SPECIAL Report

NATIONAL ROOFING CONTRACTORS ASSOCIATION

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Dec. 8, 2000

On Nov 14, 2000, the Occupational Safety and Health Administration (OSHA) issued its much-anticipated ergonomics program standard, 29 CFR 1910.900. The standard does not currently apply to the construction industry; therefore, roofing work and related sheet-metal shop operations are not covered. However, companies that manufacture or distribute roofing products and equipment *are* covered by the standard. This includes contractors who operate separate companies that are classified under a standard industrial classification (SIC) code that is not considered to be construction-related. For example, roofing, siding and sheet-metal work is classified under SIC 1761, which is considered construction related and, therefore, not covered.

The standard becomes effective Jan. 16, 2001, but the first compliance deadline is not until Oct. 14, 2001.

In the standard, OSHA defines a musculoskeletal disorder (MSD) as a disorder of the muscles, nerves, tendons, ligaments, joints, cartilage, blood vessels or spinal discs. For purposes of this standard, this definition only includes MSDs that have been associated with exposure to the following risk factors: force, awkward posture, repetition, vibration or contact stress of the following areas of the body: neck, shoulder, elbow, forearm, wrist, hand, abdomen (hernia only), back, knee, ankle and foot.

MSDs may include muscle strains and tears, ligament sprains, joint and tendon inflammation, pinched nerves, and spinal disc degeneration. MSDs include such medical conditions as lower back pain, tension neck syndrome, carpal tunnel syndrome, rotator cuff syndrome, DeQuervain's syndrome, trigger finger, tarsal tunnel syndrome, sciatica, epicondylitis, tendonitis, Raynaud's phenomenon, hand-arm vibration syndrome (HAVS), carpet layer's knee and herniated spinal disc. Injuries arising from slips, trips, falls, motor-vehicle accidents or similar accidents are not considered MSDs for the purposes of this standard.

If an employee of a covered employer has an MSD incident, the employer has two options to comply with the standard. The employer can either implement a quick fix, which allows an employer to implement controls and some elements of an ergonomics program without having to develop a written program, or an ergonomics program. Both are described in this report.

Background

OSHA began work on its ergonomics program standard in 1979, more than two decades ago.

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In 1994, NRCA joined the National Coalition on Ergonomics (NCE), a not-for-profit organization composed of construction, transportation, manufacturing and medical companies, as well as trade associations. NCE believes OSHA's ergonomics program rule will cost several billion dollars for companies to implement, much more than OSHA's annual compliance cost estimate of $4.5 billion. As a result, many small businesses will suffer financially to the point of going out of business. NCE's goal was to lobby Congress to prevent OSHA from issuing this final rule.

On Nov. 23, 1999, OSHA issued its proposed ergonomics program rule with a comment period that ended Jan. 24, 2000. This caused great concern because it did not give enough time for affected parties to thoroughly research the costs of the proposed standard and prepare comments. After receiving several requests for an extension, OSHA extended the comment period until March 2, 2000.

NRCA submitted comments in opposition to the proposed rule. NRCA supported NCE's claim that there was not enough sound scientific evidence to indicate that there is a clear cause-and-effect relationship between MSDs in the workplace to justify the promulgation of such a standard.

Additionally, NRCA believed many of the proposed rule's requirements were vague and could cause a two-fold problem. First, the proposed rule did not create clear, objective benchmarks by which an employer could determine whether they achieved compliance. Secondly, there was a concern about inconsistent OSHA enforcement of the regulation given its ambiguity.

Another area where NRCA opposed OSHA's proposed regulation included its Work Restriction Protection (WRP) provisions. These provisions allow an employee to collect 90 or 100 percent of his salary for up to six months, depending on whether the affected worker is transferred to another job or placed on leave until he is capable of returning to his job.

NRCA also opposed the trigger for a company-specific ergonomics program to be implemented. Employers would have been required to implement elements of the program if there were any manual material handling jobs in the company, even if the company did not have any MSD incidents.

