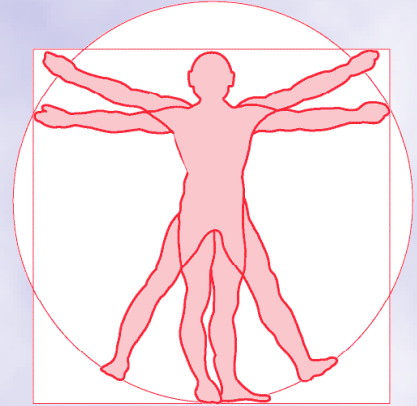


**COMMUNICATIONS
WORKERS
OF AMERICA**



Airport Workplace Ergonomics Awareness Training Program

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Communications Workers of America

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CWA Safety and Health Department 2003

Airport Workplace Ergonomics Awareness Training Program

CHAPTER 1	
Airport Workplace Ergonomics Awareness Training Program	1
CHAPTER 2	
Human Anatomy and Physiology	3
CHAPTER 3	
Airport Workplace Vision Problems: An Introduction	9
Fact Sheet: Lighting	10
Fact Sheet: Glare	11
Fact Sheet: Computer Monitor	12
Corrective Action Checklist: Visual Problems	13
Job Hazard Analysis—Airport Workplace Visual Problems	15
Take Home Questions: Vision and Visual Health Problems with Explanation	16
CHAPTER 4	
Airport Workplace Musculoskeletal Health Problems: An Introduction	19
Corrective Actions: Musculoskeletal Health Problems	21
Fact Sheet: Keyboard/Mouse Design	29
Fact Sheet: Chair/Stool	30
Fact Sheet: Workstation	32
Computer and Workstation Design Variables	34
Job Hazard Analysis—Airport Workplace Musculoskeletal Health Problems.....	35
Take Home Questions: Musculoskeletal Health Problems with Explanation	37
CHAPTER 5	
Occupational Stress and the Airport Workplace	43
APPENDICES	
1-Day Airport Workplace Ergonomics Training Evaluation	47

Grant-Developed Materials

The following materials contained in the Awareness Program were developed under the CWA OSHA Grant:

1. CWA Airport Workplace Ergonomics Awareness Program
2. Human Anatomy and Physiology
3. Common Cumulative Trauma Disorders
4. CWA Airport Workplace Ergonomics Training
 - Fact Sheet: Airport Workplace Vision Problems: An Introduction
 - Fact Sheet: Lighting
 - Fact Sheet: Glare
 - Fact Sheet: Computer Monitor
5. Corrective Action Checklist: Visual Problems
6. Job Hazard Analysis—Airport Workplace Visual Problems
7. CWA Airport Workplace Ergonomics Training—
Take Home Questions on Vision and Visual Health Problems with Explanation
8. CWA Airport Workplace Ergonomics Training—
Airport Musculoskeletal Health Problems: An Introduction
9. Corrective Actions: Musculoskeletal Health Problems
10. CWA Airport Workplace Ergonomics Training—
 - Fact Sheet: Keyboard/Mouse Design
 - Fact Sheet: Chair/Stool
 - Fact Sheet: Workstation
11. Job Hazard Analysis—Airport Workplace Musculoskeletal Health Problems
12. CWA Airport Workplace Ergonomics Training—
Take Home Questions on Musculoskeletal Health Problems with Explanation
13. Occupational Stress & the Airport Workplace
14. 1-Day Airport Workplace Ergonomics Training Evaluation

Airport Workplace Ergonomics Awareness Training Program

Changing technology and work organization have affected CWA members greatly. In some instances, these work changes have improved member working conditions, but in others, they have created several occupational safety and health hazards. One product of new technology—the computer—has, in part, resulted in increased worker productivity and efficiency, but often with a corresponding development of occupational safety and health problems.

CWA and its members have been in the forefront of experiencing and investigating the increased implementation and use of computers. Since the latter 1970s, the number of members utilizing computers to perform their jobs has increased from a few thousand to more than 450,000. During that time, the Union's Occupational Safety and Health Department has been actively involved in developing computer workplace educational materials, conducting training sessions, drafting collective bargaining language, and conducting and sponsoring surveys and scientific research.

The experience of CWA, supported by scientific research such as that conducted among the Union's airlines members by CWA's Occupational Safety and Health Department and the Department of Industrial Engineering, University of Wisconsin, has

demonstrated that there are specific health symptoms and illnesses associated with the use of computers. These may be categorized as visual, musculoskeletal, and stress.

In addition, the Union's Occupational Safety and Health Department has investigated ergonomic issues within represented airline, manufacturing, telecommunications craft, printing and publishing, media and broadcasting, health care, and public sector work locations. In each of these investigations, the Department has established links between inadequate ergonomics or poorly designed working conditions and the occurrence of member musculoskeletal symptoms, injuries, and illnesses. Several of these activities have also established relationships with the occurrence of both musculoskeletal and stress health problems.

What Is Ergonomics?

Ergonomics is the relationship between human beings and the work process and environment. Simply put, ergonomics means fitting the workplace to the physical, psychological, and psychosocial characteristics of workers rather than having employees adapt to meet the design of workplace tools, equipment, and tasks. Ergonomics is a systematic approach to creating tools and equipment, work environ-

AIRPORT WORKPLACE ERGONOMICS AWARENESS PROGRAM

ments, and work organizations that are safe, comfortable, and productive. Failure to develop, introduce, and adhere to ergonomics principles often results in workers suffering cumulative trauma or repetitive motion musculoskeletal health symptoms and disorders.

The CWA Airport Workplace Ergonomics Awareness Training Program has been developed to assist the Union's leaders and members in the:

- n Identification and resolution of airport workplace ergonomic factors as well as related health hazards and member health problems, and
- n Prevention of member airport workplace cumulative trauma or repetitive motion musculoskeletal health symptoms and disorders.

Identifying health hazards and problems is the first step towards resolving airport workplace ergonomic problems. Airport workplace ergonomic health hazards may be categorized as:

- n Visual,
- n Musculoskeletal, and
- n Stress.

By reviewing the "2001 CWA US Airways Airport Workplace Ergonomics Survey," we will be able to identify these health hazards, related airport workplace ergonomic risk factors, and put forward corrective measures that may be taken to eliminate/minimize the occurrence of member musculoskeletal or repetitive motion illnesses and injuries. In addition, we will focus upon work organization factors and related occupational stress health problems. This process will review data collected from members in five job classifications:

- n Club Agents
- n Lost Baggage Agents
- n Passenger Gate Agents
- n Special Assistance Representatives
- n Ticket Counter Agents

After this we will discuss what is the workers' and Union's role in the identification, resolution, and prevention of airport workplace cumulative trauma or repetitive motion health symptoms and illnesses.

Human Anatomy and Physiology

In this chapter we'll review parts of the musculoskeletal system of the body and how they relate to ergonomics. Even a basic understanding of this system will help you understand the causes, signs and symptoms, and risk factors associated with the development of a number of important repetitive motion illnesses. We'll concentrate our review on the upper part of the human body (also referred to as the upper extremities) which includes the vertebral column (the spine), the neck and shoulders, the arms, and the hands. These body segments were selected since they are where most of the work-related disorders and injuries associated with poor ergonomics are likely to show up.

The Musculoskeletal System

The skeletal system (see figure on page 4) provides support and stability for the body, protects the organs of the body, allows movement and provides leverage for the body, and produces blood cells and stores calcium. The skeletal muscles are responsible for the body's movement and posture.

Muscular Activity: Dynamic and Static Work

All work can be broken down into dynamic or static work; all jobs have both static and

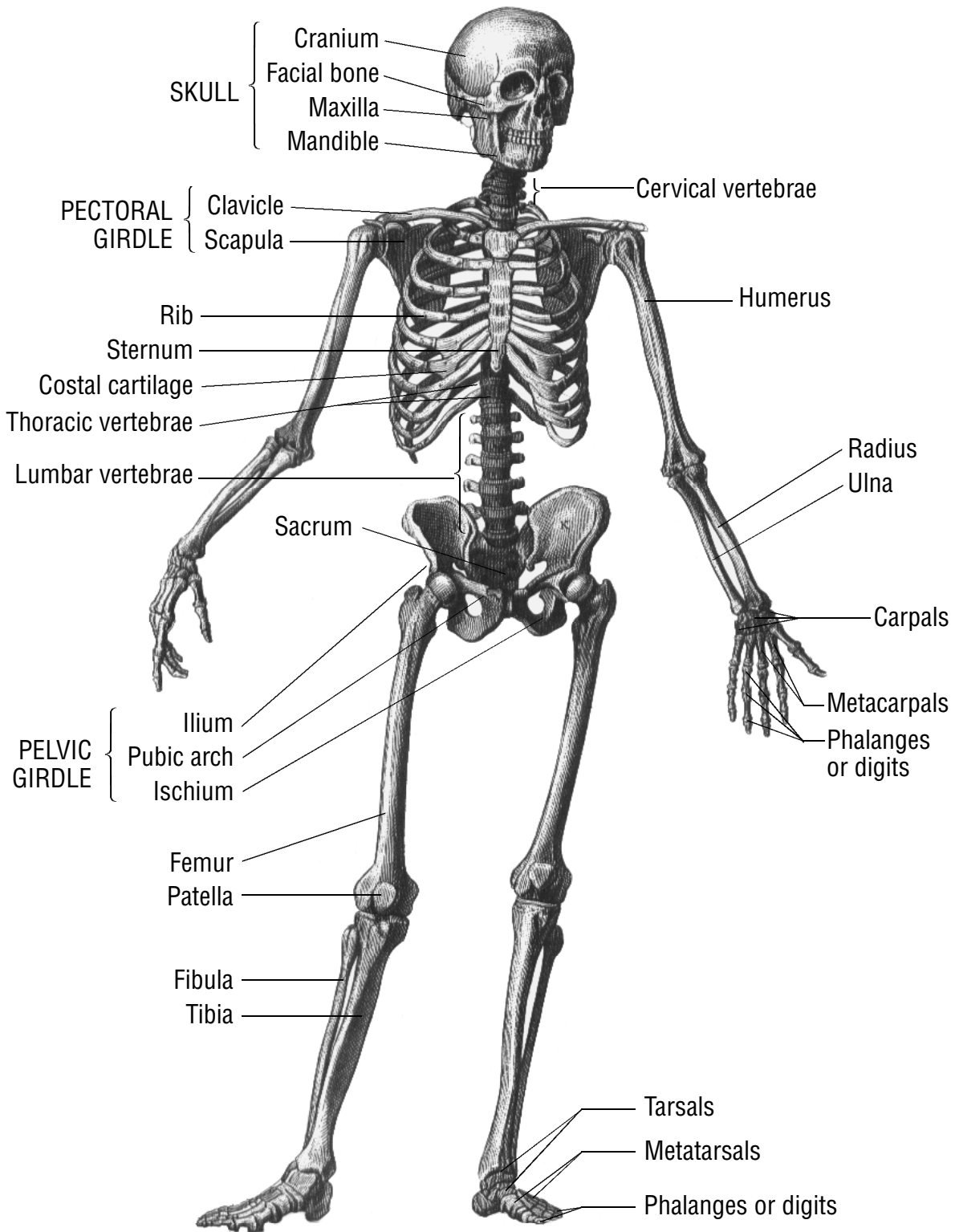
dynamic work elements. Static work involves holding a fixed posture for a lengthy period of time, like sitting or standing still. Static work can eventually lead to inflamed tendons or joints, lower back pain, as well as tendinitis, arthritis, and other musculoskeletal disorders.

