

VIDEO VIEWS

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THE VDT COALITION

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Good Workplace Design Pays Off

Many VDT workers are tired of hearing about increased productivity. When their offices were automated, productivity went up and some of their co-workers went **out**. For some, "productivity" means having their hourly keystrokes monitored by management and being pushed to work faster.

But there is another side to productivity. It can sometimes be a way to sell management on health and safety. For example, productivity goes down when a worker suffers from eyestrain, headaches or muscular pain. It goes down if that worker calls in sick. It drops when turn-over goes up due to "terminal burnout." Productivity is reduced so much because of these factors that management can quickly recoup its investment in appropriate furniture and lighting designed especially for the VDT operator. This is sometimes called "ergonomic" design.

The most dramatic productivity figures come from a study by Marvin Dainoff, PhD, for the National Institute for Occupational Safety and Health (NIOSH) in 1982, which showed that the difference in VDT worker productivity between a "worst design" and "best design" environment was 24.5%. The most significant aspects of the "best design" environment were an adjustable chair, proper working height, appropriate lighting and a copy holder. Besides the improved performance, workers reported a decrease in musculoskeletal complaints after working in the well-designed environment. These results were borne out in a German study which showed a 26% increase in productivity in a well-designed workstation.

In addition, a Mt. Sinai Medical School study found that VDT workers lost more work time than non-VDT office workers. The Norwegian State Institute of Physiology found that proper ergonomic design

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Hayden plans new VDT bill; interim hearings held

Assemblyman Tom Hayden has announced that he will be introducing new VDT legislation next year. The legislation will again be sponsored by the California Labor Federation. Members of the VDT Coalition and the L.A. VDT Task Force will be meeting with Hayden and the Labor Federation to begin to design the specifics of a new bill.

Meanwhile, interim hearings held before the California Assembly Labor and Employment Committee continue to focus attention on VDT health and safety. The first of these hearings was held Friday, October 19 in Burlingame, California, and was attended by eighty VDT users, unions and industry representatives.

tional stress in VDT users. Causes of physical stress include "static load" (stress caused by any fixed posture); and repetitive motion, leading to cumulative trauma to muscles and joints. He called for maximum flexibility and adjustability of the workstation, control of glare and lighting, a break at least every two hours, and rotating work. His studies showed a dramatic increase in productivity, along with a decrease in health complaints, in an "ideal" workstation compared to a poor one.

David Thompson, PhD, of Stanford's Industrial Engineering Department, showed diagrams of proper body angles and discussed approaches to lighting including vertical



The hearing consisted of three parts: reports from experts and researchers, testimony from workers and their representatives, and presentations by employers and industry spokespeople.

Expert testimony included a demonstration of how a VDT works and discussion by two VDT researchers on the impact of VDT use on operators' health and safety. Marvin Dainoff, PhD, a psychologist who consults for NIOSH on VDTs, spoke about physical and emo-

glare filters. He pointed out that workers who have less meaningful tasks and do not set their own pace suffer most from a poorly designed workstation.

Stan Taylor, PhD, a Human Factors psychologist for IBM, reported that ANSI (American National Standards Institute) is developing voluntary standards for VDTs and stated that preliminary standards will be sent to Hayden's office shortly. Although he claimed that the

Research Update

VDT Research... VDT Research... VDT Research... VDT Research... VDT Research...

Stress, indoor air pollution and possible emissions of low-level radiation from VDTs are potential health hazards facing millions of clerical workers according to a recent report by the Office of Technology Assessment, a research arm of Congress. The study, "Potential Office Hazards and Controls," concluded that, although such health problems may not be life-threatening, it is important to "recognize as hazards not only those conditions which can cause physical impairment, but also those which can have an adverse effect on mental and physical well being."

Researchers Robert Arndt and Larry Chapman, from the University of Wisconsin, examined potential sources of stress, including ergonomic problems, such as improper furniture and lighting, and poor job design. With new office technologies, "jobs become more simplified, repetitive, and unsatisfying. Computer technology has seldom been used to upgrade clerical jobs. There is a deliberate endeavor to maximize efficiency and output, and there is greater pressure to work quickly and accurately, often at a pace set by a machine. Monitoring of work output becomes more common..."

