adequate leg room
I   Support for hands
J   Screen at about right angle to line of sight
K   Adjustable document holder
L   Wrist kept straight or at most slightly inclined
M   Screen support adjustable for rotation and tilting
N   Rounded or scrolled edge seat pad
O   Adjustable table height preferable

How to reduce the risks by improving work organization or work practice ?

3.3   Continuous DSE work can be monotonous, while prolonged sitting is tiring. It is advisable that a DSE user performs DSE work and non-DSE work alternatively so that posture can be changed and the fatigue from prolonged DSE work can be relieved. Moreover, job enrichment can often give an employee more job satisfaction.

3.4   Heavy workloads and tight deadlines can cause work stress, which if not properly managed, may become excessive and affect health. It is advisable that a supervisor effectively plans and organizes the work of his subordinates so that workloads and deadlines are reasonable. In doing so, the supervisor can discuss with the subordinates in setting deadlines and work priorities.

As an employer, do I need to provide safety and health training to DSE users?

3.5   Safety and health training is essential for helping a user avoid risks associated with DSE work. The Regulation requires that an employer provides adequate safety and health training for DSE users employed by him in respect of the use of the workstations normally used by them. The training should enable the users to recognize and understand:

a)   the risks of the DSE work;

b)   various precautions for avoiding the risks and their importance, for example, a correct working posture, adjusting the equipment and furniture to suit own body features and work comfort, changes of activities at suitable intervals, etc.;

c)   how to report problems and symptoms; and

d)   how to get assistance from the employer.

3.6   The format of training is not restricted to lectures. Other means like video shows, educational leaflets, seminars can also be considered so long as they are effective in meeting the purpose.

3.7   Whenever the organization of a workstation is substantially modified, an employer should provide the users concerned with adequate safety and health training in respect of the workstation as modified.

As a DSE user, how can I co-operate with the person responsible for the workplace?

3.8   It is a user's responsibility under the Regulation to avoid risks by following a system of work and work practices that the person responsible for the workplace has established for the safety and health of users at the workplace. A user should co-operate with the responsible person in conducting risk assessments and in the implementation of preventive and remedial measures to reduce identified risks. In case of serious problems relating to the DSE work, a user should immediately notify the responsible person of the matter.

Health Aspects of Using Display Screen Equipment

Prolonged use of display screen equipment may cause short-term health problems like upper limb pains and discomfort, eyestrain, bodily fatigue and stress.

Upper limb pains and discomfort

The problems of discomfort at hands, arms, shoulders and the neck are common among DSE users. These may range from temporary fatigue or soreness to chronic soft tissue disorders.

Prolonged static posture of the neck, awkward positioning of the hands and wrists, heavy DSE workload combined with tight deadlines are some of the possible causes. These problems are largely preventable by the application of ergonomic principles to the design of workstations and to the organization of work.

Eyestrain

It refers to complaints of eye fatigue and headache. Causes may include poor visual display quality of the screen, poor lighting conditions and heavy workload. However, it is unlikely that DSE work would cause any permanent effect to the eyes or eyesight.

Fatigue and stress

Fatigue and stress can be more common among DSE users as the organization of certain types of DSE work may lead to a higher prevalence of common stress-related factors such as lack of sufficient control of the work by the user, high-speed repetitive work and reduced variety of postures.

Computer Workstation Risk Assessment Checklist

Department of the organization : _____

Workstation number / location : _____

Description of computer tasks : _____

Part A : Assessment

Display screen equipment and peripherals	Yes	No
1. Can the position of the screen, and the brightness and contrast of the image be adjusted easily to suit the working situation ?	☐	☐
2. Is the keyboard tiltable and detachable ?	☐	☐

Work desk and chair

	Yes	No
3. Is the work desk providing adequate leg clearance and the chair adjustable to allow proper work postures ?	☐	☐

Environment

	Yes	No
4. Are glare and reflections being avoided ?	☐	☐
5. Is the lighting level adequate, and the environment free of noise disturbance ?	☐	☐

Other workstation problems that may need attention :

_____

_____

Part B : Conclusions and Follow-up
(a "No" answer for any of the above questions or the reporting of workstation problems may indicate the presence of safety and health risks requiring follow-up actions)

_____

_____

_____

Assessor : _____   Date:_____

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Secretary for Education and Manpower   <u>By Fax (2899 2967) & By Post</u>
Education and Manpower Bureau
(Attn: Mr K K LAM   16 November 2000
         Prin AS EM (7))
6/F, West Wing
CGO
Hong Kong

Dear Madam,

Occupational Safety and Health
(Display Screen Equipment) Regulation

        To facilitate my reporting on the above Regulation to the House Committee on
24 November 2000, I would be grateful if there could be clarification of the following matters :-

(a)   Is there a minimum (professional) standard the risk assessment must achieve in
       order that section 4 is to be complied or is it to be left entirely to the abilities or
       resources of the responsible person concerned?

(b)   Is the requirement in section 8(2) to be enforced even if the risk assessment
       conducted under section 4(4) in the light of the substantial modification shows
       no increase of risks?

(c)   "a previous assessment" in the English text of section 4(4) does not seem to
       reflect the meaning of "最近一次...的危險評估" in the corresponding Chinese
       text.

Your response by close of play on 20 November 2000 would be appreciated.

Yours faithfully,

(Arthur CHEUNG)
Assistant Legal Adviser