And NRCA was concerned with the proposed regulation because operations such as sheet-metal manufacturing were not clearly defined. NRCA sought clarification from OSHA in NRCA's comments by requesting the agency to "explicitly state that the rule will not apply to construction employers regardless of the type of work their employees perform."

Please visit NRCA's Web site at www.nrca.net for additional information about comments NRCA submitted to OSHA.

OSHA conducted several public hearings throughout the United States . NRCA participated in the hearings March 22, 2000, in Washington, D.C. and testified about the numerous problems with the proposed regulation.

In the final rule issued Nov. 14, 2000, OSHA failed to address many issues NRCA addressed in its comments. It did address, however, issues involving sheet-metal operations and roofing work. As indicated previously, operations classified under SIC 1761 are not covered by this standard.

Overview of OSHA's Final Ergonomics Program Standard

OSHA's ergonomics program standard does not apply to construction businesses, including any operation that supports a construction activity, such as a sheet-metal shop or any administrative support activities, such as clerical work. However, employers who manufacture sheet-metal components and sell them to other companies are covered by this standard because the manufacturing would not be considered related to supporting the construction activities for that company.

After Oct. 14, 2001, covered employers are required to provide their employees with the following information:

1. MSDs and their signs and symptoms
2. Importance of reporting MSDs early to prevent further injury and address the hazards
3. Reporting requirements
4. Types of risk factors, jobs and work activities associated with MSD hazards
5. Short description of the ergonomics standard's requirements.

The information must be written and posted in a conspicuous place, such as a bulletin board. Information presented in electronic format is permitted, provided employees have access to it.

MSD Incident and Action Triggers

Once an employee reports an MSD, his employer is required to determine whether it qualifies as an MSD incident. OSHA defines an MSD incident as one that is work-related and requires medical treatment beyond first aid or has MSD signs or symptoms that last for seven or more consecutive days after the employee reports the incident. Health care providers (HCPs) can be used to determine whether an incident qualifies as an MSD incident.

If the incident does not meet these parameters, employers do not need to take further action.

Action Triggers

If the incident qualifies as an MSD incident, employers are required to determine whether the employee's job meets the action trigger. The action trigger is met when an MSD incident has occurred on the job and the job involves exposure to at least one risk factor described in OSHA's Basic Screening Tool (see Table W-1).

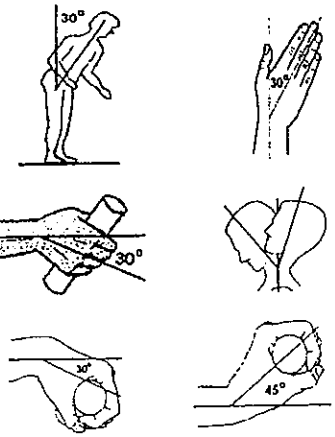
Table W-1 – Basic Screening Tool

You need only review risk factors for those areas of the body affected by the MSD incident.

		Body Part Associated With MSD Incident			
Risk Factors This Standard Covers	**Performing job or tasks that involve:**	Neck/ Shoulder	Hand/ Wrist/ Arm	Back/ Trunk/ Hip	Leg/ knee/ Ankle
Repetition	(1) Repeating the same motions every few seconds or repeating a cycle of motions involving the affected body part more than twice per minute for more than 2 consecutive hours in a workday.	√	√	√	√
	(2) Using an input device, such as a keyboard and/or mouse, in a steady manner for more than 4 hours total in a workday.	√	√		
Force	(3) Lifting more than 75 pounds at any one time; more than 55 pounds more than 10 times per day; or more than 25 pounds below the knees, above the shoulders, or at arms' length more than 25 times per day;	√	√	√	√
	(4) Pushing/pulling with more than 20 pounds of initial force (e.g., equivalent to pushing a 65 pound box across a tile floor or pushing a shopping cart with five 40 pound bags of dog food) for more than 2 hours total per day;	√	√	√	√
	(5) Pinching an unsupported object weighing 2 or more pounds per hand, or use of an equivalent pinching force (e.g., holding a small binder clip open) for more than 2 hours total per day;		√		
	(6) Gripping an unsupported object weighing 10 pounds or more per hand, or use of an equivalent gripping force (e.g., crushing the sides of an aluminum soda can with one hand), for more than 2 hours total per day.		√		

Table W-1 - Basic Screening Tool - continued

You need only review risk factors for those areas of the body affected by the MSD incident.

