

HB

385

(7)

Date Referred: January 13, 1992

FURTHER REFERRALS:

Labor & Commerce  
Finance

Date of Committee Action: 2/14/92

The STATE AFFAIRS Committee considered:

HB 385

HOUSE BILL NO. 385

STATE EMPLOYEE VDT SAFETY

"An Act relating to video display terminals."

RECOMMENDATIONS:

be replaced with CS HB 385 (STA)  the same title  
 a new title

have attached amendments(s)

do pass

do not pass

no recommendations

individual recommendations

additional referral to the \_\_\_\_\_ Committee

ADOPTS: \_\_\_\_\_ letter of Intent

ATTACHES NEW FISCAL NOTE(S): \_\_\_\_\_ (Dept)

APPROVES PREVIOUS: \_\_\_\_\_ (Dept/Chair)

fiscal impact Admin

fiscal note(s) \_\_\_\_\_

zero fiscal note LABOR

zero fiscal note(s) \_\_\_\_\_

SIGNING DO PASS	DP	OTHER RECOMMENDATIONS	DNP	NR	AM
<i>Eugene G. Kubisa</i>					
<i>Mike Miller</i>					
<i>John Baber</i>					

*Eugene G. Kubisa*  
CHAIRMAN'S SIGNATURE

7-LS1567J -  
Cramer  
2/5/92

CS FOR HOUSE BILL NO. 385 ( )  
IN THE LEGISLATURE OF THE STATE OF ALASKA  
SEVENTEENTH LEGISLATURE - SECOND SESSION

BY

Offered:  
Referred:

Sponsor(s): REPRESENTATIVES ULMER, B.Davis, Bruckman

A BILL  
FOR AN ACT ENTITLED

1 "An Act relating to video display terminals."

2 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

3 • Section 1. FINDINGS. The legislature finds that

4 (1) the use of video display terminals poses a significant health and safety risk to the  
5 workers of the state;

6 (2) investigations conducted by the National Institute for Occupational Safety and Health  
7 of video display terminal (VDT) operators resulted in recommendations for workstation design and other  
8 measures to reduce musculoskeletal and vision complaints among VDT users;

9 (3) studies world-wide have demonstrated elevated musculoskeletal discomforts and other  
10 disorders in VDT operators as compared with non-VDT workers; research has shown that inadequate  
11 workstation adjustment and lack of operator knowledge of adjustments and other remedies are associated  
12 with musculoskeletal discomforts and other complaints; the consensus of the National Institute, the World  
13 Health Organization, and the American National Standards Institute is that adjustable VDT workstations  
14 in combination with training on proper adjustment of the workstation substantially contribute to a

1 healthier environment for VDT operators;

2 (4) reduction of the health and safety risks through education of state workers and  
3 modification or replacement of the VDT workstation and associated equipment will help prevent VDT  
4 related injuries, thus reducing health insurance and workers' compensation costs to the state.

5 \* Sec. 2. AS 39.90 is amended by adding a new section to read:

6 Sec. 39.90.160. VIDEO DISPLAY TERMINAL USE. (a) A state agency shall attempt  
7 to provide for proper use of video display terminals. The head of a state agency shall appoint,  
8 for each qualified worksite of the agency, a person responsible for providing information to other  
9 employees on the physical risks associated with improper use of video display terminals and on  
10 their proper use. The Department of Administration shall provide training to the appointee in  
11 the ergonomically proper use of video display terminals and the measures and work habits that  
12 may avoid or lessen physical risks associated with improper video display terminal use. If there  
13 are more than 75 terminals in close proximity within the same agency, the agency shall designate  
14 at least one qualified worksite for each 75 video display terminals.

15 (b) The Department of Administration shall prepare notices to advise state employees  
16 using video display terminals about the ergonomically proper use of the terminals. The  
17 department shall provide the notices to the persons appointed under (a) of this section. Those  
18 persons shall post the notices at the qualified worksite for which they are responsible and shall  
19 add information on how employees who desire more information may reach them.

20 (c) The Department of Administration shall prepare and make available to state agencies  
21 notices advising state employees using video display terminals at a worksite that is not part of  
22 a qualified worksite about the ergonomically proper use of video display terminals. Each state  
23 agency shall mail a copy of the notice to those employees who use a video display terminal at  
24 a location that is not part of a qualified worksite together with a statement advising the  
25 employees of the name and how to contact the nearest available person trained in proper use of  
26 video display terminals under (a) of this section.

27 (d) A state agency that purchases, leases, or installs office equipment related to video  
28 display terminal workstations shall comply with the American National Standard for Human  
29 Factors for Engineering of Visual Display Terminal Workstations, ANSI/HFS Standard No. 100-  
30 1988 or a subsequent standard that the commissioner of administration determines is at least as  
31 protective of the health and safety of the user of a video display terminal as that standard.

1           (e) This section does not  
2                   (1) create a cause of action by any person against the state or an agency of the  
3           state, whether at law or otherwise;  
4                   (2) establish a standard of care;  
5                   (3) amend or alter administrative remedies of employees; or  
6                   (4) amend or alter collective bargaining agreements entered into by the state or an  
7           agency of the state.

8           (f) In this section,  
9                   (1) "agency" or "state agency" includes the executive, legislative, and judicial  
10           branches of state government, the University of Alaska, and the Alaska Railroad Corporation;  
11                   (2) "qualified worksite" means a unit or cluster of at least four video display  
12           terminals in regular use that are housed together or in close proximity within the same agency;  
13                   (3) "terminal" or "video display terminal" means an electronic video screen data  
14           presentation machine, commonly called a video display terminal, and includes cathode-ray tubes;  
15           "terminal" does not include a television, cash register, or oscilloscope screen.

16    • **Sec. 3. REPORTS.** (a) The Department of Administration shall report to the legislature one year  
17    and two years after the effective date of this section on implementation of the training program and the  
18    equipment purchase requirements of AS 39.90.160, enacted by sec. 2 of this Act.

19           (b) The Department of Labor shall report to the legislature on or before January 15, 1993, and  
20    January 15, 1994, concerning injuries related to video display terminals that are identified in the initial  
21    report of occupational injuries.

22    • **Sec. 4. INITIAL TRAINING AND POSTING OF NOTICES.** The Department of Administration  
23    shall comply promptly with the requirements for preparation of notices and provision of training so that,  
24    within one year after the effective date of this Act, state agencies will have been able to comply with  
25    the requirements for posting notices and training current employees set out in AS 39.90.160, enacted by  
26    sec. 2 of this Act.

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To	Barnaby Dow	From	Jan B. Smith
Co.	Rep. Ulmer	Co.	Fish & Game
Dept.		Phone #	465-4160
Fax #	2108	Fax #	465-4168

January 27, 1992

Mr. Barnaby Dow  
State Capitol, Room 421  
Juneau, AK 99811

Dear Mr. Dow:


I understand Representative Fran Ulmer is requesting information regarding carpal tunnel syndrome and the use of video display terminals.

My first problem with carpal tunnel syndrome began about two years before I began working for the State of Alaska. At the time, I was employed as a nurse during the day and did medical transcription at home during the evening using an electric typewriter. During this time, I developed pain in my hands and wrists to the extent that at one point I had to wear custom-molded, fiberglass splints, sometimes on one and sometimes on both wrists. This continued until I stopped doing medical transcription at home.

In July 1988, I began working for the state as a clerk typist, and within a few months I began to have problems with my wrists again. While shopping for office supplies one day, I noticed a "wrist rest" device and requested permission to buy one. My supervisor thought I was being silly to want to spend state money in such a manner, but finally allowed the purchase. Coworkers ridiculed me for using the wrist rest, and frequently I returned to my desk to find the wrist rest on the floor. However, soon after beginning to use the wrist rest, my symptoms abated and I have had essentially no problems with carpal tunnel syndrome since.

In August 1990, I began working for the Department of Fish and Game, Division of Fisheries Rehabilitation, Enhancement and Development (FRED). Shortly thereafter, I obtained a wrist rest, received no ridicule for using it, and continue to be symptom-free.

Sincerely,



Jan. B. Smith



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# Alaska Health Project

Information and advocacy on occupational and environmental health.  
1818 W. Northern Lights Blvd., Suite 103, Anchorage, Alaska 99517  
(907) 276-2864 In State 800-478-2864 Fax 907-279-3089 Modem 907-279-3128

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January 23, 1992

Representative Ulmer  
State Capitol  
Juneau, AK 99801-1182

Dear Representative Ulmer:

The Alaska Health Project has for the past twelve years advocated for improved safety and health at the work place. We are in support of HB 385 on Video Display Terminals. The use of the keyboard and computer have become the basic tools for much of the State's work force. It is very important that any tool be used wisely and with precautions to prevent injury.

The video display terminal has many associated health problems including the position of the users hands, arms, back, legs, and neck and head. Working for many hours with limited breaks in physical posture creates strain on many body parts. An ergonomic review of any process that is repetitive and requires the body to maintain a particular position will show multiple areas of stress.

The incidence of spontaneous abortions among users of VDTs was first thought to be due to the electromagnetic fields. Upon further research it was found that it was due to long periods of the body being held in tension, in one position. This working position stress reduced circulation to the abdomen and contributed to the miscarriages. It is now recommended that any user of a keyboard be allowed a ten minute alternative work activity for each fifty minutes of typing. This stimulation of the body reduces stress and improves health.

We support HB 385. We would like to see it expanded in two areas. First, we would like to see it deal with the ergonomic concerns of all State employees in office activities. This would include individuals who are required to stand at counters or photocopy machines for extended periods. It should also deal with those who use standard keyboards on typewriters or calculators for long continuous periods.

Second, we would like to see it deal with the electromagnetic fields associated with electronic equipment.

Representative Ulmer

Page 2

This would include video display terminals, computers, copiers, blue line machines, laminators and other equipment which give off electromagnetic radiation. It is important to know where these machines are located, the extent of their fields as they pass through walls and floors, and how frequently employees are required to be within those fields. It is true that the exact impact of electromagnetic fields is currently under debate, however, the more recent investigations are finding that there does seem to be an increase in cancer promotion for those who regularly work in electromagnetic fields.

We support HB 385 and urge that it move forward. If possible we would appreciate inclusion of the above concerns to broaden the bill. Thank you.

Sincerely,

*Kris Benson for*

Carl M. Hild, M.S. Sci.Mgmt.  
Executive Director

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1 "An Act relating to video display terminals."

2 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

3 • Section 1. AS 39.90 is amended by adding a new section to read:

4           Sec. 39.90.160. VIDEO DISPLAY TERMINAL USE. (a) A state agency shall attempt  
 5 to provide a hazard free worksite for state employees who use a video display terminal. The  
 6 head of a state agency shall appoint, for each worksite of the agency at which video display  
 7 terminals are used, a person responsible for providing information to other employees on the  
 8 hazards and safe use of video display terminals. The Department of Administration shall train  
 9 the appointee in the hazards of video display terminals and the measures that may be taken to  
 10 avoid or lessen those hazards.

11           (b) The Department of Administration shall prepare notices to advise state employees  
 12 about the hazards and safe use of video display terminals. The department shall provide the  
 13 notices to the persons appointed under (a) of this section. Those persons shall post the notices  
 14 at the worksite for which they are responsible and shall add to the notices information on how

1 employees who desire more information may reach them.

2 (c) A state agency may not purchase, lease, or install office equipment related to video  
3 display terminal workstations unless the equipment complies with the American National  
4 Standard for Human Factors for Engineering of Visual Display Terminal Workstations,  
5 ANSI/HFS Standard No. 100-1988 or a subsequent standard that the commissioner of  
6 administration determines is at least as protective of the health and safety of the user of a video  
7 display terminal as that standard.

8 (d) In this section,

9 (1) "agency" or "state agency" includes the executive, legislative, and judicial  
10 branches of state government, the University of Alaska, and the Alaska Railroad Corporation;

11 (2) "terminal" or "video display terminal" means an electronic video screen data  
12 presentation machine, commonly called a video display terminal, and includes cathode-ray tubes;  
13 "terminal" does not include a television, cash register, memory typewriter, oscilloscope screen,  
14 or fixed console computer aided design drafting (CADD) hardware equipment.

15 \* Sec. 2. REPORTS. (a) The Department of Administration shall report to the legislature one year  
16 and two years after the effective date of this section on implementation of the training program and the  
17 equipment purchase requirements of AS 39.90.160, enacted by sec. 1 of this Act.

18 (b) The Department of Labor shall report to the legislature on or before January 15, 1993, and  
19 January 15, 1994, concerning injuries arising from the use of video display terminals in the workplace.

# RSI

has become the nation's leading work-related illness. How are reporters and editors coping with it?

BY DIANA HEMBREE AND RICARDO SANDOVAL

◆ 1988: A young reporter arrives for her first day of work at the Concord, New Hampshire, *Monitor*. In the ensuing weeks, she finds that the newsroom increasingly resembles a combat zone: several reporters on the small staff have their arms wrapped in Ace bandages or held stiff by plastic braces. At times, some move about with their arms held out like sleepwalkers; others dash to the restroom: periodically for warm-water wrist massages. What is going on around here? the reporter asks herself.

◆ 1990: During a long staff meeting at the *Sun Jose Mercury News* in northern California, a number of reporters fiddle with the laces of their wrist braces or annoy colleagues with the "zip, pop ... zip, pop" of Velcro snaps. Missing is one veteran reporter who has recently undergone neck surgery — an extreme remedy that one newsroom executive considers the result of years of typing notes with the phone receiver tucked between shoulder and ear.

◆ 1991: Reporters at the *Los Angeles Times* saddle up for a "chair derby" — a noisy free-for-all in which normally

serious journalists test-drive ergonomically correct chairs and other equipment. Nearby, several colleagues play with pneumatic height-adjustment buttons like kids who have just discovered a car's power windows.

