



A Newsletter of
The University of Iowa's
WORKSAFE IOWA Occupational
Medicine Associates Network,
Iowa's university-affiliated
statewide network of
occupational medicine providers.

Vol. 9 No. 2 Fall 2002



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Respirator Fit Testing

by Wayne T. Sanderson,
PhD, CIH

Personal respirators should not routinely be relied on as the primary method of protecting workers from hazardous industrial exposures. Situations do occur, however, when they are the only practical or available method, such as during maintenance operations, before engineering controls are installed, during emergencies, and when fighting a fire. Nonexistent or improper respiratory protection is one of the most frequently cited standards of the Occupational Safety and Health Administration (OSHA), and fit testing is an important component of a comprehensive respiratory protection program.

For proper protection, respirators must be fitted to the wearer's face. The OSHA Respiratory Protection Standard (20 CFR1910.134; paragraph f) requires that every worker who must wear a tight-fitting respirator be fit-



Quantitative fit testing provides not only an indication of whether a respirator fits properly but also a numeric estimate of the degree of protection.

tested to determine the acceptable make, model, style, and size of respirator. Fit tests must be performed before initial use, whenever a different respirator is used, and at least annually thereafter.

The employer may use a qualitative fit test, which is a pass/fail test relying on the individual's sensing of a test agent such as saccharin,

banana oil, or bitter aerosol. A quantitative fit test may also be used, which numerically measures the amount of leakage into the respirator. The OSHA standard specifies which type of fit test is required, generally based on the type of face piece worn and the level of protection needed against airborne hazards in the environment. Firefighters using air-supplied respirators, for example, can be fitted with qualitative testing, but full-face respirators in industrial settings must be tested with quantitative methods when exposures exceed 10 times OSHA's permissible exposure limit (PEL) for workplace contaminants.

Quantitative fit testing provides not only an indication of whether a respirator fits properly but also a numeric estimate of the degree of protection. An instrument that has proved acceptable for quantitatively measuring fit is the TSI

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October is National Fire Prevention Month:

Prevent Workplace Fires

According to the National Safety Council, 6,026 persons lost their lives in a work-related event or exposure in 1998. Of this total 116 deaths or 2% were related to workplace fires or burns. While workplace fires occur less frequently than other work-related injuries or illness, the cost of fires can be estimated in the billions of dollars.

Historically, the story of workplace fires is long and tragic. A famous fire at the Triangle Shirtwaist Factory in New York City in 1911 resulted in the death of nearly 150 women and young girls because of locked fire exits and inadequate fire extinguishing systems.

Several years ago a workplace fire at a poultry processing plant in Hamlet,

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Exit Sign Requirements for Disabled Persons

The Occupational Safety and Health Administration (OSHA) published a letter of interpretation clarifying how OSHA's exit sign requirements relate to the Americans with Disabilities Act (ADA). In the letter of April 5, 2002, OSHA points out that while 29 CFR 1910.36(b)(5) does not specifically require employers to provide exit signs which can be understood by persons with disabilities, in keeping with the policies of the ADA, OSHA strongly encourages all employers to provide such signage whenever appropriate. Likewise, OSHA encourages employers to adopt additional, prudent measures to ensure that disabled employees or employees who require assistance are safely evacuated in case of fire or similar emergency.

Nothing in the Occupational Safety and Health Act or its standards prohibits or

precludes an employer from adopting measures to place ADA-compliant Braille and tactile signage at required exits. Absent a specific standard, OSHA cannot mandate an employer to take steps that may foster occupational safety and health unless the Agency can demonstrate that such steps are necessary to furnish employment and a place of employment that are free from recognized hazards that are causing, or are likely to cause, death or serious harm to the employer's employees. OSHA's requirements are for visible exit signs designed for sighted employees. OSHA does not dictate specific size or other requirements for Braille and tactile signs.