		Body Part Associated With MSD Incident:			
Risk Factors This Standard Covers	**Performing job or tasks that involve:**	Neck/ Shoulder	Hand/ Wrist/ Arm	Back/ Trunk/ Hip	Leg/ knee/ Ankle
Awkward Postures	(7) Repeatedly raising or working with the hand(s) above the head or the elbow(s) above the shoulder(s) for more than 2 hours total per day;	√	√	√	
	(8) Kneeling or squatting for more than 2 hours total per day;			√	√
	(9) Working with the back, neck or wrists bent or twisted for more than 2 hours total per day (see figures:) 	√	√	√	
Contact Stress	(10) Using the hand or knee as a hammer more than 10 times per hour for more than 2 hours total per day;		√		√
Vibration	(11) Using vibrating tools or equipment that typically have high vibration levels (such as chainsaws, jack hammers, percussive tools, riveting or chipping hammers) for more than 30 minutes total per day;	√	√	√	
	(12) Using tools or equipment that typically have moderate vibration levels (such as jig saws, grinders, or sanders) for more than 2 hours total per day.	√	√		

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OSHA's Basic Screening Tool includes specific descriptions of tasks and durations that will enable employers to assess employee's jobs. This tool is to be used in conjunction with an MSD incident to identify work conditions where risk factors may exist.

If the MSD incident does not meet the action trigger, employers do not need to take further action. Employers need only to review the risk factors in Table W-1 for those areas of the body affected by the MSD incident.

Quick Fix

If a job meets the action trigger, employers are required to either comply with the quick fix option or develop and implement an ergonomics program. An employer may implement the quick-fix option provided the following parameters are met:

- employees have not experienced more than one MSD incident in that job
- there have not been more than two MSD incidents of any kind during the preceding 18 months

The quick-fix option includes the following activities:

- developing a plan for the employer to manage the MSD
- providing a method of communication for the HCP to provide information to the employee regarding his condition
- establishing a temporary work restriction plan (to include work restriction protection)
- coordinating the combined efforts when more than one HCP is used.

The following describes these activities.

MSD Management Process

First, an employer must implement a program to manage MSDs when an employee reports an incident and it is determined that his job meets an action trigger. An MSD management program consists of the following:

- access to an HCP
- any necessary work restrictions, including time off to recover
- work restriction protection
- evaluation and follow-up of the MSD incident.

Next, have an HCP provide a written opinion for each evaluation. The HCP must be instructed that the opinion must not include any finding or information that is not related to the risk factors associated with the workplace. The HCP must be informed that all nonwork-related information cannot be communicated to the employer.

Finally, provide the HCP with the following information:

- a description of the employee's job and physical work activity requirements, risk factors and MSD hazards in the job
- a copy of the standard
- a list of information that the HCP's opinion must contain.

The standard does not consider medical treatment, emergency or post-treatment procedures to be a part of MSD management.

Contents of an HCP Opinion

Employers must instruct HCPs that information regarding employees must contain the following information:

- an assessment of the employee's medical condition as it relates to the physical work activities, risk factors and MSD hazards in the employee's job
- recommended work restrictions, time off work to recover and any follow-up needed
- a statement that the HCP has discussed this information with the employee
- a statement that the HCP has informed the employee of work-related or other activities that could impede recovery from the injury

Temporary Work Restrictions

Temporary work restrictions are required when the HCP deems it necessary. If an employer informs the HCP that there is alternative work available and the HCP determines the employee can be transferred to another job, the employee must be provided work restriction protection. Work restriction protection requires an employer to maintain 100 percent of the employee's earnings, full benefits and employment rights until the first of one of the following occurs:

- the employee is able to resume his former work activities without further harm to him
- the HCP determines the employee is capable of returning to his former job
- Ninety calendar days have passed.

