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INTRODUCTION

Ergonomics is the science or study of the evaluation, planning, and adapting of equipment and tasks to promote the comfort of the human body for the health and efficiency of workers. When ergonomic design principles are applied to the equipment, furniture, and work environment of video display terminals (VDTs), visual and musculoskeletal discomfort and fatigue can be reduced significantly. This booklet can help workers and employers select, set up, and use VDTs in the workplace to reduce occupational safety and health hazards.

Part I discusses various health issues related to VDTs and VDT users. Part II covers environmental factors to consider in workstation evaluation. Part III discusses selection of VDT equipment and solutions to common physical problems related to VDT use. An equipment and set-up checklist completes the final section.

The issue of proper VDT use in the workplace is important to Oregonians. By issuing a directive for state managers and workers to follow, the State of Oregon has shown an interest in addressing the need for agencies to plan VDT workstations from an occupational safety and health perspective. In addition, the Oregon Public Employees Union contract with the State of Oregon requires state agencies to follow OR-OSHA guidelines when purchasing new or used VDT equipment, and to install, clean, and inspect the equipment as needed to ensure proper operation.

To facilitate the proper use of VDT equipment and help eliminate potential occupational safety and health hazards, OR-OSHA consultants are available to assist private and public-sector employers and workers in addressing occupational safety and health issues related to VDT use. If you are interested in receiving a free consultation, call one of the OR-OSHA offices listed on the inside back cover.
I. HEALTH CONSIDERATIONS

Noise
OR-OSHA staff has measured and found sound levels produced by VDT workstations and associated equipment to be consistently below those that damage hearing. However, equipment noise can still be disruptive, annoying, or distracting, and many people are sensitive to the low-level, high-frequency noise that a central processing unit (CPU) may emit. As a result, ambient sound levels should be kept below 55 decibels on the A-scale (dBA). Also, narrow-band tones above ambient sound levels should be reduced. It is good practice to isolate main CPUs and disk drives and provide noise-control covers on high-speed printers.

Fatigue
A few simple steps can reduce operator fatigue:

- Encourage VDT operators to get up and move around regularly. A three- to five-minute break after each hour of intense VDT work and a 10- to 15-minute break after two hours of moderate VDT work are recommended.
- Design the operator’s workload to accommodate reasonable rest pauses.
- Encourage workers to use good posture and change work positions often.
- Encourage body and eye exercises.
- Base work schedules on the visual demands of the task and the total work time at the VDT.
- Allow job rotation or substitution of a less-demanding activity.

Vision care
Complete eye exams should be conducted to ensure early detection and correction of poor vision. To ensure that corrective lenses provide a sufficient range of focus for VDT work, tell the examining ophthalmologist or optometrist that the employee’s work involves VDT use. New lenses have been designed specifically for VDT use.

VDT operators should tell ophthalmologists or optometrists how far it is from their eyes to the VDT screen. Measure this distance by extending a piece of string from the bridge of the nose to the screen and measuring the string. The differences in focal distances for book reading and VDT viewing may require different eyewear prescriptions.
Psychosocial issues
A healthy ergonomic work environment depends a great deal on the attitudes of those involved. How management handles or responds to problems or concerns relating to ergonomics may determine the development and the severity of many problems in the workplace.

To create a healthy work environment, all parties should understand their roles in the overall work process; those who use the equipment should participate in the selection of equipment, software, tools, and accessories. Employers should provide operator training for setup, adjustments, and risks associated with performing the job.

Radiation
Radiation types are distinguished by their frequencies. High-frequency radiation (such as X-rays) is called ionizing radiation. It can disrupt the normal chemical structure and function of cells in the body. Studies show that ionizing radiation emissions from VDTs are negligible and do not constitute a health hazard.

Lower-frequency radiation is called non-ionizing radiation. It includes lower-frequency ultraviolet radiation, visible light, infrared radiation, microwaves, and radio frequency and sub-radio frequency radiation. It has not been determined whether VDTs produce hazardous levels of these types of non-ionizing radiation.

