Legislative and Best Practice Requirements for VDU (VDT) Use

United States

Prepared by Nicola Green October 2006

Summary of Requirements for United States

Aspect	Legislation Requirements / Regulation	Recommendations / Guidelines
General objectives		
Occupational Safety and Health Act[1]	• Section 5 (a) (1) requires employers to *'furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees'* • Section 5 (a) (2) requires employers to *"comply with occupational safety and health standards promulgated under this Act"*	• *Today's computer workstation has few hazards other than ergonomic that the typical worker will be exposed to if all components are functioning properly.* [1]
Note	• Twenty-six states have OSHA-approved State Plans and have adopted their own standards and enforcement policies. • For the most part, these States adopt standards that are identical to Federal OSHA. • Some States have adopted different standards applicable to this topic or may have different enforcement policies.	
Standard Interpretations[2]	• OSHA has issued no required standards or guidelines for the design of office environments or VDTs. Existing OSHA standards on electrical safety, radiation exposure and noise apply to all workplaces including office environments.	
Title 8, California Code of Regualtions, Section 5510 Repetitive Motion Injuries (RMI)[3]	Every employer subject to this section (where a RMI has occurred to more than 1 employee performing a job, process or operation) shall establish and implement a program designed to minimize RMIs. The program shall include a worksite evaluation, control of exposures which have caused RMIs and training of employees.	

Aspect	Legislation Requirements / Regulation	Recommendations / Guidelines
Employers' obligation		
Worksite evaluation[iii]	• Each job, process, or operation of identical work activity or a representative number of such jobs, processes, or operations of identical work activities shall be evaluated for exposures which have caused RMIs.	• Each VDT workstation or a representative number from a group of similar VDT workstations shall be initially evaluated using a worksheet. [4] • The evaluation should be repeated whenever the VDT workstation is significantly changed or in response to an ergonomic complaint or injury. [4] • Information to include location, evaluator, date, number of workstations, type of VDT equipment used, type of tasks performed, typical hours and work conditions of operations. [4] • Evaluation of workstation equipment to determine if the chair, work surface and VDT fit the operator or readily adjust, such that the operator can have the following elements of proper posture:[4]
Control of exposures which have caused RMIs[iii]	• Any exposures that caused RMIs shall, in a timely manner, be corrected or if not capable of being corrected have the exposures minimized to the extent feasible. • The employer shall consider engineering controls, such as work station redesign, adjustable fixtures or tool redesign, and administrative controls, such as job rotation, work pacing or work breaks.	
Health surveillance / monitoring		
General		
Visual testing		

Aspect	Regulation / Legislation Requirements	Recommendations / Guidelines
Training		
General[iii]	Employees shall be provided training that includes an explanation of: • The employer's program; • The exposures which have been associated with RMIs; • The symptoms and consequences of injuries caused by repetitive motion • The importance of reporting symptoms and injuries to the employer • Methods used by the employer to minimize RMIs.	Informed that:[6] • VDT equipment and/or work practices that caused repetitive motion injuries have been associated with RMIs. • Symptoms of RMIs associated with VDT use • Frequent short interruptions from keystroking/inputting are important • Maintaining proper posture and proper adjustment of the workstation to minimize RMIs is important.
Medical awareness[v]		Computer users should take the time to obtain awareness on • Factors related to specific computer components that may increase discomfort or risk of injury • Signs and symptoms of discomfort • How to correctly use and adjust components and environmental factors
Workers' obligation		
Health and safety / early reporting [5]		• It is important to report signs and symptoms as early as possible to prevent serious or permanent damage.

Aspect	Legislation Requirements / Regulation	Recommendations / Guidelines
Work routine		
Working time		
Daily work routine / breaks		• Ensure that the employees have frequent short interruptions from keystroking/inputting at regular intervals throughout the shift during which they can perform other duties or otherwise give their hands and wrists a break [4] • High repetition tasks or jobs that require long periods of static posture may require several, short breaks (micropauses or rest pauses).During these breaks users should be encouraged to stand, stretch, and move around. [5] • Build short micro pauses into computer use sessions. [5] • Every hour take a 5 minute break from computer tasks. Look away, stretch, get up, or walk. [5] • Alternate duties with non-computer tasks such as filing, phone work or customer interaction. [5] • Provide variation in tasks and workstations [5] • Make small adjustments to your chair or backrest [5] • Rest your eyes periodically by focussing on objects that are farther away [5] • Stop, look away and blink at regular intervals to moisten eyes. [5]