If the HCP determines the employee must take time off, the employer must provide work restriction protection at 90 percent of the employee's earnings, full benefits and employment rights. This must continue until one of the three ending triggers mentioned previously is met.

OSHA includes a provision in the standard stating that employees may take sick leave or other similar paid leave, such as short-term disability, provided it meets at least the 90 percent requirement.

Employees Who Consult Their Own HCPs

The standard allows an employee to seek a second opinion to review the first HCP's findings. This must be done at no cost to the employee. If an employer's HCP has a different opinion or disagrees with the employee's HCP, the employer must take reasonable steps to resolve the disagreement. This can be accomplished by holding a meeting of the HCPs to discuss the issues. This meeting must be held within five days after receipt of the second HCPs differing opinion.

If the matter still is unresolved, a third, mutually selected HCP must review the opinions of the first two HCPs. This is also to be done at no cost to the employee. The employer is required to follow the determination of the third HCP unless the employee agrees to a determination consistent with at least one of the HCPs.

Ergonomics Program

If an employer does not choose the quick-fix option or has more than one MSD within 18 months, he is required to develop and implement an ergonomics program, which is required to include the following elements:

- management leadership
- employee participation
- MSD management, as indicated previously
- job hazard analysis
- hazard reduction and control
- training

Management Leadership

Management leadership requires an employer to assign and communicate responsibilities to set up and manage an ergonomics program. Also, employers are required to designate employees with the authority, resources and information to set up and manage the ergonomics program.

Company policies and practices should be developed to encourage, rather than discourage, early reporting of MSDs or employee participation in the ergonomics program. As an example, many employers offer incentive programs to employees that either rewards employees for no accidents or punishes employees for reporting injuries. Also, many employers have programs and policies for drug testing after an accident occurs. Traditionally, these programs encourage underreporting of accidents or incidents.

In its final rule, OSHA states employers' policies must be developed in a way that does not discourage employees from reporting accidents. Incentive programs can be developed to encourage recognition of safe work practices so employees are not discouraged from reporting accidents.

Additionally, the ergonomics program must be communicated to employees periodically, and their concerns must be addressed. The standard does not specifically address how often the program must be communicated with employees. It can, however, be accomplished by conducting training courses or issuing reports indicating what has been implemented and the program's success.

Employee Participation

Employers are also required to allow employees or employee representatives to participate in the ergonomics program. To effectively accomplish this, OSHA requires employers to promptly respond when employees report MSDs.

Employees must be provided with a copy and summary of the standard's requirements; a copy of the standard; information describing MSDs and their signs and symptoms; and a copy of the employer's ergonomics program. Additionally, employees must be involved or have methods for involvement in the development, implementation and evaluation of the ergonomics program.

Job Hazard Analysis

If a job meets the requirements of the action trigger and poses an MSD hazard to employees, an employer must conduct a job hazard analysis for that job. The analysis must include all employees who perform the same job or a sample of employees in that job who have the greatest exposure to the risk factors. The analysis must include the following steps:

- talking to employees or their representatives about the tasks that may relate to MSDs
- observing employees performing those tasks to evaluate the magnitude, frequency and duration of exposure to the risk factors associated with the job.

To accomplish this, employers are required to use at least one of the following tools in Appendix D of the standard:

- hazard identification tools listed in Appendix D-1, provided the tools are relevant to the risk factors being addressed
- Appendix D-2 for video display terminals (VDTs)
- a job hazard analysis conducted by a professional trained in ergonomics
- any other reasonable method appropriate to the job and relevant to the risk factors being addressed.

If it is determined that there is an MSD hazard for a job, it will be considered to be a "problem job." If it is determined that the MSD hazard is exclusive to the employee reporting it, controls, training and evaluation can be limited to that individual.