VDT use and pregnancy
Although concern about on-the-job hazards related to VDT use during pregnancy has increased as more women of childbearing age are in the workforce, there is insufficient evidence available to support the assumption that exposure to VDT electromagnetic fields may cause birth defects and miscarriages. A study conducted by the National Institute for Occupational Safety and Health (NIOSH) and the American Cancer Society found no increase in the risk of spontaneous abortion (miscarriage) associated with the occupational use of VDTs. The conventional scientific opinion is that VDT use alone is not a hazard to the pregnant worker, but that the poor work postures and job stresses often associated with prolonged or intense VDT work are hazards.

In addition, the VDT workstation may have to be modified during pregnancy because of changing body proportion.

The references on the following page are provided for female VDT operators of childbearing age and their employers. Some of these articles are available from the OR-OSHA Resource Center.


II. WORKSTATION EVALUATION

Work area

The work area should be large enough to accommodate the operator, allow the full range of motions involved in performing the task, and have room for the equipment and materials that make up the workstation. An effective work area should be limited to the convenient reach of the operator, about 16" in front of or to the side of the operator.

Lighting and glare

An environment with high illumination washes out images on a video-display screen because a VDT produces its own illumination and contrast. For this reason, VDT work areas should have lower light levels than standard office areas. For these areas, illumination ranges should be 20-50 footcandles for screen viewing and 50-70 footcandles for reading printed documents.

Adjustable lamps may be needed to provide supplemental light for reading printed documents. To control direct glare and reflected-glare sources, the walls, furniture, and other equipment located near a VDT should not have highly reflective finishes. To reduce glare, walls can be painted non-reflective, subdued colors.

Windows should have adjustable vertical blinds or drapes, and the VDT work area should be located away from and at right angles to windows. During bright, sunlit periods, the window must be draped, shut, or shaded to prevent screen glare and eye fatigue. Employees must be able to adjust window blinds as needed.

Light fixtures should be equipped with diffusers, cube louvres, or parabolic louvres when located near VDTs. Recessed or indirect lighting systems can eliminate glare and reflections but are not suitable for all workplaces. To reduce glare and reflection from overhead lights, place the VDT work areas between rows of overhead lights.

Screen glare filters should be used as a last resort, as they can contribute to blurring and poor contrast of screen characters. Using screen filters is a supplementary solution and not a substitute for proper lighting as described above. The American Optometric Association has compiled results of screen glare filter tests. If screen filters are used, a supplementary visor hood should be considered.

Temperature and humidity

Set room temperature controls to maintain comfort (sufficient cooling and ventilation). Avoid overcrowding VDT work areas. Provide a fairly constant relative humidity level (40-60 percent is recommended). Do not direct warm air from CPUs and disk drives toward operators.

Static electricity

Provide anti-static floor mats or other static grounding in low-humidity workplaces.
II. PLANNING AND PROBLEM SOLVING: HOW TO SELECT VDT EQUIPMENT

**Display screens**
When viewed on the display screen, characters should not have a perceptible flicker or waiver. Letters and symbols should not be distorted or appear to melt together. Character size should be sufficient for the viewing distance (ANSI/HFS-100, 1988). In addition, workers should be able to adjust program controls to increase the size of the characters to make reading easy. The screen should have brightness and contrast controls and the user must know how to adjust them.

Color is secondary to contrast and clarity of the display, but low-contrast combinations must be avoided. Regular screen cleaning is necessary to maintain clarity.

When adjusting screen height, the topmost active line of the display should be at or slightly below the user’s line of vision. The topmost active line is the first line that is regularly used, not the top line of the status bar or command line. The viewing distance between the user’s eyes and the screen should be 16-29 inches when the neck is in the neutral position. Bifocal and trifocal users may want to position monitors lower on the work surface to avoid tilting their heads to read through the bottom portion of their lenses. Screens that swivel horizontally and tilt or elevate vertically enable the operator to adjust the screen for the best viewing angle. Mounting a video display monitor on an adjustable arm that allows movement in all directions is the most efficient way to provide flexibility, create workstation space, and allow more than one operator to use a workstation.