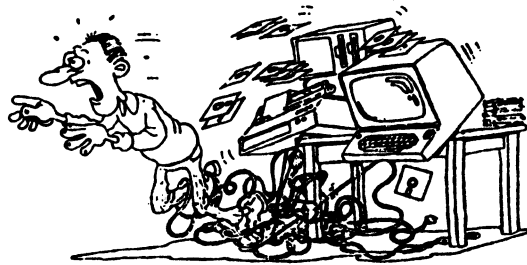
To reduce the visual problems faced by large numbers of VDT workers, they state, "It is generally agreed that pre-placement visual examinations for office workers employed in visually demanding tasks are an effective and worthwhile preventive measure."

The report also identified improper ventilation in "sealed" buildings and evidence of air contaminants such as micro-organisms, gases and dust as causes of numerous worker complaints.

The study called for more research into office health hazards. Rep. Mary Rose Oaker (D-Ohio) who released the report, said, "We don't know if it's safe for pregnant women to sit near video display terminals all day, we don't know a safe level for many indoor air pollutants, we don't know enough about the link between existing hazards and chronic health problems down the road." She criticized the Reagan administration for failing to make these issues research priorities.

While \$37 billion was spent this year on military research and development, the National Institute for Occupational Safety and Health spent only \$300,000 on researching office hazards, "less than one penny per office worker."

Researchers with the Swedish National Board of Occupational Safety and Health (NBOSH) and the National Board of Health and Welfare (NBOHW) looked at



2500 cases from national registers of miscarriages and malformations and found: "There are certain signs indicating that miscarriages may be linked to VDTs and that the number of miscarriages increase among operators." Based on these results, NBOSH and NBOHW have decided to escalate their study and will examine the working and living conditions prior to pregnancy of 1500 women in their original sample. NBOHW is also planning a study of 5000 VDT workers in the insurance industry which will reveal both the number of miscarriages and malformations and the number of problem-free pregnancies.

In other research, Dr. Kjell Hansson Mild of the Swedish National Board of Occupational Safety and Health found that chicken embryos exposed to weak pulsed magnetic fields, like those associated with the high voltage transformer in VDTs, may develop malformations. These results duplicate those in a 1983 study by Spanish scientist Dr. Jose Delgado. The Swedish National Institute for Radiation Protection is investigating methods of reducing the magnetic fields emitted from

VDTs. In the meantime, Dr. Mild, in an interview with Swedish journal, *Arbetsmiljo* (No. 9 1984, p. 7) advised women planning pregnancy to stay away from VDTs emitting strong pulsed magnetic fields.

A task force of the Quebec Research Institute for Occupational Health and Safety recently recommended radiation shielding for VDTs and pregnancy transfer in certain situations for pregnant VDT workers. The recommendations were part of 21 conclusions concerning VDT health and safety made by the task force after reviewing over 250 scientific studies on VDT-related health problems.

The task force recommended that VDTs be shielded with effective armor plating designed to block electrical field radiation. They also concluded that pregnant women should be "allowed to stop working on the machine if it is not adequately shielded and if the length of time required, the workload and organization as well as the lay-out result in a static position and/or stress."

The task force made these conclusions even though they found that "it can safely be deducted that radiations do not affect pregnancies with the possible exception of the low-frequency variety, in which case the evidence presently on hand is not sufficient to entirely reject that possibility. Complications during pregnancy are more likely to derive from various factors associated with the organization of the tasks, the workload, the static position, or stress."

The report also documented a high number of visual, musculoskeletal, and stress-related problems experienced by VDT operators. The task force concluded that these problems were most likely caused by factors such as poor character brightness and contrast, glare, uncomfortable sitting positions, and physical immobility due to high working speed expectations and inadequate structuring of tasks. The task force's recommendations concerning the workplace included proper design, lighting, and furniture, temperature and humidity controls.

International Conference Sets VDT Health & Safety Guidelines

Comprehensive guidelines for VDT negotiators, including stringent radiation limits, were adopted by an International Trade Union Conference on Visual Display Units (VDUs) held in Geneva, Switzerland on October 29-30, 1984.