Hazard Reduction and Control

Employers are obligated to implement hazard reduction and control methods for problem jobs to reduce an MSD hazard(s). To accomplish this, employers must control or reduce MSD hazards to at least the levels prescribed in the tools listed in Appendix D-1. If an employer cannot meet the prescribed levels in the tools of Appendix D-1, the following steps must be taken:

- reduce the MSD hazard to the extent feasible
- assess the job every three years to determine whether more or better controls could be used
- if the controls exist, they need to be implemented until the MSD hazard has been reduced to levels at or below the requirements of Appendix D-1

After the MSD hazard has been reduced to the level prescribed in Appendix D-1, the employer must ensure the controls continue to be effective. Also, a determination must be made as to whether new MSD hazards exist. If new MSD hazards exist, steps must be taken to reduce them.

Engineering, work practice or administrative controls must be used to reduce MSD hazards. Ideally, OSHA prefers engineering controls to be used. Personal protective equipment (PPE) can be used to supplement engineering, work practice or administrative controls. PPE can be used when the other controls are not feasible, but it must be provided at no cost to employees.

Employers are required to ask employees in problem jobs for their recommendations in an effort to reduce MSD hazards. Initial controls must be identified and implemented within 90 days after it is determined that a job meets the action trigger. Within two years after it is determined that a job meets the action trigger, permanent controls must be identified and implemented. However, initial compliance can achieved before Nov. 14, 2004, whichever is later.

Employers must track their progress and ensure that the new controls or reduction efforts have not created new MSD hazards. This can be accomplished by talking with employees working in the problem jobs. If it is determined the controls create new MSD hazards, employers must repeat the process mentioned previously to reduce the new MSD hazards.

Training

Employers are required to conduct training for all employees whose jobs meet the action trigger. In addition to employees, supervisors or team leaders and those employees who set up and manage an ergonomics program must be trained. Refresher or follow-up training must be conducted at least every three years.

Employee, supervisor or team leader training must include the following topics:

- the requirements of the standard
- a description of the ergonomics program
- the signs and symptoms of MSDs and how to report them
- the risk factors of MSD hazards as identified in table W-1
  timetables for addressing identified MSD hazards
- any controls used for MSD hazards
- the employee's role for evaluating the effectiveness of the controls.

For those employees who are involved in setting up and managing an ergonomics program, the following topics must be addressed:

- the topics listed previously
- how to set up, manage and evaluate an ergonomics program
- methods for identifying and analyzing MSD hazards and selecting and evaluating the steps taken to reduce the hazards

Initial training must be conducted for each employee involved in establishing and managing an ergonomics program. Training must be completed within 45 days after it has been determined that a job meets the requirements of the action trigger. Within 90 days after it is determined that an employee's job meets the action trigger, each employee and supervisor or team leader must receive initial training. Before an employee begins a new job that has an identified action trigger, initial training must be conducted.

A provision in the standard allows employers to discontinue training on topics that employees received training on during the past three years. Training must be conducted in a language that an employee understands. Employees are allowed to ask questions and receive answers about the ergonomics program and training topics.

Program Evaluation

The standard requires employers to evaluate their ergonomics programs at least every three years. To accomplish this, employers must consult with the employees in the program in an effort to determine the program's effectiveness. Program elements must be evaluated to determine whether they are functioning effectively and the MSD hazards are being identified and addressed.

Also, employers are required to determine whether the program is achieving positive results. This is accomplished by determining whether there have been reductions in the number and severity of MSD hazards, or whether there have been reductions in the number of jobs posing MSD hazards to employees.

Employers must evaluate the program whenever the program is not functioning properly. When deficiencies are found, they must be corrected. If an MSD incident occurs, it does not necessarily mean the program is ineffective, which is recognized in the standard.