**Keyboards**

Choose a keyboard that is detached from the display screen to allow independent angle adjustment and positioning. The keyboard should have a thin profile from the desktop to the typing surface to minimize wrist deviation. Keys should provide tactile and audible feedback.

Movable keyboards with flat or negative tilt-angle adjustments will allow operators to arrange keyboards to suit them. Matte-finished keyboard surfaces reduce reflections, easing operator eye strain. Keyboards fitted with wrist or palm rests support operators’ hands by minimizing contact with table edges and minimizing wrist bending during pauses in keyboard activity. Wrist-pad thickness should not exceed the height of the first row of keys on the keyboard.

When using the keyboard, the operator’s hands, wrist, and forearms should be in a reasonably straight line, parallel to and slightly above the keyboard. The shoulders should be relaxed, with the elbows next to the body.
**Pointing devices**

The mouse or pointing device should be at the height of the keyboard and to either side of it. The arm should be held close to the body for support, with the hand, wrist, and forearm in a reasonably straight line parallel to and slightly above the mouse. There is a wide selection of control devices. You may need to consult a professional ergonomist regarding their proper use and positioning.

**Document holders**

The document holder should be stable and adjustable for height, distance, and angle of view. The holder fully supports the document and can be used on either side of the monitor or between the monitor and keyboard, minimizing the need for the operator to move the head, neck, or back to look from the screen to the document.

**Chairs**

A chair must fit the person using it, the task for which it is intended, and its environment. When environmental factors, task requirements, and individual preferences have been determined, consider individual dimensions before selecting a chair. Here are the key factors in selecting a chair:

- **Stability** — Choose a chair that has good stability (five-point base).
- **Seat** — An ideal seat-pan length allows two to three fingers’ width (about 3-3½ inches) from the front edge of the seat to the back of the lower leg at the knee when the worker’s back contacts the backrest.
- **Seat-pan angle** — The seat pan should adjust to positive, flat, or negative angles. The worker must be trained in the benefits of each angle adjustment.
- **Chair-height adjustment** — The height of the seat pan must be pneumatically adjustable by the operator when seated.

Ideally, the chair height should be adjusted first and then the workstation adjusted. In the event that the work surface is too high, the chair height needs to be adjusted upward until the hand, wrist, and forearm are parallel to the keyboard and slightly above the keys.

A footrest can then be added as needed to compensate for the increased chair seat height.

**Seat-pan padding**

Hard, unpadded seat pans are uncomfortable to sit on for more than an hour. Soft, deeply padded seat pans cause a person to sink too far, transferring the weight load from the buttocks to the surrounding tissues. This causes tension in the hip muscles and becomes uncomfortable. The seat pan design should promote lower back contact with the backrest.

The front edge of the seat pan should have a softly padded, rounded front edge (waterfall edge). Straight, unpadded seat pan front edges compress thigh tissues, restricting blood circulation. This causes pain and leg numbness. Seat-covering
material should be porous and breathable. Slippery seat pans may cause the operator to slide away from the backrest, thus providing little back support.

**Backrests**

Backrests should have a 15- to 20-inch-high support surface and about a 13-inch width, they should be vertically adjustable above the seat pan, horizontally adjustable over the seat pan, and should contour to the curve of the lower back. The backrest should be large enough to support the entire back, including the lumbar (lower back) region, but not so large that it interferes with the use of the arms during the performance of tasks. Chairs are available with sliding seat-pan adjustments for better back support.

**Armrests**

If chairs have armrests, the armrests should be adjustable to the user’s width and height. Armrests should allow the chair to fit under the work surface so that the user can get close enough to his or her work while continuing to use the chair’s backrest. Armrests that are too high elevate the shoulders, causing stiffness or pain in the shoulder or neck muscles. Armrests that are too low promote slumping and leaning to one side.