These are snapshots of life in today's newsrooms — workplaces in which one finds increasing numbers of employees who suffer from disabling hand, arm, neck, and shoulder disorders collectively known as Repetitive Strain Injury, or RSI (see "A Newsroom Hazard Called RSI," *CJR*, January/February 1987). Since 1987, RSI has ranked as the country's leading occupational illness. Two years ago the Department of Labor estimated that the number of cases of disorders associated with repeated trauma had climbed to 146,000 — six times higher than the 1980 figure.

No one knows for certain how many of the afflicted are journalists, but some figures provide at least a rough outline of the extent of the problem. David J. Eisen, director of research and information for The Newspaper Guild, says that the guild has logged nearly 3,000 cases of RSI among employees in the Canadian and U.S. news industries, a figure he believes represents only a fraction of the total. Citing the need for more surveys, Eisen says, "RSI is like rice in a kettle of soup. It doesn't come

to the surface until you've stirred the pot."

Eisen's claim that RSI is underreported is backed up by a study by the California Department of Health Services, which found that in California's high-tech Santa Clara County state occupational safety and health officials had reported seventy-one cases of carpal tunnel syndrome in 1987 — the same year that health-care providers there reported treating nearly 4,000 cases of the same work-related form of RSI. Ironically, new policies that some newspapers have adopted to prevent RSI may discourage journalists from reporting their disorders.

Consider the example of the *San Francisco Examiner*, where a full 60 percent of the editorial and clerical staff responding to a guild survey reported symptoms of RSI. Early this year the paper decided that several employees whose doctors had determined they should work only part-time would be sent home on disability, which pays roughly one-third of a person's salary. One disgruntled editor said in a recent interview, "I have RSI and I don't know anyone [around here] who doesn't, but I'm certainly not going to tell management about it now. To me, the policy means that if they cripple you they can just throw you away." (*The Examiner*

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*Diana Hembree is news editor and Ricardo Sandoval an associate of the San Francisco-based Center for Investigative Reporting, where several employees have recently developed symptoms of RSI.*

# VDTs and Workplace Harmony

from *Labor Relations Today*

COMPLIMENTS OF THE  
ALASKA STATE LIBRARY

*Editor's Note: Information professionals have been using video display terminals in higher than average numbers since their arrival in the workplace. Now we must seriously consider the effect they may be having on our employees.*

Video display terminals (VDTs) first appeared in America's workplaces during the 1960s. Since then, their numbers have grown in immense proportions, from less than a million in 1976 to more than 40 million in American workplaces today. By the year 2000, experts estimate that half of all Americans will be operating VDTs at work. But as VDT use increases, so do reported incidences of carpal tunnel syndrome (CTS).

A nerve disorder, CTS is grouped with repetitive motion injuries such as tendonitis and other disorders affecting the back, hands, wrists and arms. "There has been an exponential explosion in the reporting of these disorders," according to Dr. Roger Stephens, an ergonomist at the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA).

This surge in diagnosed cases of cumulative trauma disorders—CTS in particular—is plaguing an increasing number of white-collar workers, even though traditionally CTS has been associated with workers in manufacturing jobs requiring intensive hand movements. The reason? The disease primarily is caused when repetitive, but not necessarily forceful, motions are made with bent or twisted wrists. Thus, the wrist, hand and finger movements commonly made by VDT users can trigger CTS.

Over time, continuous motions can irritate tendons, which begin to press against a main nerve. The condition can quickly grow worse, because the irritated tendons swell and compress the main, or Median, nerve in the fairly narrow carpal tunnel.

During early stages of CTS, stopping the aggravating activity, splinting the wrist during rest and taking anti-inflammatory drugs can ease the symptoms and even help recovery. Advanced

remains debilitating for life.

Reducing incidences of CTS basically requires an ergonomic work environment: designing a workstation that fits the worker instead of expecting the worker to fit. "The crux of the issue," says Stephens, "is adjustable workstations. If you don't have those, you're hamstrung."

Yet, typically, VDT workstations (and most jobs for that matter) are designed "for that mythical 50-percentile individual, which means that most everything is too big for half of the folks or too small for the other half," Stephens says.

Fortunately, increasing numbers of companies are addressing workstation redesign to reduce CTS's frequency. US West in Phoenix has offices "as close to ergonomically perfect as you can get," according to David LeGrande, Occupational Health and Safety Coordinator for the Communications Workers of America (CWA).

LeGrande co-chairs the US West joint ergonomics committee that developed guidelines for the company's recently redesigned workstations. "The activity [on workstation ergonomics] at US West was substantive. It involved people at the top who had an opportunity to implement policy," LeGrande says.

Confronting occupational ergonomic problems benefits employers and employees. Workers are healthier, absenteeism is lower and morale improves. To achieve these benefits, however, workplace hazards that lead to problems like CTS must first be acknowledged and corrected.

Soon, many more employers may find themselves looking into workplace ergonomics, if San Francisco officials' recent action is any indication. In December its Board of Supervisors approved the country's most far-reaching VDT safety legislation, although busi-

**"You have to educate the people; they're slouchers. They sit in such weird positions. We have to convince them that they'd feel better if they sat in an ergonomic position."**

ness stages, however, are characterized by weakened grip, continual numbness and persistent pain. Once the condition exists in an advanced stage, it has no guaranteed cure.

Surgery—an expensive "last resort" that can quickly drain employee benefit funds—often alleviates pain, but does not always allow the CTS sufferer to return to work. In fact, surgery can actually aggravate the condition, which then

nesses have up to four years to comply with its standards. It requires city and government agencies and businesses with 15 or more employees to provide adjustable chairs and keyboards and, upon request, glare screens and wrist rests for employees working four hours or more daily at VDTs. The ordinance also requires employers to grant VDT users short rest breaks after two hours of continuous work.

Several other state legislatures and city governments are looking into VDT safety legislation, as well. While no federal VDT safety law exists right now, OSHA can cite ergonomic hazards, like ill-designed VDT stations, under a catch-all clause covering occupational hazards that don't have federal standards as yet.

Completely eliminating carpal tunnel syndrome, however, calls for worker awareness as well. "You have to educate the people; they're slouchers. They sit in such weird positions," says Hester Hursh, Wisconsin Bell's Medical Director. "We have to convince them that they'd feel better if they sat in an ergonomic position."

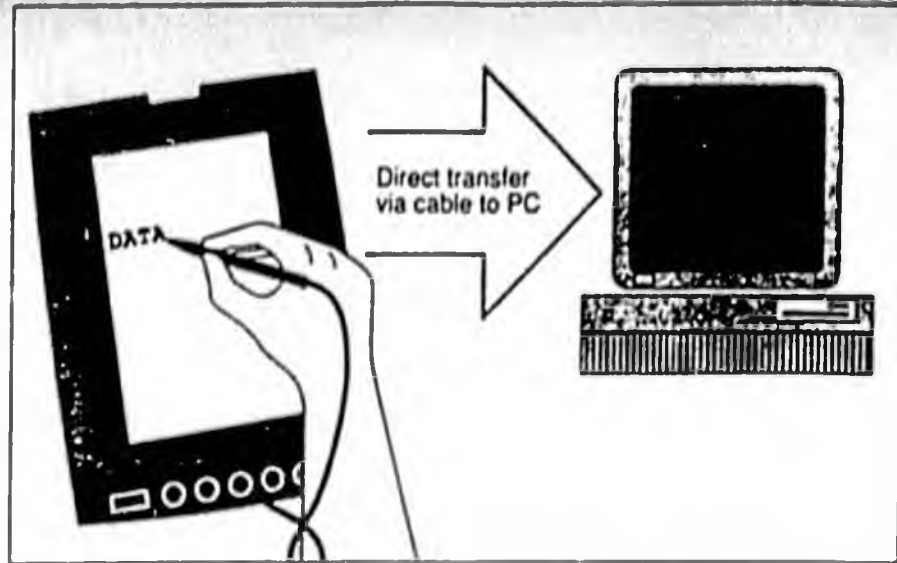
According to published OSHA guidelines, workers should take frequent short rest breaks from their VDT stations and should sit up straight when working at the terminal with hands and forearms parallel to the floor and wrists straight.

Launching ergonomic educational training programs and redesigning workstations—even retrofitting existing desks and keyboards with ergonomic adjustments—is not cheap. LeGrande says it costs at least \$1500 per workstation to make comprehensive ergonomic corrections, including the operator's chair, keyboard, table, any screen and window glare, overhead and area lighting, and foot or wrist rests.

But treating CTS has an even bigger price tag. According to OSHA, CTS costs about \$3500 in benefits and rehabilitation and up to \$30,000 in surgery fees and indirect costs per person.

"It's cost effective to do ergonomic analysis," says Stephens. "It's a proactive endeavor where workers, management, government and academia can work together to try and improve the quality of methods, tools, workstations, and lastly, the work itself."

*Labor Relations Today is published bi-monthly by the U.S. Department of Labor, Management Relations and Cooperative Programs.*



*The electronic clipboard (left) recognizes the user's handwriting, eliminating the need to retype field test data.*

## Using Clipboard Computers for Field Tests

by Ed Watt

Testing high-tech equipment in the field is a study in contrasts. The system under test may employ state-of-the-art computers, but the testers themselves use the lowliest of low-tech data collection systems: a pencil, a sheaf of paper forms and a clipboard. Of course, there is nothing wrong with this approach, unless the data are destined to be reduced by computer. Then someone has the tedious job of re-typing all that information, while the test officer worries about errors, lost time and increased expense.

All that may be a thing of the past. The U.S. Army Electronic Proving Ground (USAEPG) has begun using electronic clipboards—portable computers that accept handwritten input and convert it to PC-compatible data—to streamline the cycle of data collection, reduction and analysis. Apart from the obvious benefit of eliminating the need to keypunch manually collected data, use of these computers on a recent test demonstrated other advantages: improved error-checking, better control over the conduct of the test and closer coordination with the test customer.

### Description

The electronic clipboard is a lightweight, PC-compatible portable computer with a large liquid-crystal display (LCD) screen. Although the unit can accept input from a detachable keyboard, its unique aspect is the transparent touch-sensitive screen built into the display. The user writes (in block capital letters) on the screen with an electronic stylus. Initially, the computer displays an electronic image of the user's pen strokes directly under the point of the stylus, giving the user the feeling of writing on a slate. After a moment of computation, computer-generated characters replace the handwritten input. If there is an error in this interpretation, the user can cross out the incorrect character and rewrite it.

The electronic clipboard can be programmed to display data entry forms on the screen, very much like paper forms. Unlike paper forms, the entry fields can be set up to accept only particular kinds of input data—letters or numbers, for example—or to accept data only within a particular range. To turn pages, the user touches

# Casualties of the Keyboard

A push to end injuries from computer use

The pain in Susan Harrigan's arms at times has been so intense that she couldn't open doors or clean her teeth. Even worse, she can't teach her 8-year-old daughter to roller-skate because it hurts too much to hold the child's hand. "The slightest use of my arms can set off the pain," says Harrigan, a reporter at the Long Island newspaper *Newsday*. Harrigan is one of a dozen journalists at several news organizations who have filed several suits recently against Alex Publishing, the Bedford, Mass.-based company that designed and manufactured their employers' computer systems. (Alex, which includes *Newsweek* among its clients, has declined to comment on the suits.) The journalists claim that the design of their computers has led to neck, wrist, hand and arm pain—a syndrome doctors call repetitive strain injury (RSI).

A few decades ago, on-the-job injuries conjured up images of employees stooped by hard labor or felled by heavy equipment. But with automation, more and more workers are spending their days tethered to a computer. That may seem like safer work, but many occupational-safety specialists contend it can be just as hazardous to employees' health as old-fashioned factory work. According to the Bureau of Labor Statistics, RSI accounted for nearly half of all 1988 workplace illnesses in private industry, compared to only 18 percent in 1981. This group still includes meatpackers and textile workers, who have long been susceptible to RSI; but the big addition has been data processors, whose job performance is often judged by the amount of information they put into the computer within a set time. Journalists are at risk because they spend long hours at the keyboard under deadline stress.

Fears about working with computers are not new. Since the widespread introduction of video-display terminals (VDTs) into the workplace in the late 1970s, many employees have worried about the possible side effects of spending so much time in front of a terminal. Some of those concerns abated in the early 1980s, when government researchers found that VDTs presented no real danger from excessive

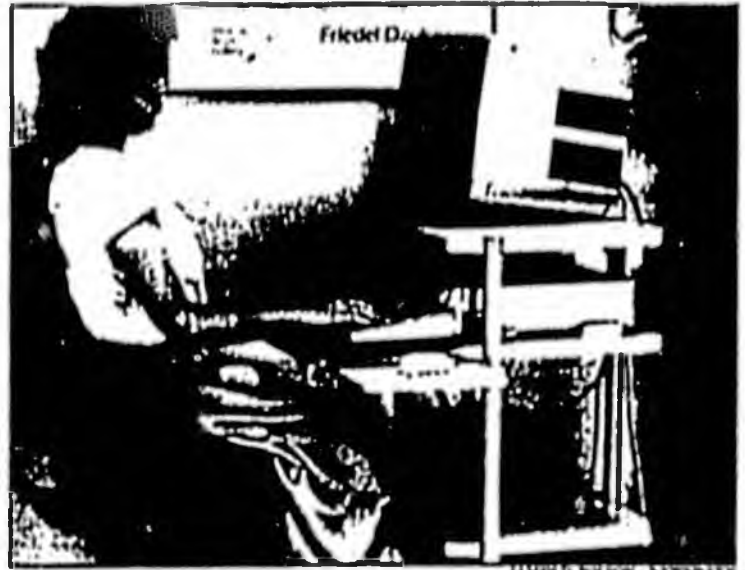


## BAD?

Employees at *Newsday* work in front of their video display terminals; many have complained of injuries

## BETTER?

Workers suffer fewer injuries when their screens are at or just below eye level and their tables are adjustable



radiation. Then, a few isolated studies seemed to indicate some increase in miscarriages among pregnant women using video-display terminals. But so far, scientists have been unable to establish any clear connection between miscarriages and computers.