Dynamic work involves body movement, holding and releasing tools, or material handling. Dynamic work may be linked to a variety of cumulative trauma disorders if it involves forceful, awkward, and repetitive movements without proper rest between them.

Cumulative Trauma Disorders

Cumulative Trauma Disorders (CTDs) go by a variety of different names, such as repetitive strain illnesses (RSIs) or repetitive motion illnesses (RMIs). Whatever term we use, CTDs are injuries associated with the gradual and repeated exposure to workplace risk factors that affect parts of the musculoskeletal, cardiovascular, and/or nervous systems. What makes CTDs different from other illnesses and injuries, such as lacerations, bruises, and broken bones, is that CTDs don't usually occur after a single exposure (trauma) to a risk factor like an unguarded saw blade, a slippery floor, or a flying object. CTDs develop after exposure

Skeletal System



to *repeated traumas*. Unfortunately for workers, there is no way to say exactly how long or how much exposure is required before these CTDs occur. The symptoms develop gradually over time spans that may vary from weeks to years.

The more common CTDs are strains, tendinitis, synovitis, tenosynovitis, bursitis, ganglionic cysts, or carpal tunnel syndrome. Details on each type of CTD and their causes are provided in this chapter.

Risk factors that are directly related to the development of work-related CTDs include:

- ☒ **Repetition:** Short work cycles and a high number of repetitions lead to increased muscular demand which can significantly increase the risk of a CTD, even under very small forces.
- ☒ **Posture:** Fixed or constrained postures are considered an important factor contributing to the development of CTDs. Jobs which require repeated stretching, reaching, extreme flexion of the elbow, reaching down and behind the body, and extreme rotation of the lower arm are also related to CTDs. These types of postures and movements are frequently required in many jobs in airport work locations.
- ☒ **Force:** Force is another important risk factor. Job tasks requiring considerable force and static work (prolonged gripping of a hand or power tool) require longer and more frequent rest periods to recover from muscle fatigue. Insufficient recovery time may lead to repetitive motion illness.
- ☒ **Contact stressors:** Resting forearms or wrists on edges of work surfaces, tables, or equipment can cause stress for tendons and nerves.

- ☒ **Work organization/job design:** Work organization/job design risk factors are also important. Risk factors including work pace, workload, job security, and lack of control over work can contribute to the development of repetitive motion health symptoms and disorders. Health symptoms and disorders such as anxiousness, irritability, high blood pressure, ulcers, and headaches can be caused by poor work organization/job design.

There are also a number of non-work related risk factors, such as congenital (inherited) conditions, pregnancy, obesity, medication, diseases, overall fitness levels, and others.

Having reviewed the primary risk factors associated with the development of cumulative trauma disorders, let's now look at key parts of the musculoskeletal system and the types of CTDs associated with them.

Back Problems

Back disorders may result from several different sources, including congenital conditions, accidents, disease, and work-related activities. Overexertion of the vertebral column may lead to strains and sprains. But *repeated traumas* to the vertebral column may cause damage to the intervertebral disks, and in more extreme cases, damage to the vertebrae themselves.

While many cases of low back pain will resolve themselves on their own, a considerable number of cases will not fully heal and cause long-term discomfort, pain, and inability to carry on many work activities. There is no quick fix or even total cure for most back problems. To identify motions and/or tasks that can cause back problems, ergonomic job analysis should be con-

ducted. Ergonomic job analysis and workstation redesign are techniques for evaluating the sitting, reaching, stretching, lifting, pushing, pulling, and carrying done by workers.

Where possible, pushing, reaching, stretching, and pulling should be minimized. Sitting for lengthy periods of time in static, constrained postures should be minimized. Also, lifting should be minimized as much as possible, particularly lifting that involves twisting at the same time. Ideally, lifting should be done between the knuckles (when they are resting in a neutral position at the side of the torso) and the shoulders.

A Pain in the Neck

The neck is frequently involved in work-related discomfort and pain. Prolonged bending of the muscles of the neck is probably the most common cause of discomfort. In addition, psychological stress, which usually increases the muscular tension throughout the body, is particularly critical to the muscles of the neck.

Shoulder Problems

Work-related shoulder disorders are often associated with job tasks that require stretching, reaching, and where the elbow is kept in an elevated position. If your job requires you to keep your hands above your shoulder for significant periods day in and day out, you might develop a condition known as “frozen shoulder.”

Repeated motion of the arm away from the body can lead to a common shoulder disorder known as *rotator cuff tendinitis*. Baseball pitchers are prone to this condition, which is characterized by a persistent and dull pain in the shoulder region and discomfort in the arms.

Cumulative trauma disorders of the

hands and arms can be broken down into disorders of the tendons, nerves, and neurovascular (nerves and blood vessels) system.

☒ **Tendon disorders:** *Tendinitis* is a form of tendon inflammation resulting from frequent tensioning or overuse. The only way to prevent this inflammation is to provide time for rest and recovery

☒ **Nerve disorders:** Nerve disorders are associated with repeated exposure to contact stressors, such as sharp edges of tools or work surfaces, or even of other adjacent bones, ligaments, or tendons. Perhaps the best known CTD nerve disorder is *carpal tunnel syndrome*. Carpal tunnel syndrome victims may experience great pain and may be unable to grasp objects. Many of these symptoms will first occur away from work, often in bed.

☒ **Neurovascular disorders:** One of the most common neurovascular disorders is *cervical brachial syndrome*. Compression of blood vessels results from activities that pull the shoulders back and down and work that requires constant overhead motions. This condition produces numbness in the fingers and a weakening of the pulse.

Diagnosis and Treatment of CTDs

As with most illnesses, early detection greatly improves the chances of successful treatment. The first line of defense in early detection is **knowing the code**, which in this case means the warning signs.

The following are warning signs for carpal tunnel syndrome:

- n Do your hands or arms tingle or “burn”?
- n Do your hands feel numb?
- n Do you feel the need to massage your hands, neck, or arm to try to work out the

tightness and pain?

n Are you awakened at night with pain in your hands?

If you answered “Yes” to any of the above questions, you should seek medical advice. The table on page 8 contains warning signs for other CTDs. You are really the first line of defense, because only you can tell if any of these signs are showing up. If they are, you need to consult a doctor.

The treatment of CTDs will vary by in-

dividual; the process may be lengthy, and it may require restrictions in your work and non-work activities. It may also involve some modification in your work station, tools, or work methods. Generally, the treatment strategy utilizes a conservative approach, which may rely on one or more of four treatments: (1) *motion restriction* of the affected limb using braces or splints; (2) *application of heat or cold* to relieve pain and help the recovery process; (3) *use of anti-inflammatory medicine and pain-killers*; and (4) *specific physical exercises, massage, and stretching*.

COMMON CUMULATIVE TRAUMA DISORDERS

What Is It?	How's It Caused?	Who Gets It?
<p>Carpal tunnel syndrome: Feels like tingling in the fingertips, often followed by numbness and pain in the hands; can include vise-like pressure on wrists; pressure can send shocks of pain throughout the forearm and upper arm.</p>	<p>Repetitive motion of the wrist, especially fully extending the hand toward the forearm (flexion) or away from the forearm (extension); repeatedly bending the wrist to either side; pinch-gripping a tool or device.</p>	<p>Data-entry workers, journalists, cashiers, butchers, musicians, bricklayers, meat packers, assembly line workers, telecommunications workers, airlines airport and reservations center workers.</p>
<p>Tendonitis of the wrist: Feels like pain in the wrist, especially on the outer edges of the hand rather than through the center of the hand.</p>	<p>Forceful bending of the wrist forward or backward; forceful bending of the wrist away from the outer arm (so that the thumb points upward).</p>	<p>Assembly-line workers, meat packers, electricians, plumbers, airlines airport and reservations center workers.</p>
<p>Tendonitis of the shoulder or rotator cuff syndrome: Feels like dull, persistent ache in the shoulder region; sometimes can be pain in the arms.</p>	<p>Working with the elbows elevated with hand above the shoulder; regularly carrying loads on the shoulder; throwing objects.</p>	<p>Construction workers, painters, letter carriers, auto mechanics working underneath cars, airlines airport and reservations center workers.</p>
<p>Neck-tension syndrome: Feels like dull pain in neck and upper shoulders; can include moderate to severe stiffness.</p>	<p>Maintaining the same posture for long periods of time; carrying loads, either on the shoulder or in the hand.</p>	<p>Typists, packers, small-part assemblers, conveyor-belt offbearers, airlines airport and reservations center workers.</p>
<p>De Quervain's syndrome: Feels like pain especially on the side of the wrist and the base of the thumb.</p>	<p>Repeated wrist motions; forcefully extending the hand backward or to the side, or rapidly rotating the hand.</p>	<p>Riveters, surgeons, lumber workers, heavy manufacturing assemblers, airlines airport and reservations center workers.</p>
<p>Thoracic outlet syndrome: Feels like carpal tunnel syndrome (see above) and it is sometimes mistaken for it. It involves the shoulder and upper arm instead of the wrist.</p>	<p>Working for long periods in a posture that restricts upper body movement; continuously reaching overhead; carrying loads in the hand or "lugging" loads around using a shoulder strap.</p>	<p>Frequent travelers who carry their own bags, overhead assembly workers, auto mechanics, finishers, data entry workers, airlines airport and reservations center workers.</p>
<p>Tenosynovitis: Feels like dull persistent pain in the hands and shoulders.</p>	<p>Repeated wrist motions; forcefully extending the hand backward or to the side or rapidly rotating the hand.</p>	<p>Riveters, surgeons, lumber workers, heavy manufacturing assemblers, airlines airport and reservations center workers.</p>

Airport Workplace Vision Problems: An Introduction

Visual health problems of workers in an airport workplace include:

- n visual fatigue,
- n headaches,
- n eyestrain, and
- n sore eyes.

Visual fatigue is caused by the eyes being overused without a break from viewing or by environmental conditions such as glare from the viewing surfaces that cause the eyes to focus too hard. Overuse in reading can produce temporary “myopia” or nearsightedness.

Headaches can occur from constant viewing without a break. Sore eyes and eyestrain are symptoms of overusing the eyes and exposure to reflections and glare.

There is no evidence that these visual health problems are permanent. The National Academy of Sciences has described these visual health problems as “discomfort.” Fortunately, these visual health problems are usually temporary. Often they dis-

appear after you leave work and have a chance to rest. However, the temporary health effects associated with visual discomfort may have a negative effect on productivity (e.g., increased absenteeism as well as decreased levels of productivity and quality of work). Visual health problems are more likely to occur in office jobs than in most other kinds of work, except industrial quality inspectors.

Risk Factors

- n illumination (too much light or too little light),
- n glare from windows, computer screens, and other shiny surfaces,
- n the computer monitor (screen flickering and jitter, difficult to read screen characters, and poor contrast between the screen characters and background), and
- n working too long without a break.

Each of these risk factors will be covered in more detail in several fact sheets.