Aspect	Legislation Requirements / Regulation	Recommendations / Guidelines
Equipment		
Display screen / monitor[v]		• Position directly in front of you • At least 20 inches away (generally between 20 and 40 inches) (18 and 30 inches [4]) • Top line of screen is at or below eye level (the centre of the monitor should be 15-20 degrees below horizontal eye level) • The primary screen display is below eye level with primary viewing area from 1 to 60 degrees below the horizontal plane at eye level [4] • If using bifocal lenses, adjust monitor lower than non-bifocal use to maintain appropriate neck postures or use single-vision lenses for computer use • Place monitor perpendicular to window and positioned to minimize glare. • Tilt monitor so it is perpendicular to your line of sight, usually by tilting the screen no more than 10-20 degrees. • Should have brightness and contrast controls [4] • Periodically clean and dust monitor. • Isolate computer workstations from other equipment that may have electrostatic potentials in excess of +/- 500 volts.
Keyboard[v]		• Horizontal spacing between keys should be 0.71-0.75 inches and vertical spacing between 0.71-0.82. • Put the keyboard directly in front of you at a distance that allows your elbows to stay close to your body with forearms about parallel to the floor. • Adjust the chair height and work surface height to maintain a neutral body posture. • Elbows about the same height as the keyboard. • Vertical position of keyboard should be maintained within the recommended range. • Lower or raise keyboard or chair to achieve neutral wrist angles. • Elevate back or front of keyboard to achieve neutral wrist posture. • Consider alternative keyboards to promote neutral wrist postures. • Use a wrist rest to maintain straight wrist postures and to minimise contact stress during typing. • Move your hands freely above the wrist rest while typing. • Use wrist rests that are fairly soft and rounded to minimise pressure on the wrist. • The wrist rest should be at least 1.5 inches deep.

Work desk or work surface[v]		• Provide adequate space beneath the work surface for the users' legs. • Sufficient size to accommodate the VDT components, document holder and other task-dependent items • Minimum dimensions for clearance when seated in an upright position and reclined: 20 inches wide, 17 inches deep at knee level, 24 inches deep at foot level, 4 inches high at the foot, height adjustable between 20 and 27 inches. • Minimum adjustable dimensions for clearance when seated in an upright, reclines and declined position: height adjustable between 20 and 28 inches at the hip and 20 to 25 inches at the knee. • No more than 2 inches thick. • Keyboard tray may be needed is work surface or chair cannot be properly adjusted. • Keyboard tray should be height adjustable, provide leg and foot clearance, have adequate space for keyboard and input device. • Should allow the monitor to be placed directly in front of you at least 20 inches away. • Locate frequently used devices in the 'primary work zone'. • Purchase furniture with rounded desktop edges. • Pad hard edges with soft material to minimise contact stress.
Document holder[v]		• Documents should be at the same height and distance as the monitor. • Be stable. • Can be positioned directly beneath monitor.
Chair[v]		• Chair should be height adjustable. • Have a padded, rounded, 'waterfall' edge. • Wide enough to accommodate the hips. Approximately 18 inches wide. [4] • The backrest should conform to the natural curvature of your spine, provide adequate lumbar support, be height adjustable, adjustable back rest with at least 15° recline tilt with locking. • Be comfortable and allow you to rest your feet flat on the floor or footrest. • 5 star base with castors that allow easy movement along the floor. • Seat pan should be depth adjustable (15 to 17 inches) • The seat pan should be adjust for both height (minimum of 4 1/2 inches) and angle (plus or minus 5 degrees)[4]
Armrests[v]		• Using armrests is up to the user. • Armrests, if provided, should be adjustable and soft, • If the armrests can not be adjusted properly or if they interfere with your workstation remove them.