The real hazard seems to be the nature of the work itself. Hours at the computer put continuous stress on the wrists, elbows and shoulders. Tendons in the arm become inflamed, squeezing the nerves; the result is numbness and pain. Without early diagnosis and treatment, these injuries can develop into serious lifelong disabilities and loss of ability to work.

Fortunately, experts on ergonomics, who study how humans adapt to the workplace, believe that a few design alterations can minimize problems. Next month, the government is expected to issue voluntary guidelines that reflect current knowledge in office design. "We must consider the work station as a whole," says Susan Burt of the National Institute of Occupational Safety and Health.

Most experts agree on some general rules for office design. To ease back and neck tension, terminals should be placed so that the top of the screen is at eye level or

just below. Adjustable terminal bases and desks allow for differences in height and build. Feet should be flat on the floor and, with elbows at 90 degrees, fingers should just reach the keyboard comfortably. Chairs should provide good back support. Glare from windows or indoor lighting should be minimal to prevent eye strain. Some doctors think computer screens with white backgrounds produce less glare than those with dark screens.

**Warning signs:** Employees can take some preventive measures on their own as well. Experts say that frequent short breaks from work are crucial. Dr. Linda Morse, a Santa Clara County, Calif., occupational-health official who has been working with RSI patients for a decade, says computer users should—at the very least—stretch their arms for a few minutes each hour. Employees should be alert for early symptoms. The sooner RSI is treated, the more likely a complete recovery. Warning signs include discomfort, stiffness or pain.

The key, experts say, is to make the office adapt to humans instead of the other way around. Then the office of the future will work for everybody.

BARBARA KANTROWITZ and  
ROSEANNE COONELL

# Alaska State Legislature

Legislative Research Agency



P.O. Box Y  
Juneau, AK 99811-3100  
Phone: (907) 165-3991  
Fax: (907) 163-3331

October 4, 1991

## MEMORANDUM

TO: Representative Fran Ulmer

FROM: Linda J. Snow *L. Snow*  
Legislative Analyst

RE: Repetitive Strain Injury Associated with Use of Video Display Terminals  
Research Request 92.043

You asked for information about adverse health effects associated with the use of video display terminals (VDTs). You specifically asked about the incidence and seriousness of repetitive strain injuries (RSI), and what Alaska state government positions are most at risk for this type of injury.

In this report, we present a summary of a recent report by the National Institute for Occupational Safety and Health (NIOSH), entitled *Occupational Health Aspects of Work with Video Display Terminals*.<sup>1</sup> Next we discuss the types of occupations that are most likely to be affected by RSI and other injuries associated with VDT usage.<sup>2</sup> We then identify which positions held by state employees are most at risk to develop the foregoing types of injuries.

## SUMMARY OF RECENT NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH REPORT

Today, about half the jobs in the U.S. involve work with VDTs. Many studies have examined the possible health effects of VDT use. A recent unpublished report by the NIOSH (February 1991) entitled *Occupational Health Aspects of Work with Video Display Terminals* reviews and summarizes the existing reports on the subject. The report discusses four areas of health concern for VDT users. These areas are visual system dysfunction (eye strain), musculoskeletal disorders, stress and adverse pregnancy outcomes.

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<sup>1</sup>This study was completed by NIOSH in February 1991. It has not yet been published.

<sup>2</sup>Repetitive strain injury results from repeating the same motion over and over. It can lead to inflammation of joints and pain and numbness of extremities.

### Eye Strain

Eye strain (including sore eyes, blurred vision and headaches) is the most common health complaint of VDT users. At least 50 percent of VDT users have reported occasional symptoms of eye strain, although eye strain is not unique to VDT work. There is little evidence of enduring functional problems resulting from VDT-related eyestrain. Recent studies suggest no link between the use of VDTs and increased risk of cataract development.

Some suggestions to lessen the adverse impact of VDT work on vision are: 1) to test and correct the vision of the affected workers; 2) to modify VDT display characteristics such as contrast, sharpness, type design, image stability and color to reduce discomfort; and 3) to provide adequate and appropriate workplace lighting.

### Musculoskeletal Disorders

Early NIOSH studies have shown that 75 percent of VDT workers experience occasional back and neck discomfort on the job. More recent NIOSH studies show that 20 to 25 percent of VDT workers experience almost daily upper torso discomfort.

Musculoskeletal disorders include repetitive strain injuries (RSI). About 40 percent of 834 newspaper employees studied reported symptoms of cumulative trauma disorder during a one-year period. Neck and shoulder pain were prevalent complaints of the subjects. However, recent studies have shown that the hand and wrist are also susceptible to musculoskeletal disorders in VDT work. Although there is no conclusive evidence of RSI from use of VDTs, the World Health Organization stated in a recent report that injury from repeated stress is possible. Recent studies seem conclusive that chronic pain and disability are influenced by cultural, social and psychological forces. However, physical causes of chronic pain and disability cannot be ruled out.

Evidence exists that ergonomic changes in the work environment can reduce musculoskeletal discomfort associated with VDT use. It appears that the stationary and sedentary characteristics of VDT work are the primary risk factor. Tasks can be redesigned to allow for job rotation and more frequent rest breaks. Improved work station design may lessen musculoskeletal discomfort.

### Stress

A third health effect examined in the NIOSH study is stress. In the U.S., increased VDT usage has caused a change in the content and organization of work tasks. Following is a list of factors that contribute to stress in VDT workers:

- increased work pressure;
- reduced autonomy;
- increased management control over the work process;
- concerns about computer breakdowns and delays;
- physical immobility;
- excessive repetition;
- reduced skill and experience levels;
- reduced task variety; and
- more uncertainty over job security and promotion opportunities.

Although stress is apparent in all VDT-related jobs, it is most pronounced in lower-level clerical jobs. Stress may result in mental disorders, cardiovascular diseases and psychological disorders. In California, 70 percent of workers compensation claims from stress came from white collar workers, and 40 percent came from the sales and clerical level. Stress can be relieved by making jobs challenging and varied; making sure that tasks have some kind of closure, or an end product; and by improving the social environment of the workplace.

#### Adverse Pregnancy Outcomes

It has long been claimed that VDT usage causes adverse pregnancy outcomes; however, no conclusive evidence of any relationship between VDT use and adverse pregnancy outcomes is available. A recent NIOSH report on the subject found no relationship between the two.

#### AT-RISK OCCUPATIONS

According to Betsy Jordon with the Bureau of Labor Statistics in Washington, D.C., disorders associated with repetitive motion (RSI) now make up 52 percent of reported job-related illnesses. Reports of carpal tunnel syndrome have increased more rapidly in recent years than reports of any other job-related illness.

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<sup>3</sup>Carpal tunnel syndrome is the swelling of the tendons where they pass through the front of the wrist. The resulting pressure can cause pain, numbness and weakness of the hands.

Representative Ulmer  
October 4, 1991  
Page 4

Barbara Webster, with the Liberty Mutual Insurance Company, stated that 1.5 percent of that company's insurance claims, and 2.5 percent of their costs in 1990, were for RSI. The average award per case in 1990 was \$6,168. Ms. Webster said that no one in the insurance industry keeps statistics on the occupations of those making claims for RSI, but managers in the insurance industry generally believe keyboard operators are one of the highest at-risk groups for that type of injury. The industries most affected by RSI are:

- meat and poultry cutting and packing industry;
- electronic manufacturing industry;
- telephone operators; and
- data entry/secretarial agencies.

The fourth category, secretarial and data processing agencies, file 1 percent of all workers' compensation claims in the U.S. A large number of claims for RSI are filed by reporters, automotive workers, and upholsterers.

In Alaska, 289 of 11,998 workers compensation claims made in 1990 were for inflammation of the joints. According to Jim Wilson, labor economist with the Alaska Department of Labor, this category of injury is caused almost exclusively by repetitive motion. Carpal tunnel syndrome is not included in the foregoing category of injury and is difficult to separate from its primary category of nervous system disorders.

#### STATE EMPLOYEES IN AT-RISK OCCUPATIONS

Table A (attached) presents a list of the most obvious job classes at risk to develop RSI and other VDT-associated health disorders in Alaska state government. It is difficult to tell what the exact duties of a particular position may entail, however, those listed in Table A are likely to require many hours of typing or data entry using VDTs. Just as some of these positions may not use VDTs for a significant portion of their duties, many other job classes not listed here (the state has over 1,300 job classes) may use VDTs for a major portion of their work day. The 2,056 positions represented by these job classes account for nearly 10 percent of the total positions in state government.<sup>4</sup>

I hope this information is helpful to you. If you have further questions, please feel free to call this office.

Attachment

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<sup>4</sup>The state FY 92 budget (after vetoes) funds 21,018 positions.

**TABLE A**

**State of Alaska Positions at Risk  
for Repetitive Strain Injury  
(as of September 1991)**

<b>CLASS CODE</b>	<b>CLASS TITLE</b>	<b>NUMBER OF POSITIONS</b>
1122	Clerk Typist II	93
1123	Clerk Typist III	786
1145	Legal Secretary I	99
1146	Legal Secretary II	30
1151	Secretary I	106
1152	Secretary II	24
1182	Correspondence Secretary I	4
1183	Correspondence Secretary II	4
1184	Correspondence Secretary III	12
1185	Administrative Support Technician I	3
1186	Administrative Support Technician II	0
1187	Administrative Support Technician III	9
1188	Administrative Support Technician IV	4
1191	Data Processing Clerk I	38
1192	Data Processing Clerk II	60
1193	Data Processing Clerk III	16
1201	Accounting Clerk I	4
1202	Accounting Clerk II	98
1203	Accounting Clerk III	144
1204	Accountant I	4
1205	Accountant II	26
1210	Accounting Technician I	100
1211	Accounting Technician II	66
1212	Accounting Technician III	32
1217	Permanent Fund Dividend Specialist I	11
1218	Permanent Fund Dividend Specialist II	2
1219	Permanent Fund Dividend Specialist III	2
1610	Data Processing Assistant	2
1611	Data Processing Technician I	14
1612	Data Processing Technician II	27
1613	Data Processing Technician III	12
1621	Analyst Programmer I	10
1622	Analyst Programmer II	26
1623	Analyst Programmer III	64
1624	Analyst Programmer IV	92
1625	Analyst Programmer V	52
	<b>Total</b>	<b>2,056</b>

**Note:** This table presents the number of existing state positions. These positions may or may not be filled at any given time.

**Source:** Alaska Department of Administration, Division of Personnel.

**Prepared by the Legislative Research Agency, October 1991 (92-043A)**

TESTIMONY OF DEBRA KNUTSON  
BEFORE THE HOUSE STATE AFFAIRS COMMITTEE  
HONORABLE GENE KUBINA, CHAIRMAN  
ON HOUSE BILL 385  
"STATE EMPLOYEE V.D.T. SAFETY"  
JANUARY 29, 1992

GOOD MORNING. MY NAME IS DEBRA KNUTSON. FOR THE RECORD, MY MAILING ADDRESS IS 5875 GLACIER HIGHWAY, NO. 4, JUNEAU, ALASKA 99801.

I WANT TO BEGIN MY TESTIMONY BY THANKING CHAIRMAN KUBINA FOR ALLOWING ME TO TESTIFY ON BEHALF OF HOUSE BILL 385, AND BY THANKING REPRESENTATIVE FRAN ULMER FOR INTRODUCING THIS MUCH-NEEDED LEGISLATION.

FOR THE PAST 10 YEARS, I HAVE WORKED IN THE ALASKA DEPARTMENT OF ADMINISTRATION'S TYPING POOL AND WORD PROCESSING CENTER, AND FOR TWO YEARS PRIOR TO THIS I WORKED IN THE ALASKA DEPARTMENT OF EDUCATION AS A CLERK TYPIST. IN THE PAST 12 YEARS, MY WORK HAS CONSISTED ALMOST EXCLUSIVELY OF TYPING EITHER ON TYPEWRITERS, AS I DID IN THE DEPARTMENT OF EDUCATION, OR ON COMPUTER KEY BOARDS WITH VISUAL DISPLAY TERMINALS.

I SUPPORT HOUSE BILL 385 BECAUSE MY WORK EXPERIENCE WITH THE STATE LED TO MY DEVELOPING CARPAL TUNNEL SYNDROME AND THE NEED FOR CORRECTIVE SURGERY. I BELIEVE THIS BILL CAN NOT ONLY PREVENT OTHER STATE WORKERS FROM DEVELOPING THIS SYNDROME AND THE SURGERY NEEDED TO CORRECT IT, BUT ALSO BECAUSE, IF ENACTED BY THE LEGISLATURE, THIS BILL CAN SAVE THE STATE MONEY IN TERMS OF LOST EMPLOYEE WORK TIME, HEALTH BENEFIT COSTS TO THE STATE AND WORKERS' COMPENSATION COSTS TO THE STATE.

MY PROBLEMS WITH CARPAL TUNNEL SYNDROME BEGAN ABOUT TWO YEARS AGO. AT THAT TIME I NOTICED A TINGLING SENSATION IN MY HANDS AND FINGERS AS I WORKED.