SOURCE: OSHA Interpretation of Standard #1910.36 (April 5, 2002)

Recording Hearing Loss

The Occupational Safety and Health Administration (OSHA) is revising the hearing loss recording provisions of the Occupational Injury and Illness Recording and Reporting Requirements. This rule, which was published January 19, 2001 (66 FR 5916-6135), is scheduled to take effect on January 1, 2003 (66 FR 52031-52034). It revises the criteria for recording hearing loss cases in several ways.

OSHA has decided to require employers to record audiometric results indicating a Standard Threshold Shift (STS) only when such STS cases also reflect a total hearing level of at least 25 dB from audiometric zero. The STS calculation uses audiometric results averaged over the frequencies 2000, 3000 and 4000 Hz, using the original baseline and annual audiograms required by the OSHA Noise Standard 6 1910.95. The rule also allows the employer to adjust audiogram results that are used to determine an STS by subtracting hearing loss caused by aging. It also allows the employer to retest the workers' hearing to make sure the hearing loss is



persistent to seek and follow the advice of a physician or licensed health care professional in determining whether or not the hearing loss was work-related.

FOR FURTHER INFORMATION CONTACT:

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Occupational Safety and Health Administration
US Department of Labor
Directorate of Safety Standards Programs
Room N-3609
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Washington, DC 20210.
Telephone (202) 693-2222

SOURCE: Code of Federal Register #67:44037-44048 (July 1, 2002). Occupational Injury and Illness Recording and Reporting – Final Rule

October is National Fire Prevention Month:

Prevent Workplace Fires

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North Carolina, resulted in the death of 25 workers. Once again it appeared there were problems with fire exits and extinguishing systems.

The answer lies in the prevention of workplace fires. When OSHA conducts workplace inspections, it checks to see whether employers are complying with OSHA standards for fire safety.

Fire safety in the workplace relates to:

- building exits
- fire extinguishers
- evacuation planning
- **preventing fires** including employee training.

Building Exits

The workplace should have two means of escape, remote from each other, to be used in case of a fire emergency. Fire doors must not be locked or blocked when employees are in the building. Exit routes must be free of obstructions and clearly marked with signs designating EXIT from the building.

Fire Extinguishers

Fire extinguishers must be in place for the type of fire hazards present in the

workplace, and employees must know how to operate them.

Only approved fire extinguishers are permitted for use in workplaces and they must be kept in good operating condition. Proper maintenance and inspection of this equipment is required.

Emergency Evacuation Planning

Employees must know the workplace evacuation plan. The plan describes the routes used to evacuate the building and procedures to account for all employees. Where needed, procedures for helping physically impaired employees must be developed and made known. The plan must also include procedures for any employee(s) who stay behind temporarily to shut down critical plant equipment before evacuation. An alarm system must be available throughout the workplace. The alarm may be voice communication or sound signals such as bells, whistles or horns, but employees must know the evacuation signal.

Preventing Fires

Workplaces should have procedures for controlling workplace ignition sources such as smoking, welding and burning must be addressed. Heat-producing equipment

such as burners, boilers, ovens, stoves, fryers, etc., must be properly maintained and kept clean of flammable residues that can accumulate. Housekeeping procedures for storage and cleanup of flammable materials and waste are essential.

Employee Training

All employees should be aware of potential fire hazards in the workplace and procedures called for in the fire prevention plan. The plan should be reviewed with all new employees when they begin employment and with all employees whenever the plan is changed. Employees expected or anticipated to use fire extinguishers must be instructed on the hazards of fighting fire and how to properly operate the equipment.

Fire Suppression System

Properly designed and installed fire suppression systems enhance safety in the workplace. Automatic sprinkler systems throughout the workplace are among the most reliable means of fighting fire. Such a system can detect the fire, sound an alarm, and put water where the fire and heat are located.