FACT SHEET

Lighting

Lighting or illumination has three key properties that we are concerned with in airport work locations: illumination, luminance, and reflectance. They might sound alike, and indeed they are related, but they are also different.

Illumination is the amount of light that falls on a given surface.

Luminance or brightness is the amount of light reflected from a given surface area.

Reflectance is the ratio of luminance to illumination for a given surface area.

Airport workplaces should be designed or remodeled with non-gloss, matte, or earth tone finishes on ceilings, walls, and floor coverings. For example, dark green or brown colors are preferred over light green.

How Much Illumination Do I Need?

A 2001 survey of CWA members working at airport work locations found that 52% of participating workers reported the workplace lighting or illumination in their work area seemed too bright or caused glare,

making screen characters difficult to read. The illumination required for a task is determined by the visual requirements of the task and the visual capabilities of the concerned employees. The illumination in workplaces in which only computer monitors are used should be lower than in workplaces in which hard copy is used. For example, you probably want less light when you want to watch TV and more light when you're trying to read a book or a newspaper. Thus, lower levels of illumination will provide better computer (as well as TV) screen image quality and reduce screen glare.

The lighting level in your work area should also be set up according to the visual demands of the tasks performed. Conflicts can arise when different employees in the same office who have differing job task requirements or differing visual capabilities perform both computer and hard copy work. As a compromise, room lighting can be set at lower or intermediate levels and additional task lighting can be provided at each workstation as needed. Such additional lighting must be carefully shielded and properly placed to avoid glare and reflections on the computer screens and adjacent working surfaces. Given the above factors, workplace illumination levels should range from 300-700 lux. The level of workplace illumination can be determined or measured by using a light meter.

FACT SHEET

Glare

Excessive luminance (brightness) may produce glare. Glare from light sources (bulbs, luminaires, lighting bays, and outdoor sources, e.g. sunlight) is called *direct glare*, while glare reflected from surfaces is termed *reflected glare*. Direct glare can be reduced by shielding the light sources with shades, curtains, baffles, or louvers, or by the use of recessed or indirect lighting. Going back to our television example, in our TV room we wouldn't want to turn on lamps without the glare protection provided by lampshades; therefore, we use lampshades to cover or shield bare light bulbs that, in turn, protect the eyes from the direct glare caused from the bare light bulb and, at the same time, provide adequate illumination.

As for *reflected glare*, the eyes will adapt to and function more effectively when the luminance in the work environment does not vary too much from task to task. The greater the difference in luminance between your screen, work surface, and hard copy, the more frequently and significantly your eyes have to adjust. This of course can lead to visual fatigue.

The general rule for controlling reflected glare is to use floor, ceiling, wall, and window coverings that absorb reflected

glare. Ceilings should be designed to absorb illumination. In addition, the reflectance of walls should be between 40-60 percent, and work surfaces should fall in the range of 25-45 percent. Floors should reflect the least amount of light.

Finally, the computer screen may also reflect glare and other bright objects, which, in turn, reduces your ability to read the screen characters and can often lead to performance errors. While it is preferred to control the problem at the source, i.e., by shielding windows and overhead lighting, many times screen reflections and glare can be reduced by installing a glare-reduction filter.*

- n **Direct Glare:** Glare from light sources (bulbs, luminaires, lighting bays, and outdoor light sources, e.g., sunlight).
- n **Methods to Reduce Direct Glare:** Shades, curtains, luminaire covers, or recessed or indirect lighting.
- n **Reflected Glare:** Glare from surfaces including the computer monitor and the work surface. The greater the difference in luminance between the computer screen, work surface, and hard copy, the more frequently and significantly your eyes have to adjust. This, of course, can lead to visual fatigue.
- n **Methods to Reduce Reflected Glare:** Use of floor, ceiling, wall, and window coverings that absorb reflected glare as well as an anti-glare filter for the computer monitor.

* There are drawbacks to some filters. You may have to try several different glare filters to find the right balance between glare reduction and character visibility.

FACT SHEET

Computer Monitor

Data from the “2001 CWA US Airways Airport Workplace Ergonomics Survey” indicated that 69% of respondents reported that they were not provided with a computer monitor that allowed them to adjust the screen angle, compared to a 1998 CWA telecommunications industry study that found 11% of directory assistance operators reported not being provided with angularly-adjustable monitors.

Angular adjustability of the computer monitor provides an easy method for reducing screen glare. Reorientation of the monitor screen around its vertical and horizontal axis can help reposition the screen to reduce screen reflections and glare. Reflections can be reduced by simply tilting the display slightly back or down, or, depending upon the angle of the glare source, to the left or right. Screen reflections depend not only upon screen tilt, but also upon the operator’s viewing angle of the screen. Typically, visual angles should be within the range of 10-20 degrees downward.

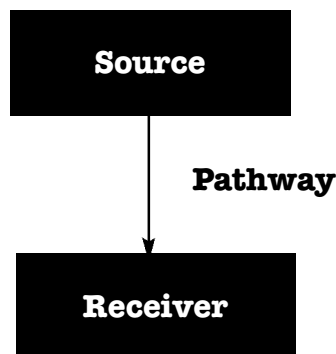
Due to the design of passenger gate and ticket counter workstations, workers employed as Passenger Gate and Ticket Counter Agents have little ability to make necessary angular adjustment of the computer monitor.

CORRECTIVE ACTION CHECKLIST

Visual Problems

As with the risk factors associated with computer use and visual problems, the corrective actions are also interrelated—if you attempt to minimize or eliminate one risk factor, you often wind up reducing the other risk factors.

Let's start by dividing the problem into three separate parts. Let's begin with the source of the problem, followed by the pathway the source travels towards the receiver, and the receiver, i.e., the worker.



We can then think about the problems of lighting, glare, and reflection in terms of the source—where the light comes from; the pathway—how it bounces off the floor, ceilings, walls, or work surfaces; and how it is received by the worker where it can, if significant exposure occurs, lead to the visual health problems of fatigue, headaches, eye-strain, and eye soreness.

Controlling lighting problems at the source is preferred because it usually controls or eliminates the risk factors or ergonomics problem(s) for all or most of the affected workers. The next most preferred approach is achieved by controlling or elim-

inating the ergonomics problem(s) along the pathway, and, finally, the least preferred approach is to control the problem at the receiver.

Let's begin by reviewing how it is possible to control lighting at the source.

1. Control lighting problems at the source:

- n **Control light from windows:** Regulate the amount of light in the work area by partially or totally closing or opening drapes, shades, and/or blinds over windows, especially during sunny conditions.
- n **Control light from the luminaires (lighting fixtures):** If there are no windows, or if windows are not the source of reflected light (glare), you should look to the overhead luminaires (lighting bays) as the glare source.
 - ☑ Place the computer screen parallel to windows and luminaires.
 - ☑ Place computer screens *between* luminaires, not underneath them.
 - ☑ Use screen hoods to block excess light from overhead lighting sources.
 - ☑ If possible, try *recessing* light fixtures. Indirect lighting is a form of this.
 - ☑ Use light focusing *diffusers*. They direct most of the light directly downwards, rather than bouncing it off the walls and floors.

2. Control glare along the pathway (floors, walls, and work surfaces):

n **Reduce the amount of light reflected from floors, walls, windows, and work surfaces.** Generally, this means that glare-reducing and light-absorbing colors and finishes should be used. Non-glare matte and earth tone finishes are preferred; whereas, high gloss or semi-gloss finishes are not recommended.

- ☒ The amount of light reflected from the floor should not exceed 30%.
- ☒ The amount of light reflected from the walls should not exceed 40-60%.

- ☒ The amount of light reflected by work surfaces should not exceed 25-45%.

The above items are important considerations when remodeling the workplace and when selecting or designing new office equipment or work areas.

3. Control visual problems at the receiver:

- ☒ Add an anti-glare filter on the computer screen.
- ☒ Tilt the screen up or down (vertical adjustment) or right or left (horizontal adjustment) to minimize glare.
- ☒ Add more frequent (micro-) breaks.

JOB HAZARD ANALYSIS— AIRPORT WORKPLACE

Visual Problems

Problem/Hazard	Risk Factor	Corrective Action (see “Checklist”)
Visual fatigue	<p>Glare and reflections, (overuse: your eyes have to “work too hard”).</p> <p>Excessive lighting.</p> <p>Inadequate/infrequent rest breaks.</p>	<p>Reduce glare and reflections by reducing outside light, controlling overhead lighting, installing light-absorbing floor, wall, window, and work surface coatings, and installing anti-glare filters or changing angle of monitors;</p> <p>Conduct lighting survey, reduce excess light, increase use of task lighting if necessary;</p> <p>More frequent “micro”-breaks.</p>
Headaches	<p>Constant viewing with close attention to detail.</p> <p>Inadequate/infrequent rest breaks.</p>	<p>Regularly check quality of characters on-screen; adjust and maintain computer as needed;</p> <p>Take more frequent “micro”-breaks;</p> <p>Use document holders.</p>
Sore, strained eyes	<p>Glare, reflections from monitor, monitors with characters that are difficult to read.</p>	<p>Regularly check quality of characters on-screen; adjust and maintain computer as needed;</p> <p>Use anti-glare filters or change angle of viewing monitor;</p> <p>Glare control (see above).</p>

TAKE HOME QUESTIONS

Vision and Visual Health Problems with Explanation

The purpose of this questionnaire is to help you become more aware of airport working conditions. We appreciate your help in completing this survey and getting another co-worker to complete it as well.

We'd now like to go over the lighting

questions in this "take home" survey so you'll understand what we are asking for and why.

Each of the questions is in bold-face type; the explanation of each question follows.

1. **Manufacturer and model number (of your computer monitor).**

What we are looking for is the manufacturer of the computer monitor. If you use more than one monitor (because you work at different workstations) try to find the name of the manufacturer for the monitor you most often use.

The manufacturer's name and model number will be on a plate installed on the back of the monitor, so you will have to turn the monitor around or go behind the monitor. You will also find the manufacturer's name and model number here. If you cannot find the model number, just write down the manufacturer's name (However, do not write down the serial number).

2. **Is an anti-glare filter installed on the screen?**

Yes No

Anti-glare filters are usually pretty easy to spot. They are usually attached by Velcro, tape, or plastic mounting devices to the outside plastic frame of the computer screen. They can be plastic, Polaroid® glass, or wire mesh. If this applies to your screen, check "Yes"; if not, check "No."

3. **If an anti-glare filter is used, are the screen characters clearly defined?**

Yes No

If you answered "Yes" to "2," then answer the question. If any of the screen characters are blurred or difficult to read when the filter is on, please indicate "No"; if they are all clearly defined and easy to read, then check "Yes."

4. **If an anti-glare filter is not used, are there any unusual or hard-to-read screen characters?** Yes No

If you answered "No" to "2," are there any screen characters that are distorted or hard to read? If not, then check "No"; if there are, then check "Yes."

5. **Is the screen brightness adjustable?** Yes No

Somewhere on the front, left, or right side of the monitor should be a control that adjusts the brightness of the screen characters. If you cannot find one, check "No." If you can find one, turn it clockwise and counter-clockwise. Does it make the characters brighter or darker? If it doesn't, check "No"; if it does, check "Yes."