(CONTINUED)

HOUSE STATE AFFAIRS COMMITTEE  
TESTIMONY OF DEBRA KNUTSON ON H.B. 385  
PAGE TWO

WHEN THIS SENSATION PERSISTED FOR THREE OR FOUR MONTHS, I WENT TO SEE MY DOCTOR, DOCTOR ISTO, AT THE VALLEY MEDICAL CLINIC. AFTER EXAMINING ME, DR. ISTO ASKED ABOUT MY WORKING CONDITIONS. SHE TOLD ME THAT I PROBABLY HAD THE BEGINNINGS OF CARPAL TUNNEL SYNDROME. THIS WAS THE FIRST TIME I WAS AWARE THAT THERE WAS SUCH A THING AS CARPAL TUNNEL SYNDROME. AFTER SEEING DR. ISTO, I TOLD MY SUPERVISOR AT WORK ABOUT THE DOCTOR'S COMMENTS, BUT NOTHING WAS DONE TO ALTER MY WORKING SITUATION OR TO EASE THE PAIN. IN FACT, MY SUPERVISOR SUGGESTED SEEING A CHIROPRACTOR AND ALSO SUGGESTED I LOSE WEIGHT.

DR. ISTO PROVIDED SPLINTS FOR MY HANDS, BUT THESE DID NOT REALLY HELP. I KEPT WORKING AT MY COMPUTER KEY BOARD AT THIS TIME BECAUSE I AM A SINGLE PARENT WITH A FIVE-YEAR OLD CHILD AND MY JOB IS OUR SOLE MEANS OF SUPPORT. BUT THE TINGLING IN MY HANDS GOT WORSE, LEADING TO A NUMBNESS FROM MY RIGHT HAND TO THE ELBOW. AND THE PAIN FROM THIS WAS KEEPING ME AWAKE AT NIGHT. DR. ISTO SAID MY PROBLEM WAS FROM CONTINUOUS TYPING AT WORK, AND THAT I SHOULD CHECK WITH DR. PERKINS, WHO IS MORE EXPERT AT NERVE AND TENDON DAMAGE, AND IS FAMILIAR WITH CARPAL TUNNEL SYNDROME.

DR. PERKINS SAID I HAD NERVE DAMAGE FROM CARPAL TUNNEL SYNDROME, AND RECOMMENDED CORRECTIVE SURGERY. DR. CEDAR DID THE SURGERY ON MY RIGHT HAND IN JUNE 1991. I MISSED ABOUT A WEEK'S WORTH OF WORK, AND APPLIED FOR NORMAL SICK LEAVE.

ON MY RETURN TO WORK AFTER THE SURGERY THE OFFICE WAS SYMPATHETIC AND ALLOWED ME TO TAKE A BREAK FROM TYPING BY DOING PROOFING, OR EDITING, WORK FOR ABOUT TWO MONTHS. WHEN I RETURNED TO MY REGULAR WORK, THE OFFICE PROVIDED WRIST RESTS AS A PREVENTIVE MEASURE, AND THEY HAVE HELPED A LOT. IT TOOK ABOUT TWO WEEKS TO GET THE WRIST RESTS BECAUSE THERE IS SUCH A DEMAND FOR THEM NOW THAT MORE PEOPLE ARE BECOMING AWARE OF CARPAL TUNNEL SYNDROME.

(CONTINUED)

HOUSE STATE AFFAIRS COMMITTEE  
TESTIMONY OF DEBRA KNUTSON ON H.B. 385  
PAGE THREE

WHILE I AM NOT AN EXPERT IN THIS AREA, IT SEEMS TO ME THAT BY PROVIDING THE \$15.00 WRIST RESTS AT A MUCH EARLIER TIME AND ALTERING FROM TIME TO TIME MY WORKING CONDITIONS, THE STATE MIGHT HAVE SAVED THE \$3,000.00 IN MEDICAL EXPENSES PAID THROUGH MY HEALTH INSURANCE POLICY, AND CERTAINLY WOULD HAVE SAVED THE WORK TIME I LOST AS A RESULT OF DEVELOPING CARPAL TUNNEL SYNDROME. I ALSO BELIEVE THAT PASSAGE OF HOUSE BILL 385 COULD HELP REDUCE THE STATE'S RISING HEALTH CARE COSTS.

AGAIN, MY THANKS TO CHAIRMAN KUBINA FOR ALLOWING ME TO TESTIFY, AND TO REPRESENTATIVE ULMER FOR INTRODUCING HOUSE BILL 385. IF THE COMMITTEE HAS ANY QUESTIONS ABOUT MY SITUATION, I WILL DO MY BEST TO ANSWER THEM.

THANK YOU.

(END OF TESTIMONY)

AMENDMENT

Rep. Ulmer

HB 385 - "An Act relating to video display terminals."

Page Two, Line 19. After the words "concerning injuries" DELETE "arising" and INSERT "identified on the initial Report of Occupational Injury."

TESTIMONY OF GEORGE IMBSEN  
REPRESENTING THE ALASKA STATE EMPLOYEES ASSOCIATION  
BEFORE THE HOUSE STATE AFFAIRS COMMITTEE  
ON HOUSE BILL 385  
"STATE EMPLOYEE V.D.T. SAFETY"  
JANUARY 29, 1992

GOOD MORNING. FOR THE COMMITTEE RECORD, MY NAME IS GEORGE IMBSEN AND MY MAILING ADDRESS IS 2113 SECOND STREET, DOUGLAS, ALASKA 99824. I HAVE BEEN AN EMPLOYEE OF THE STATE OF ALASKA FOR 16 YEARS, AND FOR THE PAST 14 YEARS HAVE WORKED AS A CIVIL ENGINEER FOR THE ALASKA DEPARTMENT OF TRANSPORTATION.

I WOULD LIKE TO BEGIN BY THANKING COMMITTEE CHAIRMAN KUBINA FOR ALLOWING ME TO TESTIFY ON BEHALF OF HOUSE BILL 385, AND TO THANK REPRESENTATIVE FRAN ULMER FOR INTRODUCING THE BILL WHICH, I BELIEVE, CAN RECTIFY SAFETY AND HEALTH PROBLEMS FOR STATE WORKERS AND CAN SAVE THE STATE MONEY. I AM ALSO A MEMBER OF THE ALASKA STATE EMPLOYEES ASSOCIATION AND MY TESTIMONY TODAY REFLECTS THE DESIRES OF ASEA AND ITS APPROXIMATELY 9,000 MEMBERS WITH REGARD TO HOUSE BILL 385.

WHILE ASEA SUPPORTS THIS BILL, WE DO FEEL THAT IT NEEDS SOME IMPROVEMENTS TO PROTECT THE SAFETY AND HEALTH OF STATE WORKERS WHO SPEND A GOOD DEAL OF THEIR TIME WITH VISUAL DISPLAY TERMINALS AND COMPUTER KEYBOARDS.

FIRST, I WOULD RECOMMEND TO THE COMMITTEE AND THE BILL'S SPONSOR THAT SECTION ONE OF THE BILL BE AMENDED TO DELETE THE DEPARTMENT OF ADMINISTRATION AS THE STATE AGENCY RESPONSIBLE FOR TRAINING AND IMPLEMENTING HEALTH AND SAFETY REGULATIONS THE BILL MAY INCLUDE FOR VISUAL DISPLAY TERMINALS. INSTEAD, I WOULD RECOMMEND THESE RESPONSIBILITIES BE PLACED WITH THE STATE DEPARTMENT OF LABOR'S DIVISION OF OCCUPATIONAL SAFETY AND HEALTH.

(CONTINUED)

HOUSE STATE AFFAIRS COMMITTEE  
GEORGE IMBSEN TESTIMONY ON H.B. 385  
PAGE TWO

SECOND, AS PRESENTLY DRAFTED, HOUSE BILL 385 CONTAINS NO COMPLIANCE DEADLINES WHICH THE STATE MUST MEET FOR IMPLEMENTATION OF HEALTH AND SAFETY MEASURES REGARDING STATE EMPLOYEES WHO WORK WITH VISUAL DISPLAY TERMINALS. I STRONGLY URGE THE BILL'S SPONSOR AND THE COMMITTEE TO INCLUDE SUCH COMPLIANCE DEADLINES IN HOUSE BILL 385 TO AVOID ANY FURTHER DELAYS IN PROTECTING STATE EMPLOYEES FROM CARPAL TUNNEL SYNDROME AND OTHER HEALTH RISKS ASSOCIATED WITH V.D.T. WORK.

THIRD, SECTION 1, SUBPARAGRAPH (d) (2) OF THE BILL, AS PRESENTLY DRAFTED, WOULD DELETE CONSOLE COMPUTER AIDED DESIGN DRAFTING, OR C.A.D.D., TERMINALS FROM THE BILL'S PROVISIONS. MANY OF MY COLLEAGUES WORK WITH C.A.D.D. TERMINALS AND, FROM LISTENING TO THEIR COMPLAINTS AND CONCERNS, IT IS CLEAR THAT THEY ARE SUBJECT TO THE SAME PROBLEMS AS EMPLOYEES WHO WORK WITH STANDARD VISUAL DISPLAY TERMINALS. FOR THIS REASON, I WOULD URGE THE COMMITTEE AND THE BILL'S SPONSOR TO RETAIN C.A.D.D. AS COVERED ITEMS UNDER THIS LEGISLATION.

FINALLY, I BELIEVE HOUSE BILL 385 IS MISSING TWO OTHER KEY SECTIONS THAT SHOULD BE INCLUDED BY THE COMMITTEE. ONE OF THESE IS A SECTION ON FINDINGS, THE OTHER IS A SECTION DELINEATING PROPER STANDARDS FOR VISUAL DISPLAY TERMINALS AND C.A.D.D. WORKSTATIONS. THE LANGUAGE I PROPOSE FOR THESE SECTIONS COMES FROM THE V.D.T. ORDINANCE ENACTED BY THE CITY OF SAN FRANCISCO, CALIFORNIA. SINCE IT IS SOMEWHAT LENGTHY AND I DO NOT WANT TO TAKE TOO MUCH OF THE COMMITTEE'S VALUABLE TIME OR TO PREVENT OTHERS FROM BEING ALLOWED TO TESTIFY, I HAVE INCLUDED THESE RECOMMENDATIONS AS APPENDIXES A AND B, RESPECTIVELY, TO MY TESTIMONY.

I BELIEVE COPIES OF THESE RECOMMENDATIONS HAVE BEEN PLACED IN THE COMMITTEE MEMBERS' INFORMATION PACKETS ON THIS BILL BUT, IF NOT, I WILL BE PLEASED TO PROVIDE COPIES FOR THE COMMITTEE.

(CONTINUED)

HOUSE STATE AFFAIRS COMMITTEE  
GEORGE IMBSEN TESTIMONY ON H.B. 385  
PAGE THREE

IN CLOSING, I WOULD LIKE TO SAY THAT I BELIEVE PASSAGE OF HOUSE BILL 385 IS ESSENTIAL TO THE SAFETY AND MORALE OF STATE EMPLOYEES. FURTHERMORE, I BELIEVE THE BILL WILL SAVE THE STATE MONEY BY REDUCING HEALTH CARE COSTS, WORKERS' COMPENSATION COSTS, AND BY REDUCING TIME LOST ON THE JOB BY INJURED EMPLOYEES.

AGAIN, I WANT TO THANK COMMITTEE CHAIRMAN REPRESENTATIVE GENE KUBINA AND COMMITTEE MEMBERS FOR CONSIDERING MY TESTIMONY TODAY, AND TO EXTEND MY APPRECIATION TO REP. FRAN ULMER FOR SPONSORING HOUSE BILL 385.

IF ANY OF YOU HAVE QUESTIONS REGARDING MY TESTIMONY OR THE ATTACHMENTS, I WILL BE PLEASED TO TRY TO ANSWER THEM FOR YOU. THANK YOU.

## APPENDIX A -- FINDINGS

(b) Investigations conducted by the National Institute for Occupational Safety and Health of video display terminal (VDT) operators in response to complaints of headaches, general malaise, eyestrain and other visual and musculoskeletal problems resulted in recommendations for VDT workstation design, VDT work breaks and pre-placement and periodic visual testing to reduce musculoskeletal and vision complaints among VDT users.

(c) Various world-wide studies have demonstrated elevated musculoskeletal discomforts and disorders in VDT operators as compared with non-VDT workers. Statistics from these studies show a correlation between VDT use and shoulder-neck discomfort/pain, wrist tendonitis, and carpal tunnel syndrome. Statistics also show a higher number of vision complaints among VDT operators compared to other workers. Research has shown that inadequate workstation adjustment, lack of operator knowledge of adjustments, and long, uninterrupted use of VDTs are associated with musculoskeletal disorders and vision complaints. The consensus of the National Institute for Occupational Safety and Health, the World Health Organization and the American National Standards Institute is that adjustable VDT workstations in combination with training on proper adjustment of the work station and periodic breaks from VDT use during the work day substantially contribute to suitable working postures and reduce vision complaints, thereby providing a safer and healthier work environment for VDT operators.