Fire Prevention Checklist

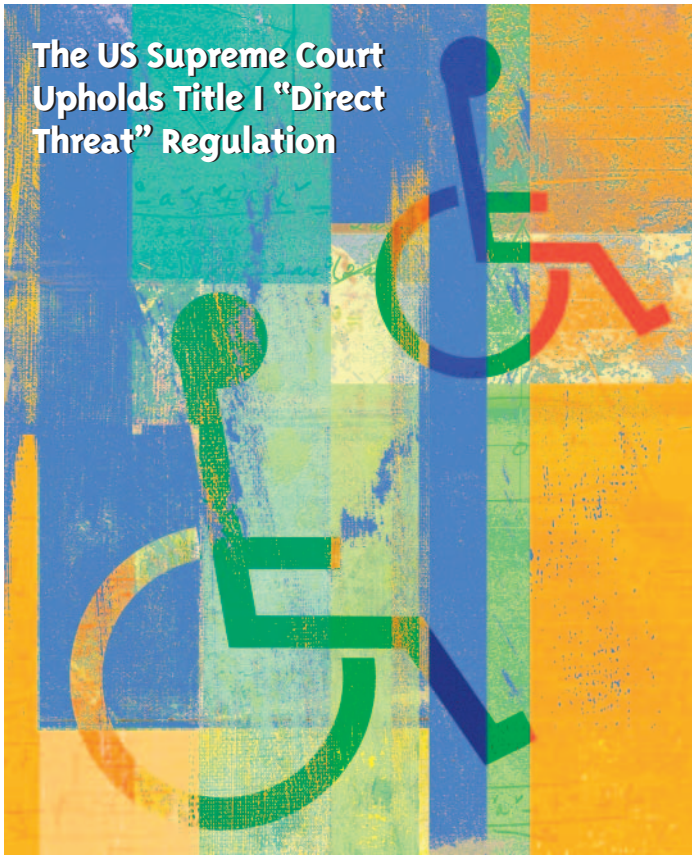
- Passageways and exits must be kept clear, unobstructed and unlocked
- Rubbish should not accumulate—dispose of daily
- Extinguishers must be right for the hazards
- Ventilation is key in high-fume areas
- Evacuation plan must be practiced
- No smoking except in designated areas
- Time is of the essence, immediate response is required
- Fires can be prevented
- Ignoring hazards and unsafe conditions is not permitted
- Report or repair unsafe conditions
- Every employee must know the fire prevention plan

SOURCES: National Safety Council Injury Facts (2000)

U.S. Department of Labor/
Occupational Safety and Health
Administration. Fact Sheet No.
OSH 91-41

Americans with Disabilities Act:

The US Supreme Court Upholds Title I "Direct Threat" Regulation



By Kimberly J. Gordon,
RN, MA, COHN-S

The Americans with Disabilities Act (ADA) gives civil rights protection to individuals with disabilities. It guarantees individuals with disabilities equal opportunity in employment, public accommodations, transportation, state and local government services, and telecommunications.

Title I employment provisions of the ADA apply to private employers, state and local governments, employment agencies, and labor unions. Employers with 25 or more employees were covered as of July 26, 1992. Employers with 15 or more

employees were covered as of July 26, 1994.

The ADA prohibits discrimination in all employment practices, including job application procedures, hiring, firing, advancement, compensation, training, and other terms, conditions, and privileges of employment. It applies to recruitment, advertising, tenure, layoff, leave, fringe benefits, and all other employment-related activities.

Employment discrimination is prohibited against "qualified individuals with disabilities." This protection covers both applicants for employment and employees and extends to persons who have a known association or

relationship with an individual with a disability.

An employee or applicant is considered to have a "disability" if he or she 1) has a physical or mental impairment that substantially limits one or more major life activities, 2) has a record of such impairment, or 3) is regarded as having such an impairment.