6. **Is the screen contrast adjustable?** Yes No

You should also be able to locate a *contrast* knob which, when turned clockwise or counter-clockwise, adjusts the brightness or darkness of the screen *background*. If you do not have such a control on the left-hand, right-hand or front of the screen, check "No." If turning this knob has no effect, then also check "No." But if turning the knob clockwise and counter-clockwise does change the brightness of the screen background, check "Yes."

7. **Are the adjustment controls for screen and character brightness and contrast on the front of the terminal?** Yes No

If the adjustment controls for screen and character brightness and contrast are on the front of the monitor, check "Yes." If you couldn't find any, or if they are on the side of the monitor, check "No."

8. **Are there visible screen reflections or glare?** Yes No

When sitting/standing in front of the monitor in your normal working position, can you see any reflections of other workers, workstations, or light sources on the screen? If you can see screen reflections or glare, check "Yes." If you can't see either reflections or glare, then check "No."

9. **Are there distortions at the edges of the screen?** Yes No

If screen characters, instructions, or other letters or numbers on the edge of the screen are distorted—fuzzy, double-outlined, or misshaped, answer "Yes" to this question. If they are not, answer "No."

10. Are there variations in brightness of the screen?

Yes No

Answer "Yes" to this question if one or more areas of the screen appear to be brighter than others. Answer "No" if all areas of the screen are of *equal* brightness.

11. Is it possible to adjust the computer screen in a vertical direction?

Yes No

Can you actually move or tilt your computer screen up and down? Usually, this means that your screen is mounted on a base that allows vertical movement. If the only way to tilt your screen up or down is by putting a book, wedge, or some papers underneath it, answer "No" to this question.

12. Is it possible to adjust the computer screen in a horizontal direction?

Yes No

Can you move your screen (monitor) right or left? Answer "Yes" if you can push the screen right or left to give you a good viewing angle, i.e., without having to physically move the monitor to the right or left. If you have to actually move the monitor to adjust the screen, then answer "No" to this question.

If after answering these questions you are able to identify problem areas, or have any questions or concerns of your own, please contact _____ or your Local President.

Airport Workplace Musculoskeletal Health Problems: An Introduction

Many short-term or temporary musculoskeletal health symptoms or disturbances are associated with working in airports; but, in addition, there are several permanent musculoskeletal disorders. The temporary health symptoms include muscular fatigue, aches and pains in muscles and joints, and temporary weakness and dysfunction of muscles.

There are also several severe or permanent musculoskeletal disorders that have been reported by airport workers. Information obtained from the “2001 CWA US Airways Airport Workplace Ergonomics Survey” indicated that respondents reported the following conditions:

- n Neck and shoulder pain (58%)
- n Back pain (49%)
- n Shoulder soreness (48%)
- n Leg pain (45%)
- n Neck pain radiating through the shoulders, arms, and hands (37%)
- n Stiff or sore wrists (23%)
- n Loss of feeling in the fingers and hands (19%)
- n Loss of strength in the hands and arms (15%).

More significantly, surveyed airport workers reported the following medically-diagnosed conditions:

- n Lower back disorder (30%)
- n Neck/shoulder/upper back disorder (28%)
- n Tendinitis in the arms (13%)
- n Carpal Tunnel Syndrome (7%)
- n Cysts on the hands/wrists (6%).

Based on these data, it is clear that airport work, despite its clean and safe appearance, has serious musculoskeletal health hazards. In the airport, the positioning of body parts often reflects the poor design of work, the lack of flexibility in the workstation and/or the technology used. The greater the lack of fit between the work and the worker, the greater the musculoskeletal hazard and risk of developing musculoskeletal health problems. According to scientific and medical literature, serious musculoskeletal health problems are often associated with jobs that require constrained working positions or postures, prolonged static postures, and excessive or repetitive manual handling of heavy loads.

In a static seated or standing position, the worker is subject to continuous stress on almost all postural muscles. The amount of stress is dependent upon the position of various parts of the body. For example, holding the head to the side, downward, or upward for prolonged periods of time may lead to neck and shoulder

complaints. Other neck, shoulder, and upper back complaints may result from awkward static positioning of the arms. For example, continuous or repeated elevation of the arms will promote/add to neck and shoulder strain.

Similarly, repeated manual handling of heavy loads such as lifting, pulling, pushing, or carrying passenger luggage may cause an overexertion injury of the upper extremities and torso. Over the long term, such wear and tear may result in the gradual deterioration of joint tissues and, possibly, permanent disability.

In general, the primary risk factors associated with ergonomic injuries/illnesses among airport workers include overexertion, poor body posture, stress, and inadequate rest breaks, particularly when combined with highly repetitive work activities and prolonged static muscle loading. Continuous static loading of the muscles, e.g., prolonged standing or sitting, reduces

blood circulation and increases the risk of cumulative trauma disorders. Sometimes, environmental conditions such as glare on working surfaces or ventilation blowing on a worker produces poor postures that, in turn, can increase the risk of musculoskeletal disorders.

In addition to poorly designed working conditions, there are personal medical conditions and characteristics that may increase the risk of developing cumulative trauma disorders for some individuals. These include:

- n Circulatory problems
- n Diabetes
- n Obesity
- n Arthritis
- n Acute injuries to the bones, muscles, tendons, ligaments, and joints
- n Menopause and its treatment
- n Pregnancy.

CORRECTIVE ACTIONS:

Musculoskeletal Health Problems

We will now turn our attention to how you can reduce or eliminate the risk of musculoskeletal health problems or cumulative trauma disorders among airport workers. To accomplish this, we will examine the five airport worker jobs included in the “2001 CWA US Airways Airport Workplace Ergonomics Survey”: Club Agents, Lost Baggage Agents, Passenger Gate Agents, Special Assistance Representatives, and Ticket Counter Agents.

Club Agents

The primary responsibilities of Club Agents are to issue tickets and seat assignments/boarding passes, check and make reservations, and provide other assistance to customers. These activities are conducted from a seated workstation and involve the use of a computer and related equipment.

Specific musculoskeletal risk factors associated with this job include static postures, i.e., sitting for long periods of time, wrist extension, contact stressors (especially when using a computer), and inadequate lighting.

Selected Club Agents responses from the Union’s airport workplace ergonomics survey indicated several ergonomic problem areas related to work and workstation design. For example,

- n 100% of responding Club Agents indicated that they were not provided with a document holder or a telephone headset rest;
- n 93% said that they could not adjust the height of their work surface;

- n 93% reported that they were not provided with a footrest;
- n 88% indicated that they could not adjust the screen angle of their computer monitor;
- n A significantly high number of respondents indicated that there were workplace illumination problems. For example, almost 70% of respondents said that there was too much glare in their workplaces, 48% reported their work area was too dark and 26% indicated that their work area was too bright;
- n 62% indicated that they were not provided with a wrist rest; and
- n 27% of responding Club Agents said that they used mouse equipment; however, only 57% of these workers reported that the mouse was located at the same height as and next to the keyboard.
- n Although 92% of respondents indicated they were provided with an adjustable chair, the data does not provide information regarding the degree and/or ease of adjustability.

In turn, this lack of adherence to computer workplace ergonomic guidelines has led to a catastrophic occurrence of cumulative trauma health symptoms and disorders. For example,

Regarding health symptoms...

- n 50% of the responding Club Agents indicated that they experienced neck and shoulder pain “often” or “always”;
- n 39% reported that they experienced neck pain radiating through their shoulders,

arms, and hands as well as shoulder soreness “often” or “always”;

- n 31% said that they experienced back pain “often” or “always”; and
- n 19% reported that they experienced stiff or sore wrists as well as leg pain “often” or “always.”

Regarding disorders...

- n 19% of the responding Club Agents indicated that they had medically-diagnosed neck/shoulder/upper back disorder;
- n 15% said that they had medically-diagnosed tendinitis in their arm(s) and lower back disorder;
- n 12% reported having medically-diagnosed carpal tunnel syndrome; and
- n 7% indicated that they had medically-diagnosed cysts on their hands and/or wrists.

CORRECTIVE MEASURES that may be taken to improve Club Agents’ workstation design include:

- n Providing adjustable computer monitor height and screen angle;
- n Providing independently adjustable keyboard/mouse work surface height;
- n Providing properly designed wrist rests; and
- n Providing fully and easily adjustable chairs.

In addition, to alleviate workplace illumination issues, lighting surveys should be conducted to determine the amount of illumination and, in turn, workplace illumination levels should be adjusted between 300-700 lux.

Lost Baggage Agents

The primary responsibilities of Lost Baggage Agents are to handle customer in-

quiries regarding lost baggage including customer intake, completion of forms, use of the computer for tracking and record-keeping, and physically storing and retrieving lost baggage. These tasks are conducted in the lost baggage work area, which usually consists of a standing computer workstation and storage area adjacent to the baggage claim area.

Specific musculoskeletal risk factors associated with the job include prolonged static standing positions; neck and upper torso flexion in static postures; wrist extension contact stressors while keying/using the computer; inadequate lighting; and lifting, pulling, pushing, and carrying heavy unstable luggage.

Responses from Lost Baggage Agents identified a number of ergonomic design and health problems. For example,

Regarding work associated with the lifting /moving of baggage...

- n 98% of responding Lost Baggage Agents indicated that they performed manual handling, i.e., lifting and moving, of heavy weights. In addition, 63% of the respondents said that they were not provided with assist equipment to lift/move baggage.
- n 88% reported that their work involved excessive lifting of baggage to and from conveyor equipment;
- n 72% said that their work involved excessive bending motions;
- n 68% reported that their work involved excessive twisting motions; and
- n 65% indicated that their work involved excessive reaching motions.

Regarding workstation design issues...

- n 63% of responding Lost Baggage Agents said that they work in a standing position for lengthy periods of time (i.e., more than four hours);

- n 90% indicated that they were not provided with a height adjustable work surface;
- n 62% reported that they were not provided with an adjustable chair;
- n 62% said that the computer screen or monitor angle was not adjustable;
- n 79% indicated that a wrist rest was not provided;
- n 52% reported that there was inadequate work space to perform their work;
- n 88% said that they were not provided with a document holder; and;
- n 43% indicated that there was too much glare at their workstation.

In turn, this lack of adherence to ergonomic guidelines has resulted in the occurrence of catastrophic numbers of cumulative trauma health symptoms and disorders. For example,

Regarding health symptoms...

- n 46% of responding Lost Baggage Agents reported that they had experienced back pain "often" or "always";
- n 46% said that they experienced neck and shoulder pain "often" or "always";
- n 38% indicated that they experienced shoulder soreness "often" or "always";
- n 31% reported that they experienced neck pain radiating through their shoulders, arms, and hands "often" or "always";
- n 30% said that they experienced leg pain "often" or "always"; and
- n 24% indicated they experienced stiff or sore wrists "often" or "always."

In addition, Lost Baggage Agents reported experiencing symptoms of sinus irritation/congestion (57%), sneezing (38%), and fatigue and drowsiness (28%) "often" or "always." These health issues would ap-

pear to be related to inadequate ventilation and poor indoor air quality.

Regarding musculoskeletal disorders...

- n 26% of the respondents reported that they had medically-diagnosed lower back disorder;
- n 24% said that they had medically-diagnosed neck/shoulder/upper back disorder;
- n 18% indicated that they had medically-diagnosed tendinitis in their arms; and
- n 7% reported that they had medically-diagnosed carpal tunnel syndrome.