APPENDIX B -- WORK STATION STANDARDS

SEC. 1304. WORKSTATION STANDARDS. (a) Within twelve (12) months of the effective date of this Article 23, every employer, when purchasing VDT workstations or equipment, shall provide an operator who may be expected because of the employee's duties to routinely perform repetitive keyboard motions four (4) hours or more, inclusive of breaks, per shift, with user-adjustable workstations and chairs that meet the following minimum standards:

- (1) Seating for the workstation shall conform to the provisions of the American National Standard for Human Factors

Engineering of Visual Display Terminal Workstations, ANSI/HFS Standard No. 100-1988, Section 8.7 "Seating," or meet the requirements of subsections (a)(1)(A) through (a)(1)(D) as follows:

- (A) Seat pans and backrests of chairs shall be upholstered with moisture absorbing material. The upholstery shall be compressible at a minimum in the range of approximately one-half to one inch.
  - (B) Seat pans shall be adjustable for height and angle.
  - (C) Backrests shall be adjustable for height and to a position behind and forward of the vertical position.
  - (D) Chairs shall be capable of being swivelled by the user.
- (2) Arm rests, wrist rests and foot rests shall be provided upon the request of the operator. Wrist rests shall enable the operator to maintain a neutral position of the wrist while at the keyboard, and shall be padded and without sharp edges.
- (3) The adjustment mechanism for adjustable chair seat pans shall be operable by the user from a seated position. The adjustment mechanism for adjustable chair backrests shall be easily operable by the user.
- (4) The keyboard shall be detachable from the terminal.
- (5) The terminal display support shall be adjustable so that the entire primary viewing area of the terminal is between zero and sixty degrees below the horizontal plane passing through the eyes of the operator. The terminal keyboard, in combination with the seating and the worksurface, shall be adjustable so that the operator, while seated in a normal upright position, is able to operate the keyboard with his or her forearms, wrists and hands in a position approximately parallel to the floor. The height of the worksurface shall be such as to provide adequate clearance under the worksurface to accommodate the operator's legs in a normal upright seated position.
- (b) Within twelve (12) months of the effective date of this Article 23, every employer, when purchasing VDT workstations or equipment, shall provide an operator who may be expected because of the employee's duties to use video display terminal equipment four (4) hours or more, inclusive of breaks, per shift, with a workstation that meets the following minimum standards:
- (1) Workstations shall be illuminated with lights arranged to avoid visual glare and discomfort. The illumination level shall be within 200-500 lux. Task lighting shall be made available upon the request of the operator.
  - (2) Glare shall be eliminated through methods that include but are not limited to shielding windows with shades, curtains or blinds, positioning the terminal so that the terminal screen is at a right angle to the window producing the glare.

fitting video display screens with anti-glare screens and providing keyboards with tops finished in a manner so as to minimize reflection.

(3) A document holder adjustable for placement angle and height shall be provided upon the request of the operator when a document holder is appropriate for the performance of the operator's duties.

(4) Video display screens shall be clean, clear, and free of perceptible flicker to the operator.

(5) Direct noise from impact printers shall be reduced to improve ease of communication by placing covers over the printers or by isolating the printers from the rest of the work environment.

(c) As used in this Article, "Routinely perform repetitive keyboard motions" shall not be interpreted to include only brief, intermittent keyboard motions that are ancillary to the employee's performance of other work tasks.

(d) Within thirty (30) months of the effective date of this Article 23, every employer shall (1) upgrade existing VDT workstations and equipment that the employer provides to any operator, as defined in Section 1304(a), as necessary to comply with the minimum standards specified in Section 1304(a)(1) through (a)(5); and (2) upgrade existing VDT workstations and equipment that the employer provides to any operator, as defined in Section 1304(b), as necessary to comply with the minimum standards specified in Section 1304(b)(1) through (b)(5); provided, however, that the upgrading required by Sections 1304(a) and (b) combined shall not require the employer to expend more than two hundred and fifty dollars (\$250.00) per upgraded VDT workstation.

(e) Within forty-eight (48) months of the effective date of this Article 23, for any existing equipment, every employer shall (1) upgrade or replace VDT workstations and equipment that the employer provides to any operator, as defined in Section 1304(a), as necessary to comply with the minimum standards specified in Section 1304(a)(1) through (a)(5); and (2) upgrade or replace VDT workstations and equipment that the employer provides to any operator, as defined in Section 1304(b), as necessary to comply with the minimum standards specified in Section 1304(b)(1) through (b)(5).

# Alaska State Legislature

## HOUSE OF REPRESENTATIVES



REPRESENTATIVE FRAN ULMER

MEMORANDUM

January 15, 1992

TO: Rep. *Gene* Kubina, Chair  
House State Affairs Committee

FROM: Rep. *Fran* Ulmer

RE: HB 385 - Video Display Terminals

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I am requesting a hearing on HB 385 at your earliest convenience.

HB 385 was created in response to a growing health problem among state workers who spend long hours in front of their Video Display Terminals (VDTs). VDT workplace injuries include eye strain, stress and musculoskeletal disorders (wrist, back and neck injuries) including host of ailments dubbed "repetitive strain injuries" or RSI.

According to the Federal Bureau of Labor Statistics, disorders associated with repetitive strain injuries now rank among the highest reported workplace injuries (more than 52%). For instance, in recent years the cases of carpal tunnel syndrome (swelling of tendons in the wrist) have increased more rapidly than any other job related illness. Insurance industry sources believe that keyboard operators are one of the highest at-risk groups.

In many cases, the remedy for these conditions already exists in the workplace. Educating workers on the proper positioning of VDT monitors, keyboards and chairs can go a long way to alleviating this problem. However, phasing out or remodeling "unhealthy" work station configurations and furniture is also essential.

HB 385 seeks to remedy this situation for state workers by:

- \* Requiring the training of supervisory staff about the causes and remedies of VDT related hazards.

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- \* Requiring the posting of notices in the workplace to advise state employees about the hazards and safe use of Video Display Terminals.
- \* Requiring that future purchases of office furniture and equipment meet engineering standards that reduce the health risks associated with VDTs.
- \* Requiring the Department of Administration to report to the legislature on the implementation of the requirements after the first and second years following passage of the bill.

Think of HB 385 as a dose of preventative medicine. By moving now to answer the health concerns of state workers, we will also be saving the state money by eliminating the causes of a growing number of health insurance claims.

Thank you for your prompt consideration of this legislation.

# Alaska State Legislature

## HOUSE OF REPRESENTATIVES



### REPRESENTATIVE FRAN ULMER

MEMORANDUM

February 6, 1992

TO: All members  
State Affairs Subcommittee on HB 385

FROM: Rep. Fran Ulmer

RE: Legal Questions

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The Department of Law has responded to HB 385 with several points concerning liability and other aspects. A copy of the letter is attached. As a result, my office has created a new CS addressing the Department's observations. The new CS (also attached) was developed in conjunction with the AG's office and should address all concerns brought to light. It also contains the changes previously made to accommodate committee concerns (see attached previous memo).

#### Section 2

The subsection on training (a) removes references that the state shall attempt to provide for "a hazard free workplace for state employees who use" video display terminals and replaces it with "the state shall attempt to provide for proper use of" video display terminals. This addresses the Department of Law's concern that the previous draft's scope was too broad and threatened to create a new class of "hazardous" occupation.

In order to more clearly define the responsibilities under this bill, this subsection has also been amended to state that the training of supervisory staff will be on the "ergonomically proper use of VDTs" and that there be a limit to the amount of workstations assigned to each trained appointee.

A new subsection (c) has been inserted to require notices and make information available to workstations in places where there are no qualified worksites, such as small offices in remote locations, where trained staff are not immediately available.

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A new subsection (e) has been inserted which states that the section does not do the following:

- 1) create a cause of action;
- 2) establish a standard of care;
- 3) change administrative remedies of employees;
- 4) change collective bargaining agreements.

This change has been made to address concerns that the bill not create a new and distinct cause of action for VDT users injured on the job.

Thank you for your cooperation in this matter. If you have suggestions or comments, please let me know as soon as possible.

# Alaska State Legislature

## HOUSE OF REPRESENTATIVES

### REPRESENTATIVE FRAN ULMER

#### MEMORANDUM

January 31, 1992

TO: All members  
House State Affairs Subcommittee on HB 385

FROM: Rep. <sup>B. Dow Fox</sup> Fran Ulmer

RE: Proposed CS to HB 385 - "An Act relating to video display terminals."

Enclosed please find a proposed CS to HB 385. The following changes have been made to the CS adopted by the committee on 1/30/92 to accommodate some of the suggestions. A copy of the old and new CS is attached. I would appreciate your comments by Tuesday, February 4th.

#### CHANGES FROM ADOPTED CSHB 385

##### ITEM ONE - FINDINGS.

The CS Adds a new section recognizing the risks and remedies of VDT use, including studies by the National Institute for Occupational Safety and Health and the World Health Organization, and that mitigation of the risks through education and new equipment standards will help reduce health insurance and worker's compensation costs.

##### ITEM TWO

- \* Page Two, Line 13. DELETE "memory typewriter,".
- \* Page Two, Line 13. After "screen" DELETE ", " INSERT "."
- \* Page Two, Line 14. DELETE THE ENTIRE LINE.

These amendments will remove the exclusion of design drafting hardware equipment (CADDs) from coverage under this bill.

##### ITEM THREE

- \* Page Two, Line 19. After the words "concerning injuries" DELETE "arising from the use of video display terminals in the workplace" and INSERT "identified on the initial report of occupational injury."

This amendment will give the Department more flexibility to report on injuries related to VDT's. The old wording would have required a wholesale redrafting of Worker's Compensation claim forms and specialized training for staff. Consequently, the fiscal note would have to be substantially increase without this amendment.

ITEM FOUR

\* Compliance Deadlines have been added in a new section to require that training be completed and workstation notices be in place within one year of enactment. As in the original bill, the CS requires that all new equipment and furniture be purchased and installed in accordance with ANSI standards upon effective date of the bill. This will have the affect of phasing in new standards as workstations and equipment are installed or remodeled.

ITEM FIVE

\* Training of staff remains with the Department of Administration, which is responsible for a wide variety of training and has the resources to carry out this new mandate. George Imbsen had requested that training be conducted under the Department of Labor. However Department of Labor officials say their mission focusses primarily on enforcement and, as such, is not the proper agency to conduct such training. Under the fiscal note provided by the Department of Administration, such training will be conducted under contract with a firm knowledgeable about the health safety aspects related to VDTs.

ITEM SIX

\* The private sector is not addressed under the CS. Including private businesses is a much larger issue that would require extensive research and analysis in order to provide for the many needs and concerns of the private sector. While this may be a good idea, it is beyond the scope of what I am trying to accomplish with this bill. I hope the state will become a model employer and, by doing so, prove to others that such prevention techniques will save money, as well as pain and suffering.

January 31, 1992  
Proposed CS - HB 389  
Page Three

ITEM SEVEN

\* Workstation requirements are not specifically delineated under the bill. However, HB 385 provides that work stations comply with the American National Standards Institute's workstation guidelines HFS-100, which are at least as comprehensive as those presently delineated in the San Francisco Ordinance. Copies of the standards are available at my office. Mr. Imbsen, who suggested the change, now agrees with the requirements presently in the bill.

Thank you for your prompt attention to this memo.

Attachments

cc: Rep. Finkelstein

# Alaska State Legislature

## HOUSE OF REPRESENTATIVES



### REPRESENTATIVE FRAN ULMER

#### MEMORANDUM

February 13, 1992

TO: Rep. Gene Kubina, Chair  
State Affairs Committee

FROM: Rep. Fran Ulmer

RE: Revised CS HB 385 - "relating to video display terminals"  
-----

Following the 1/30/92 hearing on HB 385, the State Affairs Subcommittee has considered several changes incorporated into the attached CS. In addition to comments raised during the hearing, the Department of Law has responded to HB 385 with several points concerning liability and other aspects (also attached). The new CS was developed in conjunction with the AG's office and the subcommittee members and should address the concerns brought to light.

#### CHANGES FROM ADOPTED CSHB 385

**Section 1. FINDINGS.** The new CS adds a new section recognizing the risks and remedies of VDT use, including studies by the National Institute for Occupational Safety and Health and the World Health Organization, and that mitigation of the risks through education and new equipment standards will help reduce health insurance and worker's compensation costs.

**Section 2.** The subsections (a) and (b) on training remove references that the state shall attempt to provide for "a hazard free workplace for state employees who use" video display terminals and replaces it with "the state shall attempt to provide for proper use of" video display terminals. Subsection (a) has also been amended to state that the training of supervisory staff will be on the "ergonomically proper use of VDTs" and that there be a limit to the amount of workstations assigned to each trained appointee (75). These changes address the Department of Law's concern that the previous draft's scope was too broad and threatened to create a new class of "hazardous" occupation.

February 13, 1992  
CSHB 385  
Page Two

A new subsection (c) has been inserted to require notices and make information available at workstations in places where there are no qualified worksites, such as small offices in remote locations, where trained staff may not be immediately available.

A new subsection (e) has been inserted which states that the section does not:

- 1) create a cause of action;
- 2) establish a standard of care;
- 3) change administrative remedies of employees;
- 4) change collective bargaining agreements.

This change has been made to address concerns that the bill not create a new and distinct cause of action for VDT users injured on the job.

Subsection (f) adds a definition of "qualified worksite" as a unit or cluster of at least four vdt's in regular use, housed within close proximity to each other. Also, under the terms "terminal" or "video display terminal," memory typewriters and CADDS are no longer exempted from the definition.

Section 4. INITIAL TRAINING AND POSTING OF NOTICES. Compliance deadlines have been added in a new section to require that training be completed and workstation notices be in place within one year of enactment.

Thank you for taking time to review these changes.

7-LS1567J  
Cramer  
2/5/92

AS PROPOSED 2-6-92  
CS FOR HOUSE BILL NO. 385 ( )

IN THE LEGISLATURE OF THE STATE OF ALASKA  
SEVENTEENTH LEGISLATURE - SECOND SESSION

BY

Offered:  
Referred:

Sponsor(s): REPRESENTATIVES ULMER, B.Davis, Bruckman

A BILL

FOR AN ACT ENTITLED

1 "An Act relating to video display terminals."