The first part of the definition refers to impairments that substantially limit major life activities such as seeing, hearing, speaking, walking, breathing, performing manual tasks, learning, caring for oneself, and working. An individual with epilepsy, paralysis, HIV infection, AIDS, a substantial hearing or visual impairment, mental retardation, or a specific learning disability is covered, but an individual with a minor, non-chronic condition of short duration, such as a sprain, broken limb, or the flu, generally would not be covered.

The second part of the definition, which protects individuals with a record of a disability, would cover, for example, a person who has recovered from cancer or mental illness. An example of a person "regarded as having" an impairment might be a qualified individual with a severe facial disfigurement who is denied employment because an employer fears the negative reactions of customers or co-workers.

A recent decision by the US Supreme Court in *Chevron USA, Inc. v. Echazabal* upheld an ADA Title I regulation issued by the Equal Employment Opportunity

Commission (EEOC) that permits an employer to deny employment to individuals with disabilities whose performance of a job would pose a direct threat to their own health or safety. The applicant in this case, who has a chronic liver disorder, worked at a Chevron oil refinery for more than twenty years as an employee of various maintenance contractors. When he applied to work directly for Chevron, he was denied employment on the grounds that exposure to the liver-toxic chemicals at the refinery could seriously endanger his health or even be fatal. He sued under Title I claiming that Chevron's action violated the ADA.

The US District Court for the Central District of California ruled in favor of Chevron, but the US Court of Appeals for the Ninth Circuit reversed that decision. The Ninth Circuit held that the EEOC regulation allowing the employer to use a direct threat to the employee's own health or safety as a defense was inconsistent with the language of the statute, which only mentions direct threat "to others." In June 2002, however, the Supreme Court reversed the Ninth Circuit and upheld the EEOC regulation as a reasonable interpretation of the statute.

For additional information on the ADA, provisions and interpretations refer to the US Department of Justice website at <http://www.usdoj.gov>

SOURCE: Enforcing the ADA: A Status Report for the US Department of Justice at <http://www.usdoj.gov>

Reduction of Workplace Falls:

ANSI Standard A1264.1 Now Available



The American Society of Safety Engineers (ASSE) focused on reducing workplace falls, the second leading cause of on-the-job deaths, when it published the American National Standard A1264.1-1995 (R-2002) *Safety Requirements for Workplace Floor and Wall Openings, Stairs and Railing Systems*.

The standard, first drafted in 1987, was re-approved June 6, 2002 by the American National Standards Institute (ANSI), acknowledging the standard as a workable guideline for safety professionals. Its goal is to help reduce workplace falls from ladders, stairs, and floor and wall openings.

The A1264.1 standard

- establishes minimum safety requirements for walking and working areas
- gives basic definitions of wall and floor openings and holes
- focuses on the major components of safe entryways including requirements for fixed stairs, guardrails and handrails
- lists requirements for protecting open-sided platforms and runways
- lists requirements for barriers and screens for wall openings as well as covers for floor openings and treading for stairs.

"This standard is integral in establishing the minimum safety requirements for protecting employees from falls and also falling objects." said the A1264 Committee Chair, Thomas J. Reilly.

A copy of the A1264.1 standard, order # 3318, is available for \$32 for ASSE members and \$48 for non-members. It can be ordered online at www.asse.org or by calling ASSE customer service at 847-699-2929.

SOURCE: American Society of Safety Engineers, Press Release (August 5, 2002): Standard Sets Safety Requirements for Workplace Floor

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Respirator Fit Testing

PortaCount™. It measures fit by comparing the concentration of microscopic particles outside the respirator to the concentration of particles that have leaked into it (counting ambient particles between 0.02 and 1 micrometers in diameter). The ratio between these two concentrations is the "fit factor". For example, if 150,000 particles were measured in the ambient air and 1500 particles were counted inside the respirator facepiece, the fit factor is 100. The Department of Occupational and Environmental Health in the University of Iowa's College of Public Health has recently purchased one of these instruments.