CORRECTIVE MEASURES that may be taken to improve Lost Baggage Agent working conditions include:

For workstation design...

- n Providing properly designed chairs/ stools;
- n Providing wrist rests;
- n Providing height and angularly adjustable computer monitors;
- n Providing independently adjustable work surface heights for the computer monitor and keyboard/mouse equipment;
- n Providing improved, well designed floor mats (minimum 1 inch thick non-slip material with a beveled edge to prevent tripping);
- n Providing properly designed foot rests (4-6 inches high);
- n Providing proper workplace illumination levels (300-700 lux); and
- n Providing more frequent rest breaks.

For overexertion risks...

- n Providing properly designed baggage carts;
- n Establishing two-person lifting procedures for heavy and bulky baggage; and

- n Redesigning storage racks so that the heaviest baggage may be stored between knee and shoulder height.

Passenger Gate Agents

The primary responsibilities of Passenger Gate Agents are to check travel documents, issue and change seat assignments and boarding passes, make/change reservations, and handle customer inquiries. These tasks, conducted at a standing workstation in the gate area, include a computer and related equipment.

Specific musculoskeletal risk factors associated with this occupation include prolonged and static standing postures, neck and upper torso flexion while in a static standing posture, wrist extension and contact stressors while keying, and inadequate lighting or illumination.

Responses from Passenger Gate Agents identified a number of ergonomic design and health problems. For example,

Regarding workstation design...

- n 92% reported that they work in a standing position for lengthy periods of time (i.e., more than four hours);
- n 96% said that they were not provided adjustable chairs/stools;
- n 94% indicated that they were not provided with a footrest; and
- n 34% reported that floor mats were inadequate or not properly designed.

In addition,

- n 77% said that their work required lifting/moving heavy baggage;
- n 70% indicated that their work required excessive twisting motions;
- n 68% reported that their work required excessive bending motions;
- n 67% said that their work required exces-

sive reaching motions; and

- n 63% indicated that their work required lifting baggage to a conveyor belt.

With respect to work surface design...

- n 66% of responding Passenger Gate Agents reported that the height of the work surface was not adjustable; and
- n 57% said that there was inadequate work-space to perform their work.

Regarding computer use...

- n 95% said they were neither provided with a telephone headset rest nor a document holder;
- n 93% reported that they were not provided with a wrist rest; and
- n 69% indicated that the monitor screen angle was not adjustable.

Workplace environmental factors were also identified as problematic. For example,

- n A majority of responding Passenger Gate Agents indicated that workplace temperature extremes were common, with 56% reporting that the workplace was too hot and 51% indicating that the workplace was too cold.
- n In addition, 48% said that there was too much glare in the workplace.

The failure of US Airways to provide ergonomic working conditions has produced a catastrophic number of musculoskeletal health problems among Passenger Gate Agents. For example,

Regarding health symptoms...

- n 58% of the respondents reported that they experienced neck and shoulder pain "often" or "always";
- n 50% reported that they experienced back pain "often" or "always";
- n 48% said that they experienced leg pain "often" or "always";

- n 46% indicated that they experienced shoulder soreness “often” or “always”; and
- n 36% reported that they experienced neck pain radiating though the shoulders, arms, and hands “often” or “always.”

Related to inadequate ventilation or indoor air quality...

- n 49% of responding Passenger Gate Agents said that they experienced fatigue and drowsiness “often” or “always”;
- n 48% indicated that they experienced sinus irritation “often” or “always”; and
- n 36% reported that they experienced sneezing “often” or “always.”

Regarding cumulative trauma disorders...

- n 31% of respondents said that they had medically-diagnosed lower back disorder;
- n 27% indicated that they had medically-diagnosed neck/shoulder/upper back disorder;
- n 12% reported that they had medically-diagnosed tendinitis in their arms; and
- n 6% said that they had medically-diagnosed carpal tunnel syndrome.

CORRECTIVE MEASURES for identified deficiencies include:

For standing workstations...

- n Provision of ergonomic chairs/stools;
- n Provision of properly designed floor mats (minimum 1 inch thick non-slip material with beveled edges to prevent tripping);
- n Footrests (4–6 inches high); and
- n More frequent rest breaks.

Specific to the computer and related equipment...

- n Provision of a height and angularly adjustable computer monitor;

- n Provision of independently adjustable work surfaces for the computer monitor and keyboard/mouse equipment; and
- n Provision of wrist rests.

In addition, workplace lighting or illumination levels should be adjusted between 300-700 lux.

Special Assistance Representatives

The primary responsibilities of Special Assistance Representatives include picking up, transporting, and dropping off passengers via electric carts, as well as transferring passengers to and from wheelchairs inside and outside aircraft. These tasks are performed throughout the customer areas of the airport and on aircraft.

It should be noted that US Airways adopted the Customer Commitment Policy #7 (effective 12/15/99) that commits the airline to “assisting customers with special needs, including passengers with disabilities... .” This commitment includes providing “extensive procedures to ensure that the needs of customers with disabilities are met,” including assistance with boarding and deplaning and transportation of wheelchairs and similar devices.

“Appendix V: Passengers with Special Needs” explains in more detail US Airways procedures for serving passengers with disabilities. Personal Care Attendants are required for customers with a mobility requirement so severe that a person would be unable to assist in his or her evacuation of the aircraft. Moreover, US Airways commits to have company personnel assist passengers with mobility challenges in getting to and from gates.

Responses from Special Assistance Representatives identified a number of ergonomic design and health problems. For example,

Regarding musculoskeletal and ergonomic design issues or risk factors...

- n 80% of responding Special Assistance Representatives reported performing manual handling of heavy weights;
- n 87% said that they performed excessive bending motions;
- n 82% indicated that they performed excessive twisting motions;
- n 77% reported that they performed excessive reaching motions; and
- n 46% said that they lift baggage to conveyor belts.

In addition, specific to **workplace environmental factors**, respondents indicated that the workplace was too hot (75%) or too cold (36%). Further,

- n 62% of the Special Assistance Representatives reported that they experienced sinus irritation/congestion “often” or “always”;
- n 50% said that they experienced sneezing “often” or “always”; and
- n 38% indicated that they experienced fatigue or drowsiness “often” or “always.”

Regarding cumulative trauma health symptoms and disorders...

- n 39% of responding Special Assistance Representatives said that they had a medically-diagnosed lower back disorder;
- n 33% indicated that they had a medically-diagnosed neck/shoulder/upper back disorder;
- n 13% reported that they had medically-diagnosed tendinitis in their arms; and
- n 6% said that they had medically-diagnosed carpal tunnel syndrome.

CORRECTIVE MEASURES for the design of Special Assistance Representative work areas include:

- n Provide properly designed customer transfer devices as well as training regarding their effective use;
- n Assign two people for difficult customer transfer situations; and
- n Consider modifications of aircraft seats to assist customer transfers.

Ticket Counter Agents

The primary responsibilities of Ticket Counter Agents are to process customers, including verifying or making reservations, issuing tickets/boarding passes, making seat assignments, responding to customer inquiries, and tagging, handling, and transferring luggage (up to 70 pounds per item or piece). These tasks are performed at a standing workstation in the ticketing area and involve the use of a computer and related equipment.

Responses from Ticket Counter Agents identified several ergonomic design and health problems. For example,

Regarding workstation ergonomic design issues...

- n 91% of responding Ticket Counter Agents reported that they work in a standing position for lengthy periods of time (i.e., more than four hours);
- n 97% said that they were not provided with a telephone handset rest;
- n 95% indicated that they were not provided with an ergonomic, adjustable chair;
- n 93% reported that they were not provided a footrest;
- n 93% said that they were not provided a document holder;
- n 92% indicated that they were not provided a wrist rest;
- n 71% reported that they were not provided

with a computer monitor that allowed angular adjustability;

- n 69% said that they were not provided with a height adjustable work surface; and
- n 66% indicated that they were not provided with either adequate workspace to perform their work or properly designed floor mats.

In addition, findings related to the manual handling of baggage suggested serious ergonomic deficiencies. For example,

- n 93% of respondents said that they had to lift/move heavy weights, i.e., baggage;
 - n 90% indicated that they were required to lift baggage onto conveyor belt equipment;
 - n 82% reported that their job required them to perform excessive twisting motions;
 - n 81% said that their job required them to perform excessive bending motions; and
 - n 78% indicated that their job required them to perform excessive reaching motions.
- n In addition, only 44% of responding Ticket Counter Agents reported that they were provided with lift-assist equipment.

When reviewing collected information regarding workplace **environmental factors**, a number of design problems were identified. For example,

- n 57% of respondents reported that there was too much glare in the workplace;
- n 49% said that the workplace environment was too hot; and
- n 47% indicated that the workplace was too cold.

In turn, environmental design deficiencies most likely led to the occurrence of the following **indoor air quality health symptoms**:

- n 53% of responding Ticket Counter Agents

reported that they experienced sneezing “often” or “always”;

- n 49% said that they experienced fatigue and drowsiness “often” or “always”; and;
- n 39% indicated that they experienced sinus irritation/congestion “often” or “always.”

Regarding the occurrence of cumulative trauma health symptoms and disorders...

- n 60% of the Ticket Counter Agents reported that they experienced neck and shoulder pain “often” or “always”;
- n 53% said that they experienced shoulder soreness “often” or “always”;
- n 51% indicated that they experienced back pain “often” or “always”;
- n 46% reported that they experienced leg pain “often” or “always”;
- n 39% said that they experienced neck pain radiating through their shoulders, arms, and hands “often” or “always”; and
- n 25% indicated that they experienced stiff or sore wrists “often” or “always.”

Ergonomic deficiencies led to a catastrophic occurrence of musculoskeletal or cumulative trauma disorders among responding Ticket Counter Agents. For example,

- n 32% reported that they had medically-diagnosed neck/shoulder/upper back disorder;
- n 30% said that they had medically-diagnosed lower back disorder;
- n 14% indicated that they had medically-diagnosed tendinitis in their arms;
- n 9% reported that they had medically-diagnosed cysts on their hands and/or wrists; and;
- n 7% said that they had medically-diagnosed carpal tunnel syndrome

CORRECTIVE MEASURES for the design of the

Ticket Counter Agent work area include:

Workstation:

- n The provision of chairs/stools to allow for varying postures;
- n Providing properly designed floor mats (minimum one inch thick non-slip material with beveled edges so as to prevent tripping);
- n Providing properly designed footrests, wrist rests, and document holders;
- n The provision of height and angular adjustable computer monitors;
- n Providing independently adjustable keyboard/mouse work surfaces; and
- n The provision of more frequent rest breaks.

Baggage handling tasks:

- n The use of special tags/labels to identify extremely heavy bags (over 51 pounds) as well as a requirement providing that two people lift such baggage;
- n Elevating or raising the baggage scale to approximately knee height;
- n Redesigning the baggage conveyor equipment to allow agents the ability to slide baggage directly from the scale to the conveyor belt (At present, this redesigned equipment has been introduced by other airlines companies in several U.S. airports).

In addition, it is recommended that, with the involvement of CWA personnel, US Airways conduct job analysis including design issues such as the workstation and lifting tasks as well as illumination/lighting.