2 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

3 • Section 1. FINDINGS. The legislature finds that

4 (1) the use of video display terminals poses a significant health and safety risk to the  
5 workers of the state;

6 (2) investigations conducted by the National Institute for Occupational Safety and Health  
7 of video display terminal (VDT) operators resulted in recommendations for workstation design and other  
8 measures to reduce musculoskeletal and vision complaints among VDT users;

9 (3) studies world-wide have demonstrated elevated musculoskeletal discomforts and other  
10 disorders in VDT operators as compared with non-VDT workers; research has shown that inadequate  
11 workstation adjustment and lack of operator knowledge of adjustments and other remedies are associated  
12 with musculoskeletal discomforts and other complaints; the consensus of the National Institute, the World  
13 Health Organization, and the American National Standards Institute is that adjustable VDT workstations  
14 in combination with training on proper adjustment of the workstation substantially contribute to a

✓

1 healthier environment for VDT operators:

2 (4) reduction of the health and safety risks through education of state workers and  
3 modification or replacement of the VDT workstation and associated equipment will help prevent VDT  
4 related injuries, thus reducing health insurance and workers' compensation costs to the state.

5 • Sec. 2. AS 39.90 is amended by adding a new section to read:

6 Sec. 39.90.160. VIDEO DISPLAY TERMINAL USE. (a) A state agency shall attempt  
7 to provide for proper use of video display terminals. <sup>[A HAZARD FREE WORKSITE FOR STATE EMPLOYEES THAT USE VDT'S]</sup> The head of a state agency shall appoint,  
8 for each qualified worksite of the agency, a person responsible for providing information to other  
9 employees on the physical risks associated with improper use of video display terminals and on <sup>[HAZARDS AND SAFE USE OF VDT'S]</sup>  
10 their proper use. <sup>[TRAIN EMPLOYEES ON THE</sup> The Department of Administration shall provide training to the appointee in  
11 the ergonomically proper use of video display terminals and the measures and work habits that <sup>HAZARDS OF VDT'S AND THE METHODS THAT MAY BE TAKEN TO AVOID OR LESSEN THOSE</sup>  
12 may avoid or lessen physical risks associated with improper video display terminal use. If there  
13 are more than 75 terminals in close proximity within the same agency, the agency shall designate  
14 at least one qualified worksite for each 75 video display terminals.

15 (b) The Department of Administration shall prepare notices to advise state employees  
16 using video display terminals about the ergonomically proper use of the terminals. <sup>[HAZARDS AND SAFE USE OF VIDEO DISPLAY TERMINALS]</sup> The  
17 department shall provide the notices to the persons appointed under (a) of this section. Those  
18 persons shall post the notices at the qualified worksite for which they are responsible and shall  
19 add information on how employees who desire more information may reach them. <sup>[FOR THE NOTICE]</sup>

20 (c) The Department of Administration shall prepare and make available to state agencies  
21 notices advising state employees using video display terminals at a worksite that is not part of  
22 a qualified worksite about the ergonomically proper use of video display terminals. Each state  
23 agency shall mail a copy of the notice to those employees who use a video display terminal at  
24 a location that is not part of a qualified worksite together with a statement advising the  
25 employees of the name and how to contact the nearest available person trained in proper use of  
26 video display terminals under (a) of this section.

27 (d) A state agency that purchases, leases, or installs office equipment related to video <sup>[MAY NOT PURCHASE LEASE OR INSTALL]</sup>  
28 display terminal workstations shall comply with the American National Standard for Human <sup>[UNLESS THE EQUIPMENT COMPLIES]</sup>  
29 Factors for Engineering of Visual Display Terminal Workstations, ANSI/HFS Standard No. 100-  
30 1988 or a subsequent standard that the commissioner of administration determines is at least as  
31 protective of the health and safety of the user of a video display terminal as that standard.

cc) section 26  
worksite  
(2/2/86)

1 (e) This section does not  
 2 (1) create a cause of action by any person against the state or an agency of the  
 3 state, whether at law or otherwise;  
 4 (2) establish a standard of care;  
 5 (3) amend or alter administrative remedies of employees; or  
 6 (4) amend or alter collective bargaining agreements entered into by the state or an  
 7 agency of the state.

8 (f) In this section,  
 9 (1) "agency" or "state agency" includes the executive, legislative, and judicial  
 10 branches of state government, the University of Alaska, and the Alaska Railroad Corporation;  
 11 (2) "qualified worksite" means a unit or cluster of at least four video display  
 12 terminals in regular use that are housed together or in close proximity within the same agency;  
 13 (3) "terminal" or "video display terminal" means an electronic video screen data  
 14 presentation machine, commonly called a video display terminal, and includes cathode-ray tubes;  
 15 "terminal" does not include a television, cash register, <sup>[EMERGENCY TELETYPE]</sup> or oscilloscope screen. <sup>[OR CADD]</sup>

16 • Sec. 3. REPORTS. (a) The Department of Administration shall report to the legislature one year  
 17 and two years after the effective date of this section on implementation of the training program and the  
 18 equipment purchase requirements of AS 39.90.160, enacted by sec. 2 of this Act.

19 (b) The Department of Labor shall report to the legislature on or before January 15, 1993, and  
 20 January 15, 1994, concerning injuries related to video display terminals that are identified in the initial  
 21 report of occupational injuries.

22 • Sec. 4. INITIAL TRAINING AND POSTING OF NOTICES. The Department of Administration  
 23 shall comply promptly with the requirements for preparation of notices and provision of training so that,  
 24 within one year after the effective date of this Act, state agencies will have been able to comply with  
 25 the requirements for posting notices and training current employees set out in AS 39.90.160, enacted by  
 26 sec. 2 of this Act.

*(w) actions*

# STATE OF ALASKA

## DEPARTMENT OF LAW

OFFICE OF THE ATTORNEY GENERAL

January 31, 1992

Honorable Fran Ulmer  
House of Representatives  
P.O. Box V  
Juneau, AK 99811

Re: HB 385 - relating to video  
display terminals

Dear Representative Ulmer:

Thank you for the opportunity to comment on your bill relating to video display terminals, HB 385. While we take no position on the policy behind the legislation or the hazards posed by video display terminals (VDT) use, we do have some observations about the bill's legal ramifications.

The bill directs state agencies to "attempt to provide a hazard free worksite for state employees who use" a VDT. Section 1; proposed AS 39.90.160(a). While the bill's intent may be to address only hazards related to VDTs, as written it is much broader. Its scope includes all types of hazards to which VDT users may be exposed. Thus, the bill establishes a special class of occupations not heretofore considered "hazardous." The arguable result may be a higher duty to protect, for example, clerks from the hazards of loose rugs or heavy files than to protect emergency fire fighters from the hazards of wildfire.

The bill does not explicitly amend the state's workers' compensation laws. However, the bill may have the effect of creating a statutory "assumption," if not presumption, that work with a VDT is hazardous, without defining the specific hazard and the result caused thereby. This possibility should be carefully considered in light of the available scientific evidence, as it may impact the state's position in workers' compensation matters.

Finally, the bill imposes an obligation to provide a notice advising about the hazards and safe use of a VDT and identifying the source of more information. Section 1; proposed AS 39.90.160(b). It can be argued that this requirement creates a

WALTER J. HICKEL, GOVERNOR

REPLY TO:

1031 W 4th AVENUE SUITE 200  
ANCHORAGE, ALASKA 99501-1994  
PHONE: (907) 276-3550  
FAX: (907) 276-3697

1st NATIONAL CENTER  
100 CUSHMAN ST. SUITE 400  
FAIRBANKS, ALASKA 99701-4670  
PHONE: (907) 452-1588  
FAX: (907) 456-1317

P.O. BOX K—STATE CAPITOL  
JUNEAU, ALASKA 99811-0300  
PHONE: (907) 465-3600  
FAX: (907) 463-5295

465-3603

Honorable Fran Ulmer  
House of Representatives

January 31, 1992  
Page 2

new and distinct cause of action for VDT users who are injured or mentally distressed, whose remedy would otherwise be confined to workers' compensation. This would be a significant departure from current policy and law. The legislature's intent regarding the creation of a new basis of civil liability should be clearly expressed.

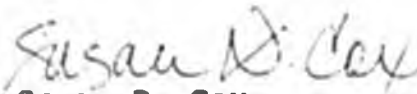
We note that the bill is limited to state government and would not cover the Alaska workforce of VDT users generally.

We hope these comments are helpful to you. We would be happy to discuss the bill further at your convenience and to review any proposed changes during the legislative session.

Sincerely,

CHARLES E. COLE  
ATTORNEY GENERAL

By:



Susan D. Cox  
Assistant Attorney General

SDC:jal

cc: Paul Fuhs  
Deborah E. Behr  
B.J. Jordan

7-LS1567J  
Cramer  
2/5/92

CS FOR HOUSE BILL NO. 385 ( )  
IN THE LEGISLATURE OF THE STATE OF ALASKA  
SEVENTEENTH LEGISLATURE - SECOND SESSION

BY

Offered:  
Referred:

Sponsor(s): REPRESENTATIVES ULMER, B.Davis, Bruckman

A BILL  
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8 measures to reduce musculoskeletal and vision complaints among VDT users;

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10 disorders in VDT operators as compared with non-VDT workers; research has shown that inadequate  
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12 with musculoskeletal discomforts and other complaints; the consensus of the National Institute, the World  
13 Health Organization, and the American National Standards Institute is that adjustable VDT workstations  
14 in combination with training on proper adjustment of the workstation substantially contribute to a

1 healthier environment for VDT operators;

2 (4) reduction of the health and safety risks through education of state workers and  
3 modification or replacement of the VDT workstation and associated equipment will help prevent VDT  
4 related injuries, thus reducing health insurance and workers' compensation costs to the state.

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19 add information on how employees who desire more information may reach them.

20 (c) The Department of Administration shall prepare and make available to state agencies  
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1           (e) This section does not  
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3 state, whether at law or otherwise;  
4                   (2) establish a standard of care;  
5                   (3) amend or alter administrative remedies of employees; or  
6                   (4) amend or alter collective bargaining agreements entered into by the state or an  
7 agency of the state.

8           (f) In this section,  
9                   (1) "agency" or "state agency" includes the executive, legislative, and judicial  
10 branches of state government, the University of Alaska, and the Alaska Railroad Corporation;  
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19           (b) The Department of Labor shall report to the legislature on or before January 15, 1993, and  
20 January 15, 1994, concerning injuries related to video display terminals that are identified in the initial  
21 report of occupational injuries.

22 \* Sec. 4. INITIAL TRAINING AND POSTING OF NOTICES. The Department of Administration  
23 shall comply promptly with the requirements for preparation of notices and provision of training so that,  
24 within one year after the effective date of this Act, state agencies will have been able to comply with  
25 the requirements for posting notices and training current employees set out in AS 39.90.160, enacted by  
26 sec. 2 of this Act.

7-LS1567J  
Cramer  
1/30/92

*Proposed TO Com. COMMITTEE*

CS FOR HOUSE BILL NO. 385 ( )

IN THE LEGISLATURE OF THE STATE OF ALASKA

SEVENTEENTH LEGISLATURE - SECOND SESSION

BY

Offered:  
Referred:

Sponsor(s): REPRESENTATIVES ULMER, B.Davis, Bruckman

A BILL

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14 in combination with training on proper adjustment of the workstation substantially contribute to a

SECTION 1

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11 the appointee in the hazards of video display terminals and the measures that may be taken to  
12 avoid or lessen those hazards.

13 (b) The Department of Administration shall prepare notices to advise state employees  
14 about the hazards and safe use of video display terminals. The department shall provide the  
15 notices to the persons appointed under (a) of this section. Those persons shall post the notices  
16 at the worksite for which they are responsible and shall add to the notices information on how  
17 employees who desire more information may reach them.

18 (c) A state agency may not purchase, lease, or install office equipment related to video  
19 display terminal workstations unless the equipment complies with the American National  
20 Standard for Human Factors for Engineering of Visual Display Terminal Workstations,  
21 ANSI/HFS Standard No. 100-1988 or a subsequent standard that the commissioner of  
22 administration determines is at least as protective of the health and safety of the user of a video  
23 display terminal as that standard.

24 (d) In this section,

25 (1) "agency" or "state agency" includes the executive, legislative, and judicial  
26 branches of state government, the University of Alaska, and the Alaska Railroad Corporation;

27 (2) "terminal" or "video display terminal" means an electronic video screen data  
28 presentation machine, commonly called a video display terminal, and includes cathode-ray tubes;  
29 "terminal" does not include a television, cash register, or oscilloscope screen. ~~DELETED~~

30 • Sec. 3. REPORTS. (a) The Department of Administration shall report to the legislature one year  
31 and two years after the effective date of this section on implementation of the training program and the

1 equipment purchase requirements of AS 39.90.160, enacted by sec. 2 of this Act.

2 (b) The Department of Labor shall report to the legislature on or before January 15, 1993, and

3 January 15, 1994, concerning injuries related to video display terminals that are identified in the initial

4 report of occupational injuries. [ ARISING FROM THE USE OF VDT'S IN THE WORKPLACE ]

5 • Sec. 4. INITIAL TRAINING AND POSTING OF NOTICES. The Department of Administration

6 shall comply promptly with the requirements for preparation of notices and provision of training so that,

7 within one year after the effective date of this Act, state agencies will have been able to comply with

8 the requirements for posting notices and training current employees set out in AS 39.90.160, enacted by

9 sec. 2 of this Act.

NEW SECTION

STATE OF ALASKA  
1992 LEGISLATIVE SESSION

Revision Date: \_\_\_\_\_  
Title: Relating to video display terminals  
Sponsor: Ulmer  
Requestor: House State Affairs

Department Affected: Administration  
BRU: Personnel/OEEO  
Component: Personnel/OEEO  
COMPONENT SERIAL NO. 