**Work surfaces**

Selection of a stable worktable with an adjustable surface and a separate, adjustable keyboard shelf is recommended. If a mouse is used, the work area should accommodate the mouse and keyboard on the same level. Adjustable-height worktables and keyboards allow for a variety of operators and tasks.

A workstation that adjusts in height for sitting or standing work postures may be desirable for some workers and tasks.

If a fixed-height worktable is used, an adjustable-height keyboard tray should be available. The keyboard tray must be wide enough to accommodate both a keyboard and mouse or other positioning and control devices and the height adjustment mechanism must not interfere with the user’s leg position. A fixed location keyboard tray moves the worker further from the work surface and does not allow flexibility in keyboard location. If the worker needs to reach to do other tasks, such as writing or answering the telephone, then consideration must be given to providing adequate space for these tasks.

All worktable surfaces should have a matte finish to minimize glare and reflection. The terminal table should also have sufficient leg room (depth and width), so there are no obstructions for knees, legs, shins, or thighs. The minimum depth for leg space is 15 inches at knee level and 23 1/2 inches at toe level. The minimum width for knee space is 20 inches. The minimum width of the work surface should be 30 inches and minimum depth should be 24 inches to allow proper placement of the keyboard, monitor, and work materials.
**Footrests**

If an operator’s feet do not rest flatly on the floor once the chair height has been properly adjusted, a footrest should be provided. Footrests should be stable, incline-adjustable, non-restrictive of leg movement, and removable. A footrest should be large enough to support the soles of both feet and should have no more than 30 degrees inclination. The top of the footrest should be covered with a nonskid material to reduce slippage.

**VDT-related health problems and solutions**

**Back problems**

Back pain is a common VDT user complaint. The back is a very complex structure; back problems can result from several causes.

**Problem:** A chair that fails to support the lumbar (lower) region of the spine is a common cause of back discomfort, because up to 35 percent more pressure can be placed on the lower back when sitting. The normal alignment of the spine, if viewed from the side, is an S-shaped curve with an inward curve at the neck, an outward curve in the middle of the back, and an inward curve at the lower back, the lumbar region. When a chair does not provide adequate lumbar support, the lower curve of the back flattens. When a person is seating himself, the bottom of the hipbone contacts the chair first. As the sitting process is completed, the hip actually rotates backward, flattening the curve in the lower part of the back. This causes the spinal discs to stretch from the vertebrae, causing back discomfort.

**Solution:** A chair that provides good low-back support and has the backrest set at the proper height can maintain the normal alignment of the lower spine, relieving fatigue and discomfort. Adjustment of the seat tilt can also maintain a comfortable alignment of the lumbar spine.

**Problem:** A straight-back chair provides little or no support to the lower and upper back. Sitting in such a chair causes back fatigue from muscular efforts to maintain back posture.

**Solution:** A tiltable backrest allows the user to change positions, reducing muscular effort and fatigue from sitting. A slight backward recline also helps to reduce the flattening of the lower spine when sitting.

**Problem:** When a chair is too soft, the user sinks into the seat pan. This restricts movement and causes thigh, buttock, and lower back fatigue. Conversely, when a chair is too hard, a user may need to change postures frequently to relieve thigh and buttock discomfort.

**Solution:** People spend much of their time at work sitting. This is especially true of VDT operators. A VDT user’s chair should be designed to allow free movement while sitting. The chair must be properly designed for comfort,
efficiency, and the task. Because VDT users’ chairs are very personal items, users must be involved in the selection and purchase of chairs. This will ensure that users are satisfied with their chairs and that the best chair has been selected for each user.

**Problem:** When a display screen is too low, it causes the operator to lean forward, slouch down, or lower his or her chair to improve screen viewing. This can cause the lower curve of the back to flatten as a result of no lumbar support.

**Solution:** Raise the monitor to the correct viewing height, so that the topmost active line of the character display on the screen is at or just below the operator’s eye level.

**Neck problems**

Neck strain is also a common complaint, and causes are often related to the VDT monitor height, the absence of a document holder, or improper positioning of the holder.