Recordkeeping

Employers are required to keep written records when there are 11 or more employees, including part-time or temporary employees. An employer must keep employee reports of MSDs, signs and symptoms of MSDs, MSD hazards, and any actions taken. Job hazard analyses, hazard control measures, steps taken for quick fixes, program evaluations, work restrictions, time off of work and HCP opinions must also be kept.

Employers must keep this information for a period of three years, except for HCP opinions, which must be kept for the worker's employment duration plus an additional three years. If a worker is employed for less than one year, employers are not required to maintain their records for three years provided the employee was given the information at the end of employment.

Existing Ergonomics Programs

Employers who have established ergonomics programs prior to Nov. 14, 2000, are allowed to continue them provided they are written and addresses the information mentioned previously. The written program must also contain the elements listed above. Program evaluations must be conducted by Jan. 16, 2001.

By Jan. 16, 2002, employers must implement a policy that addresses the elements of MSD management listed previously. Any policies that discourage employees from participating in the program, reporting the signs and symptoms of MSDs, or the presence of MSD hazards cannot be considered to be grandfathered into an ergonomics program.

Compliance Dates

The table below provides time frames under which an employer must comply with the OSHA ergonomics program standard.

Table W-2

Requirements and Recordkeeping	Time Frames
Determining Action Triggers	Within seven calendar days of determining an employee has experienced an MSD
MSD Management	Must be initiated within seven calendar days of determining that a job meets the action trigger
Management Leadership/Employee Involvement	Initiate within 30 calendar days of action trigger determination
Training those responsible for establishing and managing an ergonomics program	Initiate within 45 calendar days of action trigger determination
Job Hazard Analysis	Initiate within 60 calendar days of action trigger determination

Implement Initial Controls	Within 90 days of action trigger determination
Train employees, supervisors and team leaders	Within 90 calendar days after action trigger determination
Implement Permanent Controls	Within two years after Action Trigger determination, except initial compliance can take up to Jan. 18, 2005, whichever is later
Program Evaluation	Within three years after action trigger determination.

Program Discontinuance

If an employer can successfully reduce exposures below the risk factors listed in table W-1, the program can be discontinued, however, training and controls must be maintained.

Conclusion

OSHA's ergonomics standard requires employers to implement procedures to protect their employees from MSDs. The standard currently does not apply to the construction industry, including roofing and sheet-metal shop operations classified under a construction-related SIC number, such as 1761, roofing, siding and sheet-metal.

The standard becomes effective Jan. 16, 2001, but the first compliance date is Oct. 14, 2001. Employers must provide all employees with information about MSD hazards, reporting requirements and a description of the standard. Employers are also required to respond when an employee reports an MSD.

Once an employee reports an MSD, the employer must determine whether it qualifies as an MSD incident. If it qualifies as an MSD incident, the employer must use Table W-1 to determine whether the job involves exposure to relevant risk factors.

Once this is determined, an employer must implement an MSD management process for handling MSD incidents. In addition, an employer must implement either an ergonomics program or attempt to use OSHA's quick-fix option. If an employer is not eligible or the quick fix is not successful, an ergonomics program must be implemented.

An ergonomics program must consist of management leadership, employee participation, job hazard analysis and training. Once the hazards are identified, an employer must implement controls. After the controls are implemented and the hazards are reduced to the extent feasible, as addressed in appendix D, or to an extent that is feasible, the employer must evaluate the program to determine the control's effectiveness.

If an employer successfully implements an ergonomics program and shows that exposures are reduced to levels in Table W-1, the program can be discontinued. However, training and controls must be continued.