The conference, attended by 200 delegates from 20 countries and 14 international federations, called for measures to assure low levels of Very Low Frequency (VLF) radiation, which has come under increasing suspicion as a possible reproductive hazard. Pending the results of reproductive studies now under way, it affirmed the right of VDT operators to transfer to other work when they become pregnant or undertake to do so. The conference also adopted a wide range of ergonomic guidelines, such as adjustable furniture, provision of foot rests and appropriate lighting, and glare control, intended to alleviate other health and safety problems.

The conference also pointed out that if research confirms that there are VDT-related reproductive problems attributable to radiation, all operators, not just women, are at risk and it emphasized the importance of shielding against VDT

radiation until the question is solved.

The conference adopted a series of recommendations submitted in a joint document by Research and Information Director of the Newspaper Guild, David J. Eisen and David LeGrande, Occupational Safety and Health Administrator for the Communications Workers of America, concerning rest breaks, ultra sound, wrist rests, eye examinations, facial rashes, air contaminants and the development of alternatives to video display terminals.

Conference guidelines also forcefully oppose all automatic performance and behavior monitoring of VDT operators.

David Cockcroft, of the Commercial, Clerical, Professional and Technical Employees Federation, called the guidelines an attempt "to set down in one place the collective wisdom of the international trade union movement" on VDU health and safety. He expressed the hope they would become "a standard reference guide for trade union negotiators throughout the world."

Excerpted from The Guild Reporter, Vol. 51, No. 20, Nov. 9, 1984, Washington D.C.

Design *Continued from page 1*

reduced absenteeism from 23% to 11%, while turnover dropped from 40% to only 5%. At a Wells Fargo Bank, when new ergonomic features were introduced, turnover dropped by 50% and productivity increased by 15.4%.

What does this mean in terms of dollars and cents? In one office, changes in lighting alone saved Pennsylvania Power and Lighting Company \$235,290 in increased productivity and decreased absenteeism. State Farm Insurance Company compared ergonomically-designed workstations with those having regular furniture and found a 10 to 15% improvement in performance. They estimated annual savings would be \$13 million dollars per year.

Furniture and lighting are not the only aspects of the work environment which have an impact on productivity. Many researchers have documented that worker alienation, job dissatisfaction and stress lead to high absenteeism and turnover, and low productivity. The U.S. Clearinghouse for Mental Health Information estimated that U.S. industry has had a \$17 billion annual decrease in productive capacity due to stress-related mental problems, and a \$60 billion annual loss due to stress-induced physical illness. The National Institute for Occupational Safety and Health found VDT operators to have the highest stress levels of any group they have ever studied. These high levels of stress have been associated with machine pacing, close supervision and lack of control over the workplace. Several studies (Karacek et al) have shown that when workers have had more control over their work and greater participation in decision-making, they have higher job satisfaction and lower levels of stress.

All this leads to the conclusion that VDT operators' participation in decisions about workplace design—including not only furniture and lighting, but also pace of work, when to take breaks, and job design—can enhance both their physical and mental health, and their productivity.

So the next time you hear that ergonomically designed furniture and lighting is too expensive, or that workers should leave all decision-making to management, show these figures to your boss!

Report from L.A. VDT taskforce:

L.A. City Council supports VDT legislation

Only a few days before the State Assembly defeated AB 3175 (the VDT Occupational Safeguards Act), the Los Angeles City Council voted unanimously to endorse the legislation, despite opposition from three City departments.

Members of the Los Angeles VDT Task Force, Local 18 IBEW (representing Department of Water and Power employees) and AFSCME (representing other city employees) testified on the importance of passing regulations to safeguard the thousands of employees using video display terminals.

Councilman Robert Farrell, chair of the Intergovernmental Relations Committee which carried the recommendation to the full Council, noted that his offices are being rearranged to accommodate video display terminals. He promised that the

comfort and safety of his employees would be taken into consideration in the choice of equipment and the physical layout of the offices.

The VDT Task Force is encouraged by this endorsement, and by the fact that the City has agreed, as part of a union contract, to study the impact of VDTs on their operators.