**Problem:** The monitor is too high or low, causing the user to bend the neck backward or forward to see the screen.

**Solution:** Lower or raise the monitor to the correct viewing height, as recommended under “Display screens” on Page 6.

**Problem:** Documents placed flat and off to the side of the work surface cause forward bending and twisting of the neck.

**Solution:** An articulated document holder or a document holder mounted on the monitor, positioned at the same elevation as the monitor screen, should relieve this problem. A document holder should be usable on either side of the monitor between the keyboard and the VDT screen.

**Problem:** The document holder is too far off to the side, causing repetitive neck rotation.

**Solution:** The screen and document holder should be the same distance from the eye to avoid constant changes of focus and close enough together so that the operator can look from screen to document without excessive neck or back movement.

**Shoulder problems**

Shoulder strain can occur when the user’s arms are positioned too high or too low. When VDT operators’ hands and arms are too high, they tend to pull their shoulders up, straining their shoulder and back muscles. When their hands and arms are too low, they pull their shoulders down, putting pressure on shoulder and back muscles and compressing nerves in the neck and arms.

**Problem:** The arms are too high or too low when using the keyboard.

**Solution:** Adjust the keyboard or chair and reinforce the principle of keeping the operator’s hands, arms, and forearms parallel to the keyboard.
**Problem:** The user’s arms are too high or too low when using the chair armrests.

**Solution:** Remove the armrests or replace with adjustable armrests.

**Forearm and hand problems**

Problems can occur if the user’s hands don’t form a straight line with the forearms or if the sharp edge of the work surface presses against the palms, wrists, or forearms.

**Problem:** The keyboard is too thick, too low, or too high, causing wrist bending.

**Solution:** Purchase thin keyboards to minimize wrist deviation. Adjustable-height and sloped keyboard trays make proper keyboard height and hand-wrist posture easier to accomplish. A keyboard fitted with a wrist rest will support the heel of the operator’s hand and minimize wrist deviation. The wrist rest thickness should not exceed the height of the first row of keys. Wrist rests are to be used *between* periods of typing.

**Problem:** The keyboard user supports the wrists on the edge of the work surface while typing or resting. This can cause backward bending of the wrist, numbness of the hand and fingers, or tingling.

**Solution:** All table surface edges should be rounded, and the keyboard should be retrofitted with a wrist rest.

**Leg problems**

Leg problems can result from decreased blood circulation. This causes the legs to fall asleep.

**Problem:** The edge of the seat pan presses against the thighs.

**Solutions:** A proper seat-pan length allows for a two- to three-finger clearance from the front edge of the chair to the back of the thighs upon properly adjusting the chair height to the workstation. Use a footrest if feet aren’t flat on the floor.

**Problem:** Excessive knee flexing from using the foot rungs on the chair or chair legs as footrests.

**Solutions:** Properly adjust chair and provide a footrest, as needed.

**Vision problems**

There are no conclusive studies to prove that permanent vision or eye problems are caused by VDT use; however, common complaints include eye strain, burning eyes, blurred vision, irritated eyes, and headaches.

**Solutions:** Because these complaints are associated with focusing at close range, the minimum eye distance should be 16 inches from the monitor.
Recommend a short rest break (3-5 minutes) following each hour of continuous VDT work, during which time the operator should get up and stretch, move about, or do other work. Periodically focus on distant objects. This relaxes eye muscles.

Uncorrected or improperly-corrected vision can aggravate any of these complaints. When getting fitted for glasses, VDT operators need to tell their eye care specialists that they perform VDT work regularly. The focal distance for reading (10-12 inches) is less than it is for VDT work (16-29 inches).

People wearing bifocals or trifocals have to tilt their heads back to read through the bottom portion of the lenses. This can cause neck strain. Correct the problem by lowering the VDT screen height or using single-focal-length glasses specifically for VDT use.

Poor or excessive lighting contributes to vision problems. The illumination level for VDT work should be 20-50 footcandles for screen viewing only and 50-70 footcandles for reading printed documents.