The key behind any corrective action aimed at eliminating or minimizing musculoskeletal problems is proper workplace design that focuses upon the key design elements of airport workplace occupations. As elaborated upon in the above job-by-job coverage or analysis, due to variations in the required tasks, these elements can be determined after reviewing the ergonomic needs of each of the involved airport workplace jobs as well as the physical and psychological needs of the workers involved in performing the required tasks.

After identifying the equipment (e.g., chairs/stools, workstations and related equipment, conveyor belt equipment, lighting fixtures and glare reduction devices, wheel chairs and/or other assist equipment) that needs to be replaced, CWA leaders should negotiate with the employer for the purchase and provision of ergonomic equipment.

FACT SHEET

Keyboard/Mouse Design

The keyboard and the mouse are the standard devices used to input data into the computer terminal, though touch panels, light pens, keypads, and tablets are becoming more commonplace. Although the keyboard/mouse don't present a serious risk factor; *the way they are used by the computer operator* in relation to her/his posture and the other physical components of the computer workstation (e.g., the chair, monitor, and work surface) can increase or decrease the risk of **repetitive motion illnesses**.

Keyboards/mouse equipment should be detachable and moveable from the computer monitor, so they can be positioned to best suit the posture and work requirements of each individual worker. The angle of the keyboard should be relatively flat and adjustable as well, particularly when the keyboard is used by different workers. You should try to adjust the angle of your keyboard to keep your wrist as flat (a neutral position) as possible. Sometimes you can do this by moving the keyboard farther away from you. But not all keyboards are easily adjusted. Some may have only one or two settings; others may provide no adjustability at all. Moreover, the available workspace for positioning the keyboard may be limited or restricted. Therefore, a separate, adjustable keyboard surface is preferred.

When a mouse is provided, it should be detachable from the computer monitor, be designed to fit comfortably into the hand,

and positioned with the click buttons level with the keyboard. The mouse should be at the same height and angle as the keyboard and situated next to the keyboard. Also, the work surface upon which the mouse is placed should be large enough to allow for the proper and intended operation.

When the mouse is used, it should be held loosely with the wrist in a neutral position and operated by moving the entire arm and shoulder and using a light touch when clicking the mouse buttons.

Wrist rests are another way to help maintain a neutral wrist posture and to avoid resting your wrists on a sharp object (that can affect the blood supply and nerves going into your hand). It is only natural that you will want to rest your elbows, arms, and/or wrists on something solid to relieve the fatigue of holding your lower arms outstretched for long periods of time. But you need to be careful what you rest your wrists on. Wrist rests should be at least two inches wide and should be placed over the edges of work surfaces, such as the edge of the keyboarding surface or worktable. In addition, they should provide firm, yet cushioned, support. **Ideally, wrist rests should not be used while operating the keyboard/mouse, but rather while resting.**

In some cases, palm rests are used. Palm rests are designed to provide support for your palm by providing a resting place for your palm that thereby relieves some of the fatigue in your arms.

FACT SHEET

Chair/Stool

The “2001 CWA US Airways Airport Workplace Ergonomics Survey” found that only 8% of airport workers were provided a chair/stool that allowed for height adjustability of the seat pan. When looking at all of the jobs that were included in the survey, the presence of adjustable chairs/stools was reported as follows:

- n Club Agents—93%
- n Lost Baggage Agents—28%
- n Passenger Gate Agents—4%
- n Special Assistance Representatives—23%
- n Ticket Counter Agents—5%

As can be seen, chairs or stools are rarely provided to Passenger Gate Agents and Ticket Counter Agents. As a result, workers in these occupations reported the highest rates of leg and back pain health symptoms. In contrast, most Club Agents were provided with adjustable chairs and, in turn, reported the lowest rates of leg and back pain health complaints.

A chair/stool is a critical component of an ergonomically correct stationary (computer) workstation. Besides being able to adjust the height of the seat pan and the angle of the seat pan to a forward or backward tilt, you need to be able to adjust the backrest to provide proper back support. In order for you to comfortably view the monitor, you should also be able to move the chair/stool closer to or farther away from the work, yet maintain your wrists in a neutral posture.

Making these adjustments will allow you to find a “comfort zone.” In this comfort zone, your feet are firmly supported by

the floor or a proper footrest, your wrists are as flat (a neutral position) as possible, and you have proper support and an adequate amount of “wiggle room” from the chair/stool. Assuming you have a well-designed chair/stool, you can usually find the “comfort zone” by raising or lowering the chair/stool, adjusting the seat pan angle, and/or pushing the chair/stool closer to or away from the work. If you are sitting too low, you will probably have to bend your wrists up (wrist extension) to use the keyboard; if you are sitting too high, you will have to flex your wrists (down). But by adjusting the chair/stool height, as well as the height of the keyboarding surface, you can find the right combination that allows you to keep your wrists in a neutral posture.

While you are trying to find your “comfort zone,” don’t overlook the other important features of the chair/stool. A properly designed chair/stool allows you to maintain proper posture as well as vary your posture to minimize fatigue. For example, a chair/stool that provides swivel action encourages this. Also, a chair/stool that allows you to adjust the angle of the backrest allows you to vary your posture.

The seat “pan” supports the weight of the buttocks. It should be wide enough to permit operators to make slight side-to-side shifts in posture. The minimum recommended seat pan width is 18 inches. The seat pan depth (from front to back) should be between 15-17 inches. If it is deeper than this, some operators will not be able to sit all the way back in their chairs/stools and take advantage of the back support the chair/stool provides. The seat pan should be tiltable forward and backward. The front edge of the chair/stool should be well rounded downward to reduce pressure on the underside of the thighs (that can affect blood flow to the legs and feet). The seat needs to be padded to the proper firmness

that ensures an even distribution of pressure on the thighs and buttocks. A properly padded seat should compress about one-half to one-inch when a person sits on it.

The tension and tilt angle of the backrest should be adjustable. Inclination/declination of the chair/stool backrest is important and necessary for workers to be able to lean forward or backward in a comfortable manner, while maintaining a correct relationship between the seat pan angle and the backrest angle, i.e., the amount of inclination/declination. The advantage of having an independent backrest tilt angle adjustment is that the backrest tilt will have little or no effect on the front seat height. This adjustment also allows workers to more easily shift postures and find their "comfort zone."

Another important chair/stool feature is armrests. Some chair/stool armrests can

actually restrict arm movement, interfere with keyboard operation, cause a pinching of the fingers between the armrest and table, restrict chair/stool movement such as under the work table, lead to irritation of the arm or elbows, and cause workers to adopt awkward postures. On the other hand, well-designed padded armrests can provide support for resting the arms, thus preventing or reducing fatigue.

While operating the computer, you should be provided with a properly designed footrest. The footrest should be height and angular adjustable and have a non-skid surface that is large enough to prevent your feet from slipping off the surface. The footrest should be angled slightly (between 5 to 15 degrees). In addition, the footrest should be portable, yet heavy and secure enough to prevent it from sliding across the floor.

FACT SHEET

Workstation

Airport workstations should vary as much as the task responsibilities of airport workers. In general, workstations should be adjustable to allow different users to adjust or customize them to meet their individual needs. When performing work, static sitting and/or standing postures should be avoided. This can be accomplished by designing workstations in such a manner that allows work to be performed in varied postures. For example, Ticket Counter and Passenger Gate workstations should be designed to allow both varied sitting and standing postures.

There are four basic elements to an effective strategy to reducing musculoskeletal problems as well as the risk of developing repetitive motion illnesses. They include:

- n **The work surface.** It should be height adjustable and be large enough/provide enough workspace to allow the performance of the required tasks. Where a computer is used, special consideration must be given to the design and operation of the keyboard/mouse equipment—its location and angle, proper wrist support, and wrist alignment; the computer monitor—the degree of adjustability to avoid glare and poor body postures; and auxiliary equipment (e.g., printers, document holders, and telephones) should be positioned to avoid awkward reaches or postures.

- n **The chair/stool.** This equipment must provide proper postural support and allow for adequate adjustability enabling each worker to find her/his “comfort zone.”

- n **The workstation.** The workstation must

provide adequate adjustability in order that each worker may find her/his “comfort zone” as well as provide an adequately-sized workspace/area to arrange or organize the work in such a way as to maintain proper postures and reduce fatigue.

- n **The rest break schedule.** Short breaks (micro-breaks, e.g. at least 30 to 60 seconds every 20 to 30 minutes) should be designed into the work schedule to relieve physical and mental fatigue.

Data from the “2001 CWA US Airways Airport Workplace Ergonomics Survey” identified the following workstation design issues:

- n 55% of airport workers who completed and returned the survey reported that they did not have an adequate amount of workspace to perform their work;
- n 61% said that they could not adjust the height of their workstation;
- n 92% indicated that they were not provided with a chair equipped with adjustable seat pan height; and
- n Almost 90% reported that they took one rest break each during the first half and second half of their work shifts. Such rest breaks, as negotiated in the collective bargaining agreement between CWA and US Airways, averaged slightly more than 14 minutes. Therefore, these breaks should be distinguished from the micro-breaks recommended above.

The size or area of the work surface is dependent on the nature of the required tasks as well as the equipment, documents,

and technology that are used to perform this work. However, regardless of the tasks that you perform, you need enough working area. Workstations with computers require enough space to:

- n Allow you to move the screen forward or backward, up, or down;
- n Move/adjust the keyboard/mouse; and
- n Permit source documents to be properly positioned.

Standing Workstations

Many airlines Ticket Counter and Passenger Gate workstations are designed solely for standing. At a minimum, standing workstations should be equipped with a well-designed chair/stool that allows involved workers to find their “comfort zone” and provides adequate support for variations in postures, a floor mat (having a minimum thickness of one inch and beveled edges to avoid tripping hazards), and a footrest. For computer work, adjustable, multi-surface workstations should be provided to enable workers to develop a proper posture by allowing independent adjustment of the keyboard/mouse and monitor/screen to establish proper keying and viewing heights for each individual and task. Regarding adjustable workstations, ease of adjustment and training about adjustability are critical; otherwise, workers will not make the adjustments to find their “comfort zone.”