Newsletter Committee: Rachel Blau, Shirley Fredericks, Doreen Gentry, Cathy Holt, Bob Matthews, Jean Miller, Jeanne Robinson, Laura Stock. Thanks to Cathy Davis.

VDT hearing *from page 1*

standards were based on input from "science, manufacturing, labor, and government," he admitted that the 12 members drafting the standards included no labor representatives, and "labor hasn't sent us anything yet."

Laura Stock, of the UC based Labor Occupational Health Program and the VDT Coalition, stated that there is abundant scientific research validating workers' claims that VDT use can cause high levels of eyestrain, muscle aches and stress.. Despite numerous recommendations for improving VDT working conditions, "automation continues to be implemented without any attention paid to its effects on users' jobs and health. So, millions of VDT users still suffer daily headaches, back problems and eyestrain," In response to these problems, legislation has been introduced in Europe, unions are negotiating contract language and over 20 states in the U.S. are considering VDT regulations.

The employee perspective was presented by VDT users and union representatives.

Tom Rankin, Research Director of the California Labor Federation, emphasized that state legislation is necessary because the option of pushing for a Cal/OSHA VDT standard is not practical. Cal/OSHA said Rankin, now has only one person assigned to writing new standards, and the process would take approximately seven years.

Janet Schneider, of SEIU Local 660, described the work of the Southern California VDT Task Force conducting surveys, public speaking, getting contract language. She said that even with a union, proposals to protect VDT workers get stalled in joint labor-management committee. Further, only 15% of clerical workers are represented by unions, leaving the vast majority of VDT users unprotected.

James Gordon of Communications Workers of America described the poor implementation of Bell Laboratory's own guidelines for VDT workers at Pacific Bell.

Several VDT workers described their own health problems. Linda Chaney, of the Air-Transport Employees, said her doctor told her that her wrist ganglion cyst, for which she had surgery, was typical of keyboard work. Jeanne Robinson,

a lawyer, testified that she had to quit work completely after nine months of using a VDT, due to constant pain in her eyes, and now can read only two hours a day. "How can anyone say workers' compensation is the solution?" she asked. Jim O'Donnell of Office and Professional Employees Union, Local 3 (OPEU) described visual problems which caused him to take a job transfer and pay cut to avoid further eye damage. Jean Miller, also a member of OPEU, described difficulty in focusing her eyes as well as back problems caused by a poorly designed workstation. "I hope VDT operators will not become the asbestosis victims of the future--we need legislation now," she stated.

Bill Davis of the Newspaper Guild, Local 89, stated that four cases of carpal tunnel syndrome (CTS) had been reported among VDT workers. Before VDTs were introduced, there had not been a single case. He emphasized that CTS, which is damage to wrist nerves and tendons caused by repetitive motion, is not always surgically correctable and can be totally disabling.

Alexis Rankin, of SEIU 390/400, reported on a union survey of the San Francisco Police Department, where radio dispatchers at VDTs suffer from blurred vision and constant pain. "I doubt any of you would want your emergency call taken by a dispatcher in that condition," she said. She also pointed out that an orthopedic chair for an injured back costs \$800, while prevention can be accomplished with a \$225 chair.

Marcia Summers of 9 to 5, discussed their toll free VDT hotline and the massive volume of health problems

reported, including 16 possible problem pregnancy clusters. "Workers can't afford to wait till all the evidence is in before precautions are taken," she declared.

Among those testifying against VDT legislation were representatives of the computer, airline and printing industries and the California Manufacturers Association. Karen Kessell of the Koffler Group charged that studies indicating VDTs may pose reproductive problems were poorly designed and not replicable. She also implied that "personal preference" varied so much that it was impossible to set guidelines for a good VDT workstation. A printing industry spokesman complained that mandatory rest breaks would have "devastating effects on California employers."

The Assembly Labor and Employment Committee plans to hold more interim hearings on VDTs this year. Plans are being made for hearings in Los Angeles and Sacramento. Proponents of legislation urge VDT users to attend to show their support and offer testimony. For more information on the interim hearings call the Assembly Labor and Employment Committee at 916/445-2567.

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**VDT Coalition
c/o LOHP
Institute of Industrial Relations
University of California
Berkeley, CA 94720**

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