Appendix D-1 and D-2

To

§ 1910.900

JOB HAZARD ANALYSIS TOOLS

JOB HAZARD ANALYSIS TOOLS	SOURCE *	RISK FACTORS EVALUATED	AREAS OF BODY ADDRESSED	EXAMPLES OF JOBS TOOL APPLIES TO
Job Strain Index	"The Strain Index: A Proposed Method to Analyze Jobs For Risk of Distal Upper Extremity Disorders." Moore, J.S., and Garg, A, 1995; *AIHA Journal*, 56(5): 443–458. You may obtain a copy from: American Industrial Hygienists Association. 2700 Prosperity Ave Suite 250 Fairfax, VA 22031. Phone: (703) 849-8888 Web site: http://www.aiha.org/ See also: http://sg-www.satx.disa.mil/hscoemo/tools/strain.htm for a Web-based version of this tool.	• Repetition • Force • Awkward postures	• Hands • Wrists	• Small parts assembly • Inspecting • Meatpacking • Sewing • Packaging • Keyboarding • Data Processing • Jobs involving highly repetitive hand motions

JOB HAZARD ANALYSIS TOOLS				
Revised NIOSH Lifting Equation	*Applications Manual for the Revised NIOSH Lifting Equation*, Waters, T.R., Putz-Anderson, V., Garg, A., National Institute for Occupational Safety and Health, January 1994 (DHHS, NIOSH Publication No. 94-110). You may obtain a copy from: U.S. Department of Commerce Technology Administration National Technical Information Service (NTIS) 5285 Port Royal Road Springfield, VA 22161 (NTIS Publication No. PB94-176930) Phone: (703) 487-4650 Web site: http://www.cdc.gov/niosh/ See also: http://www.industrialhygiene.com/calc/lift.html for a Web-based version of this tool.	• Repetition • Force • Awkward postures	• Lower back	• Package sorting, handling • Package delivery • Beverage delivery • Assembly work • Manual handling involving lifting weights >10 Lbs. • Production jobs involving forceful exertions • Stationary lifting

JOB HAZARD ANALYSIS TOOLS

Snook Push/Pull Hazard Tables	"The Design of Manual Handling Tasks: Revised Tables of Maximum Acceptable Weights and Forces," Snook, S.H. and Ciriello, V.M., *Ergonomics*, 1991, 34(9): 1197-1213. You may obtain a copy from: Taylor & Francis Inc. 325 Chestnut Street Suite 800 Philadelphia, PA 19106, USA Phone: (800) 354-1420 Web site: http://www.tandf.co.uk/journals/	• Repetition • Force • Awkward postures	• Back • Trunk • Shoulders • Legs	• Food service • Laundry • Housekeeping • Janitorial • Package delivery • Garbage collection • Nursing homes • EMT, ambulance • Jobs involving pushing/pulling carts • Jobs involving carrying objects
Rapid Upper Limb Assessment (RULA)	"RULA: A Survey Method for the Investigation of Work-Related Upper Limb Disorders," McAtamney, L. and Corlett, E.N., *Applied Ergonomics*, 1993, 24(2): 91-99. You may obtain a copy from: Elsevier Science Regional Sales Office Customer Support Department P.O. Box 945 New York, N.Y. 10159 Phone: (212) 633-3730 Web site: http://www.elsevier.com/	• Repetition • Force • Awkward postures	• Wrists • Forearms • Elbows • Shoulders • Neck • Trunk	• Assembly work • Production work • Sewing • Janitorial • Maintenance • Meatpacking • Grocery cashier • Telephone operator • Ultrasound technicians • Dentists • Dental technicians

JOB HAZARD ANALYSIS TOOLS

Rapid Entire Body Assessment (REBA)	"Rapid Entire Body Assessment (REBA)," Hignett, S. and McAtamney, L., *Applied Ergonomics*, 2000, 31: 201-205. You may obtain a copy from: Elsevier Science Regional Sales Office Customer Support Department P.O. Box 945 New York, N.Y. 10159 Phone: (212) 633-3730 Web site: http://www.elsevier.com/	• Repetition • Force • Awkward postures	• Wrists • Forearms • Elbows • Shoulders • Neck • Trunk • Back • Legs • Knees	• Patient lifting, transfer • Nurses • Nurses aides • Orderlies • Janitors • Housekeeping • Grocery warehouse • Grocery cashier • Telephone operator • Ultrasound technicians • Dentists • Dental technicians • Veterinarian

Appendix D-2 to §1910.900: VDT Workstation Checklist

Using this checklist is one, but not the only, way an employer can comply with the requirement to identify, analyze and control MSD hazards in VDT tasks. This checklist does not require that employees assume specific working postures in order for the employer to be in compliance. Rather, employers will be judged to be in compliance with paragraph (k) and (m) of OSHA's standard if they provide the employee with a VDT workstation is arranged or designed in a way that would pass this checklist.