Room glare can be reduced or eliminated by lowering the lighting; having the operator sit facing a matte-finished, dark-colored wall; or adjusting the screen upward, downward, or slightly to the left or right. However, too much screen deviation can cause neck problems.

- Position the VDT workstation at right angles to the window.
- Install the VDT workstation between rows of overhead lighting.
- Install screen glare filters and visor hoods over the monitor screen. A screen glare filter should be your last resort, because it may reduce image quality.

Window glare can be reduced or eliminated by covering the windows with draperies or blinds.

- Install natural-density filter shades over the windows.
- Add outdoor window awnings.

Muscle fatigue problems

VDT work consists of fixed posture and repetitive motions, resulting in local muscle fatigue. Muscles need rest to prevent discomfort, fatigue, and possible injury or illness. To reduce muscle fatigue for VDT workers:

Take frequent breaks of shorter duration (three to five minutes) every hour.

Change job tasks to reduce fatigue and monotony, allowing different sets of muscles to be used.

Exercise to help relax tight muscles, reduce stress, and lessen the sense of general fatigue.
VDT selection and set-up checklist

Recommended VDT workstation criteria

- **1. Height of work surface:** Adjustable from 23-29 inches (58.4-73.6 cm).
- **2. Width of work surface:** At least 30 inches (73.1 cm) wide, but must have sufficient space for VDT and paperwork.
- **3. Viewing distance:** 16-29 inches (40.6-73.66 cm).
- **4. Thickness of work surface:** 1 inch (2.5 cm).
- **5. Eyes in relation to screen:** Topmost active line of display should not be higher than user’s normal line of sight, as described on Page 6. Employees who use bifocals or trifocals will require a lower height, which must be set individually.
- **6. Viewing angle:** The viewing angle refers to the angle between the forward line of sight and the topmost active line of the display. It represents the normal direction of sight of the eyes. If measured, this angle is about 15 to 30 degrees. The topmost active line is the first line of the display that is regularly used, not the status bar or command line.
- **7. Leg clearance width:** 20 inches (51.0 cm) minimum. (ANSI’s preferred minimum is 24 inches)
- **8. Leg clearance depth:** Minimum of 15 inches (38.1 cm) knee level; 23.5 inches (59.7 cm) toe level.
- **9. Leg clearance height:** Minimum of 26.2 inches (66.5 cm)
10. **Seat height**: Adjustable 16-23 inches (40.0-58.4 cm).

11. **Seat pan dimensions**: 13-17 inches (33.0-43.2 cm) depth; minimum of 18.2 inches (45.5 cm) width; “waterfall” front edge.

12. **Seat slope**: Adjustable 0-10 degrees forward and backward slope.

13. **Backrest size**: 15-20 inches high (38.1-50.8 cm); 13 inches wide (33.0 cm).

14. **Backrest height**: Adjustable 3-6 inches (8.0-15.0 cm) above seat.

15. **Backrest tilt**: Adjustable 15 degrees (approximately 7.5 degrees to both sides of vertical).

16. **Angle between backrest and seat**: Adjustable between 90-105 degrees.

17. **Angle between seat and lower leg**: 60-100 degrees.

18. **Angle of upper arm and forearm to keyboard**: Greater than 70 degrees and less than 135 degrees. Hands should be in a reasonably straight line with the forearm.

### Additional VDT workstation criteria

- **Fixed work surfaces**: The table surface should be between 28 and 30 inches (71 to 76 cm) high, with an adjustable keyboard and mouse tray.

- **VDT stands**: Use height-adjustable VDT stands in all new installations. For VDT stations that are shared or have more than one operator, an adjustable-height VDT stand is required.

- **Seats**: Use swivel chairs on a five-point base that are pneumatically adjustable from the seated posture.

- **Footrests**: Use if an operator cannot keep both feet flat on floor when chair height is properly adjusted to the work surface.

- **Keyboards**: Traditional, split, or ergonomic should all be considered.