The WORKSAFE IOWA Occupational Medicine Associate in your area along with WORKSAFE IOWA industrial hygiene consultants from the UI College of Public Health can help employers develop a comprehensive respirator program for the workplace. They can assist with exposure evaluation, respirator selection, and employee training, in addition to qualitative and quantitative respirator fit testing.

NOTE: The OSHA website provides detailed instructions on respirator usage: http://www.osha-slc.gov/SLTC/respiratory_advisor/mainpage.html.



Flu Vaccine

The flu season, which runs from December through March, is almost upon us. The Centers for Disease Control and Prevention (CDC) recommends that businesses protect their workers by offering the flu vaccine. According to the CDC, businesses in the US could save as much as \$12 billion annually by giving workers flu shots before they catch the bug. The vaccine has been shown to reduce lost workdays by 32 to 45 percent.

CDC recommends workers receive the flu shot in November or December. Call your local WORKSAFE IOWA Occupational Medicine Associate for details.

SOURCE: Centers for Disease Control and Prevention National Immunization Program website at <http://www.cdc.gov/nip/Flu/default.htm>



Readers may direct questions to:

WORKSAFE IOWA

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MA, COHN-S

phone 319/335-4423

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Expert providing answers; Stephanie Leonard, MS, Industrial Hygienist, WORKSAFE IOWA

Question:

What happens if an employee reports that their respirator doesn't fit correctly after they have been successfully fit-tested?

Answer:

If the employee reports the respirator doesn't fit correctly, you must allow them to select a different tight-fitting respirator that is acceptable, and then follow up with a new fit test on the employee's replacement respirator.

While wearing their respirator with new (and appropriately selected) cartridges, the employee may smell a workplace contaminant and determine the respirator doesn't have an effective face-to-facepiece seal. Or they may feel air leaking around the seal. They may find they are unable to wear the respirator for extended periods without experiencing skin irritation, pain or discomfort. Any of these situations may come up after repeated or extended use during "real work" applications, rather than during the initial selection and fit-testing procedures.

Question:

What interferes with the user getting a good seal on the tight-fitting facepiece respirators?

Answer:

Facepieces must have a complete seal at the entire perimeter that contacts the skin. Conditions that can interfere with the seal or with valve operation include:

- Facial hair or facial scars
- Jewelry or headgear that projects under the facepiece seal
- Missing dentures
- Corrective glasses or goggles, or other personal protective equipment such as face shields, protective clothing, helmets, eyeglass inserts or spectacle kits

Employees can use this equipment with tight-fitting respirators as long as the equipment doesn't interfere with the face-to-facepiece seal, and doesn't impair or distort the employee's vision. You must make sure the respirator doesn't interfere with the employee's eyewear or cause them to remove their eyewear altogether.

Question:

What if the worker has one of those conditions but it doesn't interfere with the face-to-facepiece seal?

Answer:

If the face-to-facepiece seal is intact, and that condition (or any other) doesn't affect valve function, the worker can wear the respirator. Example: a mustache may be narrow enough that it doesn't affect the seal but could interfere with valve function.

Question:

Can employees use contact lenses with respirators?

Answer:

Yes—contact lenses can be worn with respirators, but keep in mind that other environmental conditions such as dusty environments and physical hazards may make contact lens use impractical or hazardous without appropriate protective eyewear.

Upcoming Occupational Health Courses

Core Curriculum in Environmental Health: A Train-the-Trainer Course

November 8, 2002

Allen College, Waterloo, IA

This workshop will provide an overview of environmental health hazards present in the home, workplace, and community. Topics include: pathways and routes of exposure to environmental health hazards; common classes of environmental health hazards including chemical, physical, mechanical, biological, and psychosocial; populations made vulnerable by personal characteristics e.g., age, weight, genetic composition, nutritional status, physiological status, pre-existing disease states, behavioral and lifestyle factors; scope and nature of environmental health hazards, including those present in air and water; policy framework, major legislation, and regulations related to environmental health; occupational/environmental health exposure history; basic risk communication strategies in individual care and community intervention with respect to potential adverse effects of the environmental on human health; the role of the occupational/environmental health nurse in basic prevention and control strategies for environmental hazards.