		• Armrests should be low and short enough to fit under work surfaces to allow users to get close enough to the work surface.[6]
Footrest		
Mouse /input device[v]		• Keep the input device close to the keyboard. • Alternate hands with which you use operate input device. • Use keyboard shortcuts to reduce extended use. • If keyboard tray/surface is not large enough to accommodate keyboard and mouse, use a mouse platform over the KB, install a mouse tray, use a KB with input device incorporated, use a kB without numerical pad, install KB trays that are large enough to hold KB and mouse • Use a mouse pad with wrist/palm rest to • promote neutral posture. • Select an input device designed to fit the hand, appropriately sized and that which require minimal force to generate movement, • Adjust the sensitivity and speed of the input device for comfort and ease of use. • Avoid gripping the input device tightly to maintain control. • A trackball exposed surface should be 100° and rotate in all directions. • Use a wrist rest to maintain straight wrist postures and to minimise contact stress during mouse tasks.
Telephone[v]		• Use a speaker phone or head set for long conversations. • Keep it close enough to avoid repeated reaching.

Aspect	Legislation Requirements / Regulation	Recommendations / Guidelines
Laptop / notebook computers[v]		• If laptops are to be used as primary work computers where intensive keyboard use is necessary, provide auxiliary, full-sized keyboards and monitors.
Software		
Working postures		
Seated[v]		• Neutral body positions should be maintained while working at the VDT • Head and neck balanced and inline with torso, shoulder relaxed, elbows close to body and supported, lower back supported, wrists and hands in line with forearms, feet flat on floor • Hands, wrists, and forearms are straight, in-line and roughly parallel to the floor. • Head is level, or bent slightly forward, forward facing, and balanced. • Shoulders are relaxed and upper arms hang normally at the side of the body. • Elbows stay in close to the body and are bent between 90 and 120 degrees. • Feet are fully supported by floor or footrest. • Back is fully supported with appropriate lumbar support when sitting vertical or leaning back slightly. • Thighs and hips are supported by a well-padded seat and generally parallel to the floor. • Knees are about the same height as the hips with the feet slightly forward.
Arm rests[v]		• Allow your shoulders to relax and your elbows to stay close to your body.

Aspect	Legislation Requirements / Regulation	Recommendations / Guidelines
Work environment		
Space[v]		• Keep clear space under all working surfaces.
Lighting[v]		• Place rows of lights parallel to your line of sight. • Provide light diffusers • Lighting for CRT monitors should generally be 20 to 50 foot-candles • Lighting for LCD monitors should generally be up to 73 foot-candles
Reflections and glare[v]		• Use blinds or drapes on windows • Use indirect or shielded lighting • Place face of display screen at right angles to light sources • Use glare filters on monitors • Glare filters should be used as a last resort since they can reduce visibility and legibility of screen.[6]
Noise		
Temperature / ventilation[v]		• Do not place workstations directly under air conditioning vents. • Uses diffusers to redirect and mix air form ventilation systems. • Keep air flow rates within 3-6 inches per second. • Keep relative humidity between 30 % and 60 %. • Temperature range between 68° and 74° F during heating season and between 73° and 78° during cooling season.
Radiation[6]		• To date there is no conclusive evidence that the low levels of radiation emitted from VDTs pose a health risk to VDT operators.

References

[1] http://www.osha.gov/SLTC/computerworkstation/standards.html

[2] http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=19527

[3] California Code or Regulations, Section 5110 Repetitive Motion Injuries
http://www.dir.ca.gov/Title8/5110.html
http://caselaw.lp.findlaw.com/data2/californiastatecases/c028525.pdf#search=%22cal%2Fosha%20221%22

Cal / OSHA 221 refers to the Appeal Court decision for Section 5110. This Section was repealed by the Court and then reinstated by the Appeals Court in October 1999 making it a valid regulation. Cal /OSHA 221 refers to the Court decision number 221 made with respect to Cal/OSHA.

[4] This is the Appendix to Section 5110: Ergonomics Program for VDT Operations (non-mandatory). It states that 'this ergonomics program may be used to comply with Section 5110 with respect to VDT operations'. http://www.ergoweb.com/resources/reference/guidelines/calergo2.cfm

[5] Occupational Safety & Health Administration (2003) Computer workstations eTool http://www.osha.gov/SLTC/etools/computerworkstations/pdffiles/pdf.html

[6] Occupational Safety & Health Administration (1997) *Working Safely with Video Display Terminals OSHA 3092* , US Department of Labor