- **Wrist rest**: The wrist rest thickness should not exceed the height of the first row of keys on the keyboard.

- **Mice or other pointing devices**: Locate the pointing device at the same height as the keyboard. When the operator’s hand is on the positioning device, the hand, wrist, and forearm should be in a reasonably straight line and the elbows should be next to the body.

- **Screens**: Must be readable with no perceptible flicker; brightness and contrast control necessary.
Glare control:

- Ensure that the VDT screen is placed at right angles to windows and that screens have tilt and swivel adjustments.
- Use windows with curtains, drapes, or blinds to reduce bright outside light.
- Use lighting levels at 20-50 footcandles when using a VDT; 50-70 footcandles where documents are read, compared to normal paperwork-only office lighting levels of 75-160 footcandles.
- Use cube louvres or parabolic louvres to reduce overhead-lighting glare.
- Ensure that work surfaces have anti-glare (matte) finish.
- Use movable task or desk lights; locate VDTs between rows of overhead lighting; screen filters and/or hoods if above are not successful.

Cables and cords: Keep concealed, covered, or out of way.

Ventilation: Use additional ventilation or air conditioning to overcome heat generated by more than one VDT workstation in the same room.

Temperature and humidity: Maintain thermal comfort and 40-60 percent relative humidity.

Noise: Use acoustical enclosures for printers if sound levels exceed 55 dBA. Isolate main CPUs and disk drives.

Training: Train operators to adjust workstation components, such as chairs, monitors, and document holders.

Fatigue control: Encourage good operator posture, body and eye exercises, rest pauses, and job rotation or substitution of less-demanding tasks.

Vision problems: Evaluate operators who may need to wear glasses or bifocals. Recommend that operators obtain a vision exam if problems persist.

Psychosocial issues: Include operator in the selection process; facilitate communication between operators and supervisors; choose user-friendly software; and provide training for set-up, adjustment, and risks associated with performing the job.


Visual Display Terminals (LP186R1), Liberty Mutual Insurance Company, Loss Prevention Department.


Workstation Design for Current Office Environments, American Society of Safety Engineers, Des Planes, IL.
OR-OHSA SERVICES

OR-OHSA offers a wide variety of safety and health services to employers and employees:

Consultative Services
- Offers no-cost on-site safety and health assistance to help Oregon employers recognize and correct safety-and-health problems in their workplaces.
- Provides consultations in the areas of safety, industrial hygiene, ergonomics, occupational-safety-and-health programs, new-business assistance, the Safety and Health Achievement Recognition Program (SHARP), and the Voluntary Protection Program (VPP).

Enforcement
- Offers pre-job conferences for mobile employers in industries such as logging and construction.
- Provides abatement assistance to employers who have received citations and provides compliance and technical assistance by phone.

Appeals, Informal Conferences
- Provides the opportunity for employers to hold informal meetings with OR-OHSA on workplace safety-and-health concerns.
- Discusses OR-OHSA’s requirements and clarifies workplace safety or health violations.
- Discusses abatement dates and negotiates settlement agreements to resolve disputed citations.

Standards & Technical Resources
- Develops, interprets, and provides technical advice on safety-and-health standards.
- Provides copies of all OR-OHSA occupational-safety-and-health standards.
- Publishes booklets, pamphlets, and other materials to assist in the implementation of safety-and-health standards and programs.
- Operates a Resource Center containing books, topical files, technical periodicals, a video and film lending library, and more than 200 databases.

Public Education & Conferences
- Conducts conferences, seminars, workshops, and rule forums.
- Coordinates and provides technical training on topics like confined space, ergonomics, lockout/tagout, and excavations.
- Provides workshops covering basic safety-and-health-program management, safety committees, accident investigation, and job-safety analysis.
- Manages the Safety and Health Education and Training Grant Program, which awards grants to industrial and labor groups to develop occupational-safety-and-health training materials for Oregon workers.
For more information, call the OR-OSHA office nearest you. (All phone numbers are voice and TTY.)

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