		5	7
--	--	---	---

Expenditures/Revenues: (Thousands of Dollars)

OPERATING	FY 93	FY 94	FY 95	FY 96	FY 97	FY 98
PERSONAL SERVICES						
TRAVEL	8.0	1.7	1.7	1.7	1.7	1.7
CONTRACTUAL	20.5	4.3	4.3	4.3	4.3	4.3
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	28.5	6.0	6.0	6.0	6.0	6.0

CAPITAL	0	0	0	0	0	0
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REVENUE FUND SOURCE:						
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FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER FUND SOURCE: <u>VA Rec't</u>	28.5	6.0	6.0	6.0	6.0	6.0
TOTAL	28.5	6.0	6.0	6.0	6.0	6.0

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

Estimate of current year impact: \_\_\_\_\_

ANALYSIS: (Attach a separate page if necessary.)  
See Attached.

Prepared by: R. H. King, Director  
Division: Personnel/OEEO

Phone: 465-4430  
Date: January 28, 1992

Approved by Commissioner: Nancy Bear Ulmer  
Agency: Administration

Date: 1/22/92

Distribution (by preparer): Leg. Fin., Legislative Sponsor, Requestor, OMB/DBR, Gov. Legs. Otc., & impacted Agency(ies).

## ANALYSIS: (continued)

This bill requires the Department of Administration to train employees designated by all agencies on the hazards of video display terminals and the measures that may be taken to avoid or lessen those hazards. We estimate that 500 employees will need to be trained initially. For this initial training, it is cost effective to take the training to the various locations. First year costs are for the development of the training, preparation and printing of required notices, course negotiation and contracted instructor costs. Travel for delivering the training throughout the state is provided.

For the second and subsequent years, we anticipate offering the training twice annually, but only in Juneau, Anchorage and Fairbanks. Agencies will be expected to send their new designated employees to one of these courses.

Interagency receipts are shown as the funding source on the assumption that agencies will pay the costs. If that assumption is incorrect, the funding source will be general funds.

STATE OF ALASKA  
1992 LEGISLATIVE SESSION

BILL NO : HB 385

Revision Date: \_\_\_\_\_  
 Title: "An Act relating to video display terminals."  
 Sponsor: Representatives Ulmer, B. Davis  
 Requestor: House State Affairs

Department Affected: Labor  
 BRU: Workers' Compensation & Admin. Svcs.  
 Component: Workers' Compensation & Labor Market Information  
 COMPONENT SERIAL NO. 344 & 336

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 93	FY 94	FY 95	FY 96	FY 97	FY 98
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND&STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
<b>TOTAL OPERATING</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

CAPITAL						
---------	--	--	--	--	--	--

REVENUE FUND SOURCE:						
-------------------------	--	--	--	--	--	--

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
<b>TOTAL</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

Estimate of current year impact: None

ANALYSIS: (Attach a separate page if necessary)

This bill requires a report to be prepared by the Department of Labor concerning video display terminal injuries. The department can report to the legislature on injuries identified on the Initial Report of Occupational Injury Form completed by both the employee and employer and collected by the Workers' Compensation Division. There would be no additional fiscal impact to the department.

Prepared by: Arbe Williams, Special Assistant Phone: 485-2700  
 Division: Commissioner's Office Date: 1/28/92  
 Approved by Commissioner: John Abshire, Acting Commissioner  
 Agency: Department of Labor Date: 1/28/92

Distribution (by preparer): Legislative Finance, Legislative Sponsor, Requestor, OMB, & Impacted Agency(ies).

Bill No: House Bill No. 385

Date: January 28, 1992

Title: "An Act relating to video display terminals."

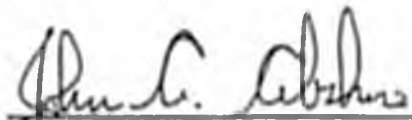
Contact: Arbe Williams  
465-2700

House Bill No. 385 requires that information and training be provided by the State Department of Administration to designated state employees who will provide information to other state employees concerning the hazards and safe use of video display terminals. The bill also stipulates standards for the purchase or lease of office equipment related to video display terminal work stations and requires reports to the legislature from the Department of Administration and Department of Labor.

The bill is attempting to provide a hazard-free work site for state employees who use a video display terminal. The Department of Labor will be required to report on or before January 15, 1993 and January 15, 1994 concerning injuries/illnesses to state employees arising from the use of video display terminals in the work place. Given our current resources, we can report to the legislature concerning injuries/illnesses as they are identified on the initial Report of Occupational Injury form completed by both the employee and the employer. Specific data on injuries/illnesses caused by video display terminals is currently not collected.

The Department of Labor supports safety measures that will contribute toward providing a hazard-free work site for employees.

APPROVED:



John A. Abshire, Acting Commissioner  
Department of Labor

POSITION PAPER/Department of Labor

**ALERT**

APEA/AFT

*WHAT YOU SHOULD KNOW ABOUT*

**VDTs**



PRODUCED BY THE OCCUPATIONAL SAFETY AND HEALTH PROGRAM OF  
THE FEDERATION OF STATE EMPLOYEES, AFT.  
FOR MORE INFORMATION CALL: 202-393-5074.



# FACT SHEET

## VIDEO DISPLAY TERMINALS

### Visual Problems

Blurred vision, fatigue, irritated eyes, and headaches are all major problems among VDT workers. Some workers feel the need to start wearing glasses or get stronger lenses after a few months on the terminal. Though these problems are common to anyone doing excessive "near work", there are special and significant problems associated with VDT work. These include: glare on the screen, improper lighting, small or illegible characters, flicker and lack of regular rest breaks.

#### I. WHAT HAPPENS IN THE EYE DURING VDT WORK?

Continuous VDT work causes strain on 3 sets of eye muscles:

- a) Ciliary Muscles
  - Change the shape of the lens to focus the eye.
  - Viewing close up for long periods of time fatigues these muscles.
  
- b) Iris Muscles
  - Adjust the size of the pupil to varying light intensities.
  
  - Looking at something bright and then something dark stresses this muscle group.
  
- c) Oculomotor Muscles
  - Move the eyes from side to side and up and down.
  - Constantly looking from your paper up to the screen can strain these muscles.



## II. CAUSES OF EYESTRAIN

### A. Poorly designed VDT machine:

1. Character size: To save money, some employers buy small VDTs with small screens and reduced character size. This makes the characters harder to read and increases the strain on the eye.
2. Dot Matrix: The number of dots per character determines the sharpness of the image.
3. Flicker Effect: The image on the screen fades rapidly and must be "refreshed." If the refresh rate is less than 60 times per second (60 Hertz), the operator may see a visible flicker of the characters. Flicker contributes to visual fatigue.

### B. Poorly designed lighting and work space:

1. Excessive lighting: The level of lighting required for regular paperwork is quite different from that required for VDT work. Most offices are too brightly lit for VDT viewing, making characters hard to distinguish and placing strain on the eyes from constant re-focusing from light to dark.
2. Glare: Glare can come from windows, indoor light, and reflective surfaces. Direct glare is caused when light shines directly onto the screen or into the operators' eyes. Indirect glare occurs when light bounces off shiny surfaces onto the screen. When general room brightness levels are high, there may be problems with contrast glare, whereby operators' eyes adjust to brighter total light, making images on the screen seem dimmer. Glare decreases character legibility and may cause neck and back strain as workers contort their bodies to avoid a glare spot on the screen.

### **III. WHAT TO DO TO RELIEVE EYESTRAIN:**

#### **A. Rest breaks**

To relieve eye and other muscle fatigue, as well as to reduce stress, the National Institute of Occupational Safety and Health (NIOSH) recommends a 15-minute rest break every 2 hours for users under moderate visual demands and work load and a 15-minute break every hour for those under high visual demands and high workload. In addition, eye muscles can be relaxed by looking at a distant object for a few seconds every 5-10 minutes.

#### **B. Well-Designed VDT**

Characters must be large and clear enough to be read easily, without visible flicker. Scientists recommend a character height of at least 3/16 of an inch, a dot matrix of 7 x 9 and a refresh rate of at least 60 hertz. Machines should also have adjustable contrast and brightness knobs. A tiltable screen and detachable keyboard will also allow you to adjust your machine to avoid glare. An anti-glare coating should be applied to the screen at the point of manufacture.

#### **C. Appropriate Office Lighting and Workplace Design**

1. To avoid glare, the VDT should be placed at right angles to the windows, so that the light strikes neither the screen nor the worker's eyes. Window coverings, such as curtains, shades, or vertical louvered blinds, help. Recessed, indirect lighting and non-reflective surfaces (including walls, floors, desk tops) also reduce glare. Glare shields may be helpful. There are many glare shields on the market, varying widely in quality and price. Always ask for the opportunity to field test a glare shield before it is purchased. All shields must be cleaned frequently. Tinted eyeglasses are not recommended.

2. Background light should be about half that used for paperwork (about 300-500 lux) and should be operator-adjustable. Each workstation should have individual, adjustable "task lighting" (light shining only on the copy).

3. To reduce contrast glare, the brightness of the copy, VDT screen and background area should be similar. Office walls and furniture should be in subdued colors and matte finish.
4. A copy holder, placed close to the screen, can help prevent eye, neck and back strain.

## IV. EYE EXAMS

VDT workers should have pre-placement and annual eye exams, preferably with a doctor familiar with the visual demands of VDT work.

1. What to tell your doctor:

Because eye doctors may know very little about VDT work, it is a good idea to go to your exam armed with some written material about VDT health and safety problems and recommendations. In addition, the following specific information should be given:

- a) how many hours you work at a VDT;
- b) layout of the workstation, i.e., problems with such things as glare and lighting and how far you sit from the screen;
- c) whether your symptoms subside after work or on weekends.

2. What should the eye exam include?

Routine VDT eye exams can be performed by an optometrist or ophthalmologist. Be sure that your doctor checks those processes specifically involved in VDT work, including the ability of the eyes to "accommodate" (focus) and to "converge" (contract) to turn the eyes inward.

3. Terminal spectacles

Our vision is usually corrected for reading at distances of 12 to 14 inches. Often, VDT workers are reading screens that are up to 25 inches away, which may mean that their corrective lenses are simply not adequate for VDT use. Many optometrists recommend "terminal spectacles", glasses designed particularly for distances associated with VDT viewing. Such work glasses should be paid for by the employer.

# FACT SHEET

## *VIDEO DISPLAY TERMINALS*

### Reproductive Hazards

#### Why are workers concerned?

Over the last five years up to 14 clusters of reproductive problems among women working on VDTs have been reported. Problems include miscarriages, birth defects and still births. For example, four out of seven pregnant women in the Toronto Star classified ad department had children with birth defects. Twenty-four out of forty-eight women at a United Airlines reservations office in San Francisco had pregnancy problems. A recent Montreal study of 15,000 pregnancies identified VDT workers as an occupational group that seems to have an increased risk of miscarriage.

#### What is causing these problems?

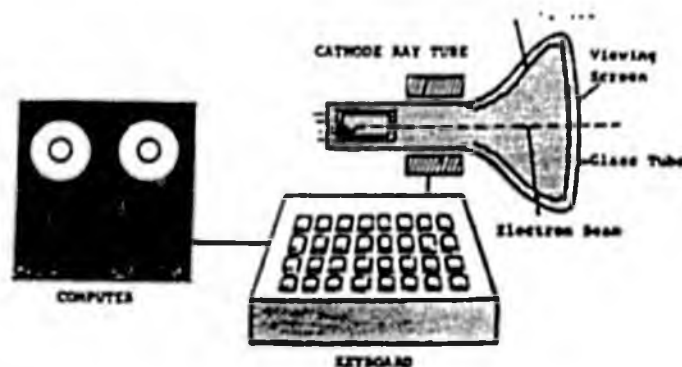
Research into pregnancy problems among VDT workers is inconclusive. Suspects include the high levels of stress documented among VDT operators; sitting immobile in front of a VDT all day; toxins in the general office environment; and levels of radiation. Some scientists believe that the reported clusters are mere statistical "quirks"; they contend that occasional high numbers of birth problems would occur naturally--by chance--in such a large population of women of childbearing age. Others caution against what could be a premature dismissal of VDT users' concerns.

Groups across the world are calling for more research into the relationship between VDT use and reproduction. The National Institute for Occupational Safety and Health (NIOSH) is planning a three-year study of this problem. Unfortunately, this large study won't be able to answer all the questions about the source of these reproductive problems. We need more research to determine whether there is a higher rate of pregnancy problems among VDT operators.

(over)

## What about Radiation?

The VDT is an electronic product like a television that consists of a screen attached to a typewriter keyboard linked up with a computer. An image on the screen is produced when an electron beam scans the screen causing phosphors to emit a light. As the beam moves across the screen, it responds to input signals from the computer or the typewriter linked up with a computer. This causes the beam to go on and off and produces a pattern of dots which make up each character.



The types of electromagnetic radiation produced by a VDT range from ionizing (x-rays) produced by the interaction between the electron gun and the screen, to non-ionizing, generated by the electronic components within the VDT, particularly the high voltage transformer. Most researchers agree that there is minimal risk of x-ray exposure - most x-rays are absorbed by the screen.

There is controversy over non-ionizing radiation. Recent studies of non-ionizing radiation have looked at the biological effects of pulsed VLF (very low frequency) and ELF (extra low frequency) and magnetic fields, all of which are associated with VDTs. Studies in Spain and Sweden have linked such frequencies to abnormalities in chicken embryos and mice fetuses.

So far all tests have found that radiation emitted from VDTs is well below present government standards. However, a number of unanswered questions remain. Are measurement instruments sensitive enough? Is there any safe level of radiation? How much do we know about the long-term effects of exposure to low levels of radiation? What about manufacturing defects and poorly maintained older machines?

# FACT SHEET

## *VIDEO DISPLAY TERMINALS*

### **Musculo-Skeletal Problems and Ergonomics**

Poor workstation design can cause eyestrain, headache, strain and inflammation of muscles, joints and tendons in the wrists, hand, neck, back, arms and legs. These problems may be so severe as to be disabling. Yet most of them are completely preventable with proper attention to work station design and operation.