Seated Workstations

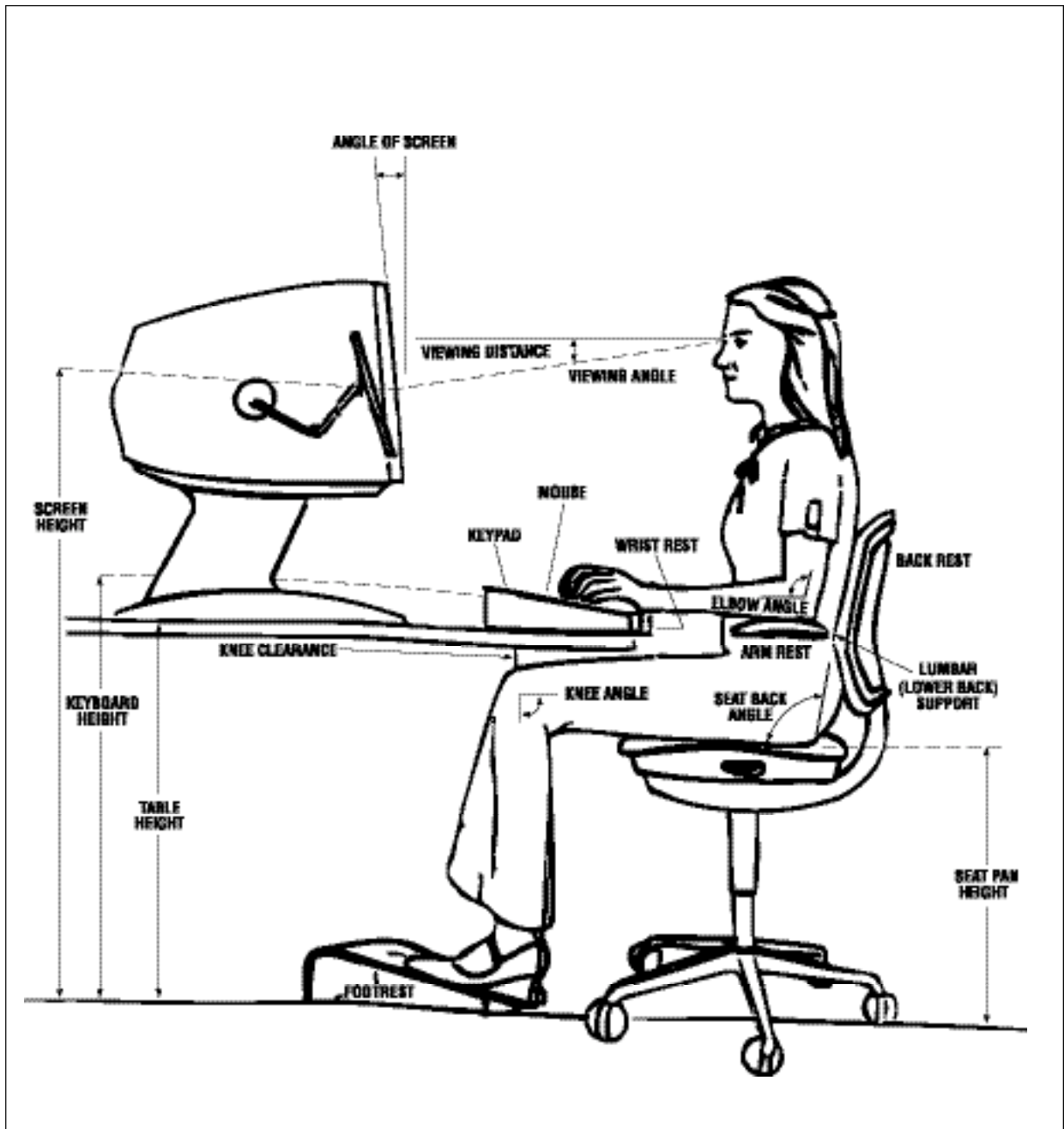
The tabletop under which the operator puts her/his legs should be as thin as possible to provide clearance for thighs and knees. The under-table space should provide unobstructed room for the feet and legs so that the workers can easily shift their posture. The recommended minimum

width for leg clearance is 24½ inches. The minimum depth under the work surface from the edge of the work surface, i.e., closest to the worker, should be 15 inches at knee level, and 24 inches at toe level. These distances are measured from the leading edge of the front of the working surface and should be regarded as minimum distances. Proper workstation design must consider the variability of individual body sizes and, thus, to allow for maximum operator adjustment or movement, should exceed the recommended minimum clearances.

Specifications for the height of the work surface vary based upon whether the table/work surface is adjustable or a fixed height, and whether there is a single (or are multiple) work surface(s). The proper height for a non-adjustable working surface is about 28 inches, measured from the floor to the top of the work surface. For single-adjustable work surfaces, the appropriate height adjustment should be between 28-32 inches.

For multiple adjustable work surfaces, the appropriate height for the keyboard/mouse should be between 23½- 28½ inches and between 28-32 inches for the monitor (measured from the bottom of the monitor to the floor). It is important to note that you should always be viewing the monitor in a slightly downwards direction, i.e., 10-20 degrees downward.

Computer and Workstation Design Variables



**JOB HAZARD ANALYSIS—
AIRPORT WORKPLACE**

Musculoskeletal Health Problems

Problem/Hazard	Risk Factor	Corrective Action
<p>Tendinitis, tenosynovitis, carpal tunnel syndrome.</p>	<p>Wrist flexion or extension, repetitive keying.</p>	<p>Make sure the keyboard is detachable from the monitor and can be moved around to give you the most comfortable posture for the work you're doing.</p> <p>The keyboard should be relatively flat in relation to the working surface, and the angle should not be more than 15 degrees off horizontal.</p> <p>The mouse should be designed to fit the operator's hand, have a sloping or slanted surface, and have a drag-lock surface. The placement of the mouse should be within easy reach of the operator, located at the same height and angle as the keyboard and situated next to the keyboard.</p> <p>Wrist rests (minimum of two inches wide) to support your wrists should be provided. The wrist rests should provide cushioned support and be rounded on the front edge, which is the edge facing you.</p> <p>Keep your wrists in as neutral a posture as possible. Arm and wrist rests may help you do this.</p>
<p>Muscle soreness, cramping, and fatigue, particularly in shoulders, neck, and back.</p>	<p>Improper posture and static loading caused in large part by chairs, keyboards/mouse equipment, and work surfaces which are not adjustable to the proper height and configuration.</p> <p>(cont. p. 36)</p>	<p>Adjustable height: The height of the seat pan should be adjustable to a range from 16 to 20 inches from the floor. Use this feature to raise or lower the chair so that the angle between your upper and lower leg is roughly perpendicular (about 90 degrees).</p> <p>Seat pan: The minimum width should be 18 inches, and the depth (span across the seat pan) should be between 15-17 inches. The seat pan should be tiltable forward and backward and have a rounded front edge (the edge closest to your knees) and should provide enough padding so that the padding is one-half to one inch high while you're seated.</p> <p>Back rest: The back rest should be tiltable, so you can recline backward or forward with adequate support, as well as height-adjustable. Lumbar (lower-back) support should be provided.</p> <p>Casters: The chair should be moveable, supported by at least five casters.</p>

(continued from page 35)

Problem/Hazard	Risk Factor	Corrective Action
<p>Muscle soreness, cramping, and fatigue, particularly in shoulders, neck, and back.</p>	<p>Improper posture and static loading caused in large part by chairs, keyboards/mouse equipment, and work surfaces which are not adjustable to the proper height and configuration.</p>	<p>Armrests: As long as they don't interfere with movement and the work, cushioned armrests may be helpful to support your elbows and upper and lower arms, and maintain a neutral wrist posture.</p> <p>Footrest: A footrest should be provided for operators who cannot securely place their feet on the floor while seated. The footrest should be adjustable both in height and angle, and have a non-skid surface where the feet actually rest.</p> <p>Adequate workspace: You need enough tabletop space to be able to move and properly position your keyboard, mouse, monitor, document holder, and hard copy materials.</p> <p>Adjustable height work surface(s): A second surface just for the keyboard/mouse is recommended. The height range for the dedicated keyboard/mouse surface is 23½-28½ inches off the floor. The recommended height for the base of the monitor from the floor is 28-32 inches. If there is not a separate surface for the keyboard/mouse, and the work surface cannot be raised or lowered, the recommended height, measured from the top of the table to the floor, is 28 inches.</p> <p>Adequate knee and leg space under the work surface: The minimum recommended width under the work surface is 24½ inches. The minimum recommended depth at the knees is 15 inches. The minimum recommended depth at the feet is 24 inches.</p> <p>Document holder: When you work with hard copy, an adjustable (angle and height) document holder should be provided.</p> <p>Micro-breaks: More frequent but shorter breaks in addition to the regular scheduled breaks every two hours.</p>
<p>Shoulder, arm and low back pain/injury.</p>	<p>Improper posture and repetitive lifting and/or carrying heavy objects.</p>	<p>Conveyor Equipment: Should be designed with electronic feeder/conveyor equipment or manual rollers to allow workers to avoid lifting and carrying heavy luggage/baggage. All workstations should be equipped with luggage/baggage scales. Where this is not possible, height-adjustable carts should be provided and workers should be able to ask for and receive assistance from a co-worker, thus allowing workers to avoid lifting and carrying heavy luggage/baggage.</p> <p>Luggage/baggage storage areas should be designed to minimize musculoskeletal risks (e.g., the heaviest items stored at levels that are above knee and below shoulder heights).</p> <p>The employer should provide training regarding the proper use of lifting devices.</p> <p>When necessary, the employer should allow workers to request and be provided assistance when lifting heavy objects.</p> <p>Employer passenger relations policies regarding the lifting/transferring of passengers to/from assist equipment and the airplane should be adhered to.</p>

TAKE HOME QUESTIONS

Musculoskeletal Health Problems with Explanation

The purpose of this questionnaire is to help you become more aware of airport working conditions. We appreciate your help in completing this survey, and

getting another co-worker to complete it as well. Each of the questions is in bold-face type; the explanation of each question follows.

1. KEYBOARD**a. Manufacturer and model number:**

Usually, this can be found by turning your keyboard upside down. Write down the manufacturer and model number, but not the serial number.

b. Is the keyboard moveable in relation to the screen? Yes No

If the keyboard is attached to the monitor by a cord, then it is moveable, so check "Yes." If not, check "No."

c. Is the keyboard angularly adjustable? Yes No

Can you change the angle of the keyboard, i.e., can you raise the back of the keyboard (that part closest to the monitor) so the angle gets steeper or shallower? If you can, check "Yes."

d. Is there space between the edge of the table and the keyboard to rest your palms? Self-explanatory. Yes No**2. MOUSE EQUIPMENT****a. Does the mouse fit comfortably in the palm of your hand?** Self-explanatory. Yes No

- b. Is the mouse located next to and at the same height and angle as the keyboard?** Self-explanatory. Yes No
- c. Are you able to use the mouse without developing finger/hand discomfort?** Self-explanatory. Yes No

3. CHAIR/STOOL

a. Manufacturer and model number:

This information can be obtained by turning the chair/stool upside down and looking for a plate stapled or attached to the seat pan. Write down the manufacturer and model number, *not* the serial number.

- b. Are armrests provided?** Self-explanatory. Yes No
- c. Do the armrests interfere with movement?** Yes No
Are the armrests too close to your body or placed in a location that restricts your movement in the chair?
- d. Is the seat pan height and angularly adjustable ?** Yes No
Can you raise and lower the height of the seat pan; can you adjust the angle of the seat pan forward and backward?
- e. Does the seat pan have a rounded front edge?** Yes No
Does the front edge of the chair (which rests against the back of your legs) have a rounded edge (check "Yes") or a sharp edge (check "No")?
- f. Does the seat surface have enough padding?** Yes No
Do you think there is enough padding on the chair to sit comfortably throughout the work day?
- g. Is the backrest height and angularly adjustable?** Yes No
Can you raise and lower the height of the backrest; can you recline backward or incline forward with adequate support?
- h. Does the chair provide lumbar (lower-back) support?** Yes No
Self-explanatory.

- i. Does the chair/stool have a five-leg base?** Yes No
Are there five legs or casters (check "Yes") or are there fewer (check "No")?