Sponsors: Northeast Iowa Association Of Occupational Health Nurses, Inc. (NIAOHN), American Association of Occupational Health Nurses, Inc. (AAOHN), University of Iowa College of Public Health Heartland Center for Occupational Health & Safety and WORKSAFE IOWA.

NIOSH-Approved Spirometry Training for Workers Screening Course

December 5 & 6, 2002

The University of Iowa, Oakdale Hall, Iowa City, IA

This NIOSH-approved course is designed to provide a comprehensive theoretical framework combined with practical training necessary to conduct spirometry testing and screening for workers. Enrollment is limited to 10.

Sponsors: University of Iowa College of Public Health Heartland Center for Occupational Health & Safety and WORKSAFE IOWA

Occupational Hearing Conservationist Certification and Recertification Courses

March 12, 13 & 14, 2003

University of Iowa College of Nursing, Iowa City, IA

The Occupational Hearing Conservationist Certification course is planned for March 12, 13 & 14, 2003. In addition, a one-day certification Course will be offered on March 13. A CAOHC-certified course director will teach the courses.

For more information or a registration form, contact Jennifer Clougherty, College of Nursing, The University of Iowa, Iowa City, IA. Telephone 319/335-7119, Fax 319/335-7129, e-mail Jennifer-clougherty@uiowa.edu

Sponsors: University of Iowa College of Nursing and College of Public Health Heartland Center for Occupational Health & Safety and WORKSAFE IOWA.

5th Annual Occupational Health Symposium

April 3 & 4, 2003

Iowa Memorial Union, The University of Iowa, Iowa City, IA

This symposium will provide current information on health and safety regulations, workplace illnesses and injuries, health care delivery, and management issues. It will also provide important resources and networking opportunities necessary for keeping current in occupational health. Details will be forthcoming.

Sponsors: University of Iowa College of Nursing and College of Public Health Heartland Center for Occupational Health & Safety and WORKSAFE IOWA

Case Management Review for Occupational Health Nurses

June 25 & 26, 2003

St. Louis, Missouri

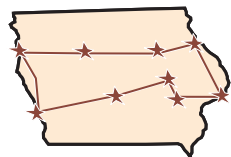
International expert Bonnie Rogers, DrPH, COHN-S, LCCN, FAAN will conduct a 2-day comprehensive review course in case management for occupational health nurses preparing for the COHN/CM or COHN-S/CM examinations.

For further information on any of the above programs contact

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Cedar Rapids, IA
(319) 369-8153

**Iowa Methodist
Occupational Health**

Iowa Methodist Medical
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West Des Moines, IA
(515) 241-2020

**Tri-State
Occupational Health**

Medical Associates Clinic
Mercy Health Center
Dubuque, IA
(563) 582-2525

**Trimark Corporate
Health Services**

Trinity Regional
Medical Center
Fort Dodge, IA
(515) 574-6810

**St. Luke's
Occupational
Health Services**

St. Luke's Health System
South Sioux City, NE
(402) 494-2065

Work Fitness Center

John Deere Health Care
Genesis Medical Center
Trinity Medical Center
Quad Cities
(309) 764-9675

**Allen Occupational
Health**

Allen Memorial Hospital
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The Workplace Health and Safety Report is published quarterly by WORKSAFE IOWA for members of its Occupational Medicine Associates Network. WORKSAFE IOWA is an occupational and environmental health outreach program of the Department of Occupational and Environmental Health, College of Public Health, The University of Iowa. For more information on the WORKSAFE IOWA Occupational Medicine Associate in your area, please refer to the list at left.

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World Wide Web
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