"Ergonomics" means fitting the workplace to the needs and characteristics of workers, rather than having employees adapt to fit into the workplace. The key to good design is flexibility, since no two people will require the same workstation configuration. A full consideration of VDT ergonomics includes the VDT itself, furniture, and the total office environment, with respect to such things as lighting and noise.

Key elements of an ergonomic workstation include:

A *well-designed chair* that provides good mid-back support and has a back rest and seat that are independently adjustable. A reclining seat back and a seat pan that can be adjusted to varying angles will allow you to control the degree of pressure on your thighs and back.

An *adjustable bi-level machine stand* that allows the keyboard and screen height to be independently adjusted. This puts less strain on the neck and allows the arms and thighs to be resting parallel to the floor.

A *copy holder, adjustable in angle and height*, placed near the screen to reduce awkward movements of the head and minimize the need for the eyes to adjust to different distances.

A *thin, detachable keyboard* that can be moved closer to or further away from the screen. The top surface of the "home row" of keys should be no higher than 2.5 inches above the work surface to avoid hand and wrist difficulties.

A *footrest* to relieve seat pressure on the thighs of shorter operators.

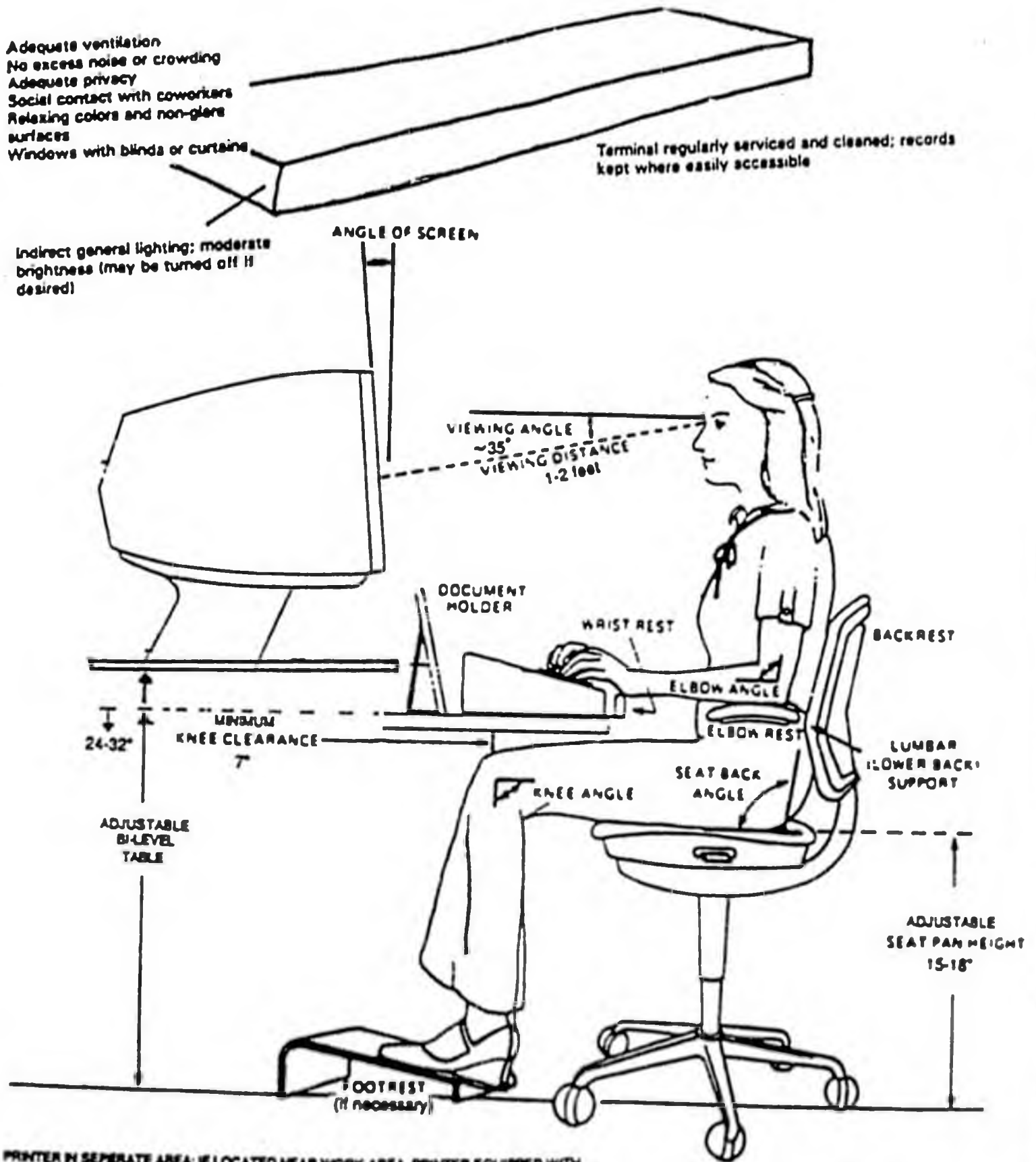
*Printer noise shields* or *isolation of the printer* to eliminate printer noise.

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Rest breaks to allow the opportunity for movement. Sitting still, in any position, for long periods of time is stressful on the body.

The figure below illustrates the main aspects of VDT workstation design.



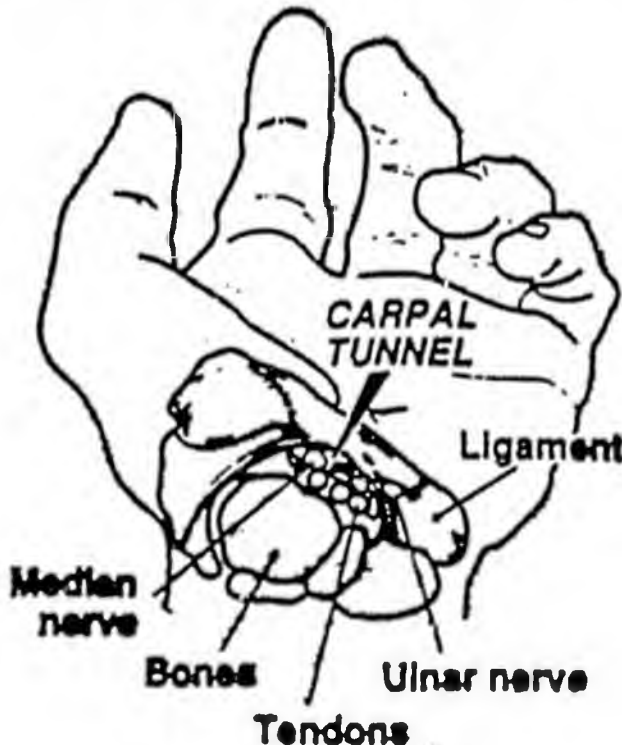
PRINTER IN SEPARATE AREA; IF LOCATED NEAR WORK AREA, PRINTER EQUIPPED WITH NOISE SHIELD

Adapted from a factsheet of the VDT coalition of Bay Area Unions.

# FACT SHEET

## CARPAL TUNNEL SYNDROME

Carpal Tunnel Syndrome (CTS), a repetitive strain injury, is an increasingly common problem among VDT users. Repetitive typing on a keyboard at the wrong angle can cause wrist pain and numbness or tingling in the hand and fingers, particularly at night.



The Carpal Tunnel in the wrist is a small space surrounded by bones and ligaments through which the median nerve and tendons pass. The median nerve connects with the thumb and fingers on the thumb-side of the hand. Overuse of tendons and muscles without sufficient time for recovery can cause swelling and squeezing of the nerves. The associated pain and weakness of the thumb and hand that result from compression of the median nerve in the Carpal Tunnel is called Carpal Tunnel Syndrome.

**Treatment:** The wrist pain can be incapacitating, often requiring the use of wrist splints and anti-inflammatory drugs or surgery. There is no permanent "cure" for CTS. Commonly, the relief provided by CTS surgery is temporary. In individuals that return to jobs that require hand-intensive work, the pain and associated CTS symptoms often return within months. In some cases victims are permanently disabled from performing such simple tasks as turning a doorknob, shampooing hair, or writing a letter.

**Prevention:** The work station should be ergonomically correct (see fact sheet on Musculo-Skeletal Problems and Ergonomics). If the top surface of the "home row" of keys on the keyboard is higher than 2.5 inches above the work surface, it is important that a wrist support be used. The operator should be able to rest his/her hands on the table or wrist support and use only the muscles of the fingers to press the keys. Even more effective are routine work breaks away from the VDT. The National Institute for Occupational Safety & Health recommends a minimum of 15 minutes every two hours.

(over)

Other experts conclude that 10 minutes every hour is better protection. Some AFT locals have written contract language to give VDT operators frequent breaks. Los Angeles Community College District and AFT College Staff Guild negotiated a clause that states:

Every employee actively working at a VDT terminal shall be required to take a fifteen (15) minute work break every hour away from the terminal to accomplish other work. Such breaks shall be in addition to regularly scheduled rest breaks. Employees shall not be required to operate VDT equipment fifteen (15) minutes before the end of his/her shift.

**DEPARTMENT OF LAW**

OFFICE OF THE ATTORNEY GENERAL

January 31, 1992

REPLY TO:

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Honorable Fran Ulmer  
House of Representatives  
P.O. Box V  
Juneau, AK 99811

Re: HB 385 - relating to video  
display terminals

Dear Representative Ulmer:

Thank you for the opportunity to comment on your bill relating to video display terminals, HB 385. While we take no position on the policy behind the legislation or the hazards posed by video display terminals (VDT) use, we do have some observations about the bill's legal ramifications.

The bill directs state agencies to "attempt to provide a hazard free worksite for state employees who use" a VDT. Section 1; proposed AS 39.90.160(a). While the bill's intent may be to address only hazards related to VDTs, as written it is much broader. Its scope includes all types of hazards to which VDT users may be exposed. Thus, the bill establishes a special class of occupations not heretofore considered "hazardous." The arguable result may be a higher duty to protect, for example, clerks from the hazards of loose rugs or heavy files than to protect emergency fire fighters from the hazards of wildfire.

The bill does not explicitly amend the state's workers' compensation laws. However, the bill may have the effect of creating a statutory "assumption," if not presumption, that work with a VDT is hazardous, without defining the specific hazard and the result caused thereby. This possibility should be carefully considered in light of the available scientific evidence, as it may impact the state's position in workers' compensation matters.

Finally, the bill imposes an obligation to provide a notice advising about the hazards and safe use of a VDT and identifying the source of more information. Section 1; proposed AS 39.90.160(b). It can be argued that this requirement creates a

Honorable Fran Ulmer  
House of Representatives

January 31, 1992  
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new and distinct cause of action for VDT users who are injured or mentally distressed, whose remedy would otherwise be confined to workers' compensation. This would be a significant departure from current policy and law. The legislature's intent regarding the creation of a new basis of civil liability should be clearly expressed.

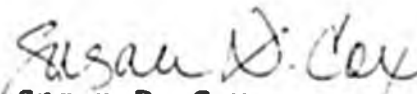
We note that the bill is limited to state government and would not cover the Alaska workforce of VDT users generally.

We hope these comments are helpful to you. We would be happy to discuss the bill further at your convenience and to review any proposed changes during the legislative session.

Sincerely,

CHARLES E. COLE  
ATTORNEY GENERAL

By:



Susan D. Cox  
Assistant Attorney General

SDC:jal

cc: Paul Fuhs  
Deborah E. Behr  
B.J. Jordan



# House State Affairs Committee

## Representative Gene Kubina, Chair

**DATE:** January 29, 1992

**PLACE:** Capitol Room 102

**SUBJECT OF MEETING:**  
 \*HB 301 - Relating to Regular Legislative Sessions  
 \*HB 322 - Relating to Whistleblower Protection  
 \*HB 385 - Relating to State Employee VDT Safety  
 \*SCR 19 - Relating to Age-Related Discrimination in Alaska

NAME	REPRESENTING	BUSINESS/PERSONAL MAILING ADDRESS	ZIP	(H) PHONE	(W) PHONE	DO YOU WANT TO TESTIFY?	WHAT SUBJECT/ WHICH BILL?
<i>James F. ...</i>	<i>Legislative ...</i>	<i>1304 113000 June</i>	<i>99801</i>	<i>4</i>	<i>4970</i>	<input checked="" type="radio"/> Y <input type="radio"/> N	<i>HB 322</i>
<i>James H. Wilson</i>	<i>AK Dept. Labor</i>				<i>4520</i>	<input checked="" type="radio"/> Y <input type="radio"/> N	<i>HB 385</i>
<i>Gran Island</i>	<i>OAC</i>	<i>Box 110209</i>	<i>99801</i>			<input type="radio"/> Y <input checked="" type="radio"/> N	<i>SCR 19</i>
<i>Debra Knutson</i>	<i>AK Dept ASEA</i>	<i>5875 Glac. Hwy #4</i>	<i>99801</i>		<i>2218</i>	<input checked="" type="radio"/> Y <input type="radio"/> N	<i>HB 385</i>
<i>George Imbsey</i>	<i>ASEA</i>	<i>2113 Douglas 641 W. Willoughby</i>	<i>99801</i>	<i>3642742 HM 4634949</i>	<i>4652915</i>	<input checked="" type="radio"/> Y <input type="radio"/> N	<i>HB 385</i>
<i>BRUCE LUDWIG</i>	<i>APEA/AFT</i>	<i>390 N. FRANKLIN ST</i>	<i>99801</i>	<i>6-6936</i>	<i>6-2324</i>	<input checked="" type="radio"/> Y <input type="radio"/> N	<i>HB 322, 385</i>
<i>Mike McMiller</i>	<i>DOA</i>					<input type="radio"/> Y <input type="radio"/> N	
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						<input type="radio"/> Y <input type="radio"/> N	
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*C.*