4. WORKSTATION DESIGN

- a. Is the work surface or table height adjustable?** Yes No
Can you raise or lower the height of the work surface or table?
- b. Is/are there a separate keyboard/mouse surface(s)?** Yes No
- c. Can the keyboard/mouse surface(s) be moved away from or towards the user?** Yes No
- d. Is there a separate surface for the monitor (display)?** Yes No
- e. Is the area under the work surface free of obstructions that might interfere with varying your posture?** Yes No
Is the location where you place your legs and feet free of obstacles, allowing you to shift positions in your chair/stool?
- f. Is there space upon the work surface to rest your arms while you're not keying?** Yes No
- g. Does the work surface have well-rounded edges and corners?** Yes No
Are there sharp edges and corners that you can bump against?

5. DOCUMENT HOLDERS, FOOTRESTS, AND WRIST RESTS

- a. Are document holders provided for use of hard copy?** Yes No
Does your workstation have a document holder that you can place hard copy upon? If so, check "Yes." If not, check "No."
- b. Is the document holder height adjustable?** Yes No
Can you raise/lower the document holder to provide a more comfortable viewing angle? If you can, check "Yes." If not, check "No."
- c. Is the document holder distance-adjustable?** Yes No
Can you move it closer to or farther away from you?

d. Is the document holder angularly adjustable? Yes No

Can you change the angle of the document holder?

e. Is there adequate space to properly locate the document holder? Yes No

Do you have room on your work surface to put the document holder in a position that provides the best view of the hard copy?

f. Is a padded wrist rest provided? Yes No

Don't confuse this with a *palm* rest. A wrist rest is usually located at the edge of the work surface that the keyboard/mouse is/are located on. Ideally, the wrist rest should support your wrists while resting. However, if you use a wrist rest while keying, it should allow you to keep your wrists in as neutral a position as possible. If your employer does not provide you with a wrist rest, check "No." If one is provided, check "Yes." If a wrist rest is not provided, skip the next two questions (g and h).

g. Is the wrist rest wide enough (2 inch minimum)? Yes No

To be effective, the wrist rest should be at least two inches wide. If the wrist rest is not, check "No."

h. Does the wrist rest have a rounded front edge? Yes No

The front edge of the wrist rest (which faces you), should be rounded so that you do not rest your wrists on a sharp edge. If the front edge is rounded, check "Yes."

i. Is a footrest provided? Yes No

If you do not have a footrest, you should skip questions j, k, l and m, but make sure you answer the last question about cushions or pads. If you do have a footrest, check "Yes," no matter whether you or your employer provided it.

j. Is the footrest home-made? Yes No

Did you make the footrest yourself, even if it is something you found in the airport, like a box or several reams of paper? If you did, then check "Yes." If you do not know who made it, or if the employer provided it, check "No."

k. Does the footrest have a non-skid surface? Yes No

Does the section of the footrest where you place your feet have a non-skid surface (so your feet won't slip off the surface)? If it does, check "Yes," if not, check "No."

l. Is the footrest height adjustable? Yes No

Can you raise or lower the footrest without having to put a wedge or something underneath it? If you can, check "Yes"; if it can't adjust in height, check "No."

m. Can the angle of the footrest be adjusted? Yes No

Can you change the angle of the footrest, i.e., can you adjust the angle of the surface towards or away from you?

n. Do you use a cushion or a pad in your chair? Yes No

Do you use or have to bring your own chair cushion or pad to make the chair comfortable? If so, check "Yes"; if not, check "No."

6. SCALES, CONVEYORS, AND STORAGE EQUIPMENT

a. Are scales for weighing luggage/baggage available at each workstation? Yes No

If not, is a scale within close proximity/distance to your workstation? Yes No

b. In cases where you have to move/carry luggage/baggage to a scale, are carts or other necessary equipment available to transport the luggage/baggage to the scale? Yes No

c. Is the height of the cart or other equipment level with or the same as the luggage/baggage scale? Yes No

If not, can the height of the cart or other equipment be adjusted to be level with the scale? Yes No

d. Do you have to lift luggage/baggage that exceeds 51 pounds on a continuous basis, i.e., throughout your work shift? Yes No

If so, are you able to ask for and receive assistance from a co-worker to lift and carry the luggage/baggage to the scale and/or luggage/baggage conveyor belt or other equipment? Yes No

e. Is conveyor equipment designed in such a manner that allows you to not have to lift and carry the luggage/baggage to the conveyor belt, i.e., by means of electronically activated conveyor equipment or rollers located at or adjacent to the workstation? Yes No

f. Do you have to continuously lift and remove luggage/baggage to/from storage shelves? Yes No

If so, for luggage/baggage that exceeds 51 pounds, are you able to ask for and receive assistance from a co-worker to lift, move, and/or carry the luggage/baggage? Yes No

Are storage shelves designed in such a manner that allows you to not have to lift, move, and/or carry luggage/baggage below your knees? Yes No

Above your shoulders? Yes No

g. Does the employer provide initial and refresher training regarding proper lifting techniques? Yes No

7. CUSTOMER ASSIST EQUIPMENT

a. Are ergonomic or adjustable wheel chairs or assist equipment available to easily transport customers to/from the airplane? Yes No

In instances when you have to assist customers to/from an airplane seat, are you provided assist equipment that allows you to perform this task without suffering musculoskeletal discomfort or injury? Yes No

Also, when performing such customer assistance, are you able to request and receive assistance from a co-worker? Yes No

b. Does the employer provide initial and refresher training regarding proper lifting techniques as well as the use of assist equipment? Yes No

Should you have any questions or concerns after completing the questionnaire, please contact _____ or your Local President.

Occupational Stress and the Airport Workplace

Occupational stress is one of the major health hazards of the modern workplace (in which CWA members are employed). It accounts for much of the physical illness, substance abuse, and family problems experienced by millions of blue and white-collar workers. Also, occupational stress and stressful working conditions have been linked to low productivity, absenteeism, and increased rates of accidents on and off the job. The traditional response of management has been to “blame the victim,” defining stress as an “individual” or “personal” problem that workers bring from home to work. In contrast to this approach that blames people for their inability to fit into an inhumane work environment, it is important to analyze the structure of job requirements and social relationships at work as the primary sources of stress.

Job stress is a significant health and productivity issue for airport workers. The “2001 CWA US Airways Airport Workplace Ergonomics Survey” included several questions regarding stress-related health symptoms. Overall, here is what the survey results told us:

- n 37% of respondents experienced irritability symptoms “often” or “always”;
- n 35% of respondents said that they had difficulty sleeping “often” or “always”;

- n 41% of respondents reported that they experienced symptoms of fatigue “often” or “always”;
- n 21% of respondents indicated that they experienced symptoms of depression “often” or “always”;
- n 27% said that they experienced symptoms of anxiety “often” or “always.”

While the specific sources and the resulting health effects of stress vary among people, the nature of the stress response is always the same. The body has a normal mechanism for dealing with stressful situations known as the “fight or flight” response. As soon as the brain senses danger, it sends messages (electrical, chemical, and hormonal) that stimulate the extra energy needed to fight the danger or run away from it. The “fight or flight” response is extremely functional when we confront short-term specific dangers. When the danger or the challenge subsides or is dealt with, the body returns to a state of equilibrium.

To understand why exposure to stress, especially prolonged stress, can cause ill health, it is helpful to know what changes take place in the body during the “fight or flight” response. The heart starts beating faster in order to get more blood to the muscles; adrenaline and other hormones are released to provide more energy; additional stomach acids are secreted; and respi-

ration increases. Together, all of these changes prepare the body for action. However, when these bodily processes are constantly functioning our bodies are working overtime. Under these circumstances, the entire system weakens and the weakest spots or parts of the body are the first to show signs or symptoms of stress and strain. If the burden or stressor continues for long periods of time without adequate opportunities for rest or relaxation, the entire body may begin to break down.

Numerous investigations have shown that *job control* and *job demand* are directly related to the cause of occupational stress. Job control determines how much or how little control a worker has over her/his job; whereas job demand determines how much or how few production or productivity pressures there are on the worker as well as the quality of the physical work environment. The more control a worker has over her/his job, the greater the likelihood that she/he will not suffer occupational stress.

Another important factor in the causation of job stress is *social support*. By this, we mean a work environment where workers interact and communicate with and provide social support to one another. It also implies a management style that is supportive of workers in performing their work safely, comfortably, and efficiently. Such management support includes providing necessary physical, psychological, and social working conditions that allow workers to function productively. For example, workers who feel their employment or job is threatened, or whose supervisors berate them, or who feel they have no effective recourse when abused by customers, are at increased risk of developing stress-related health problems. Thus, occupational or job stress is a threat to the health and well-being of individual workers and the organization of work.

Some examples of job control and job demand stressors include:

Job Control	Job Demand
n lack of control over your work	n contracting out work
n lack of recognition for work done	n fragmentation/job de-classification
n job insecurity	n poor ventilation and heating
n fear of layoffs	n poor lighting
n harassment	n forced overtime
n physical or psychological isolation from peers	n poor computer workstation
	n monitoring (e.g. AWT standards)

Responses to Occupational Stress

CWA National and Local leaders have responded to these demands and begun to develop successful approaches to challenge stressful working conditions. Some of the specific strategies that have been used to fight occupational stress are:

- n **Educating the membership**—Conducting classes or seminars on stress.
- n **Collective bargaining demands**—Negotiating over clauses such as notice about introduction of new technologies, stress days off, additional breaks or micro-breaks, and more flexible attendance policies that reduce the impact of job stress on workers.
- n **Legislative and political action**—Introducing CWA-sponsored legislation on computers and demands for increased staffing levels in public sector workplaces.
- n **Stress surveys**—Documenting the link between working conditions and negative health effects.

- n **Medical screenings**—Conducting union-sponsored screenings for vision or hearing problems (generally can be arranged with local occupational health clinics or doctors).
- n **Workers' compensation**—Filing for workers' compensation benefits on behalf of workers.

While CWA recognizes that occupational stress is a major problem in today's "high tech" society, with the use of existing structures, such as health and safety committees, to address the issue of job stress, local unions can begin to adopt creative strategies to improve working conditions. The activities undertaken by these committees have included some of the following:

- n Conducting regular walk-around inspections.
- n Investigating incidents which might have been related to stress.
- n Reviewing health, absenteeism, and other available records.
- n Training other committee members and stewards to recognize stressful situations and workers suffering from stress.

- n Reviewing and recommending changes in work practices and procedures for potential as stressors.
- n Participating in training programs on job stress and job design.
- n Documenting activities and events related to potential stressful situations.
- n Educating the membership through the formation of discussion groups, via published news articles on job stress in union publications, and developing stress-related materials for distribution to members and new employees during orientation sessions.
- n Conducting on-and off-the-job relaxation and physical conditioning programs.

Local leader use of the suggested strategies to identify and minimize/eliminate job stressors will help improve members' health and well-being. In addition, absenteeism and lost-work time will significantly decrease and productivity will increase, an important concern to management.

1-Day Airport Workplace Ergonomics Training Evaluation

Name _____ Local # _____

Class Location _____ Date _____

Occupation _____

1. Please describe briefly how this training class has been of benefit to you.

2. Please list the benefits you feel your members will derive from the information you will be sharing.

3. How will this training assist you in improving the conditions within your work area?

4. Was the training material clear and easy to understand? If not, please explain.

5. Were there any topics omitted from this course that you feel should be added? If so, please list them.

6. In what way(s) can your local, district and/or national bargaining unit office and the CWA Occupational Safety and Health Department in Washington support you in your efforts?