If employee exposure does not meet the levels indicated by the Basic Screening Tool, you may STOP HERE.

WORKING CONDITIONS **The workstation is designed or arranged for doing VDT tasks so it allows the employee's . . .**	Y	N
A. Head and **neck** to be about upright (not bent down/back).		
B. Head, neck and **trunk** to face forward (not twisted).		
C. Trunk to be about perpendicular to floor (not leaning forward/backward).		
D. Shoulders and **upper arms** to be about perpendicular to floor (not stretched forward) and relaxed (not elevated).		
E. Upper arms and **elbows** to be close to body (not extended outward).		
F. Forearms, wrists, and **hands** to be straight and parallel to floor (not pointing up/down).		
G. Wrists and **hands** to be straight (not bent up/down or sideways toward little finger).		
H. Thighs to be about parallel to floor and **lower legs** to be about perpendicular to floor.		
I. Feet to rest flat on floor or be supported by a stable footrest.		
J. VDT tasks to be organized in a way that allows employee to vary VDT tasks with other work activities, or to take micro-breaks or recovery pauses while at the VDT workstation.		
SEATING **The chair . . .**	Y	N
1. Backrest provides support for employee's lower back (lumbar area).		
2. Seat width and **depth** accommodate specific employee (seatpan not too big/small).		
3. Seat front does not press against the back of employee's knees and lower legs (seatpan not too long).		
4. Seat has cushioning and is rounded/ has "waterfall" front (no sharp edge).		
5. Armrests support both forearms while employee performs VDT tasks and do not interfere with movement.		

KEYBOARD/INPUT DEVICE **The keyboard/input device is designed or arranged for doing VDT tasks so that . . .**	Y	N
6. **Keyboard/input device platform(s)** is stable and large enough to hold keyboard and input device.		
7. **Input device** (mouse or trackball) is located right next to keyboard so it can be operated without reaching.		
8. **Input device** is easy to activate and shape/size fits hand of specific employee (not too big/small).		
9. **Wrists** and **hands** do not rest on sharp or hard edge.		
MONITOR **The monitor is designed or arranged for VDT tasks so that . . .**	Y	N
10 .**Top line** of screen is at or below eye level so employee is able to read it without bending head or neck down/back. (For employees with bifocals/trifocals, see next item.)		
11. **Employee with bifocals/trifocals** is able to read screen without bending head or neck backward.		
12. **Monitor distance** allows employee to read screen without leaning head, neck or trunk forward/backward.		
13. **Monitor position** is directly in front of employee so employee does not have to twist head or neck.		
14. **No glare** (e.g., from windows, lights) is present on the screen which might cause employee to assume an awkward posture to read screen.		
WORK AREA **The work area is designed or arranged for doing VDT tasks so that . . .**	Y	N
15. **Thighs** have clearance space between chair and VDT table/keyboard platform (thighs not trapped).		
16. **Legs** and **feet** have clearance space under VDT table so employee is able to get close enough to keyboard/input device.		
ACCESSORIES	Y	N
17. **Document holder**, if provided, is stable and large enough to hold documents that are used.		
18. **Document holder**, if provided, is placed at about the same height and distance as monitor screen so there is little head movement when employee looks from document to screen.		
19. **Wrist rest**, if provided, is padded and free of sharp and square edges.		
20. **Wrist rest**, if provided, allows employee to keep forearms, wrists and hands straight and parallel to ground when using keyboard/input device.		
21. **Telephone** can be used with head upright (not bent) and shoulders relaxed (not elevated) if employee does VDT tasks at the same time.		

GENERAL	Y	N
22. Workstation and equipment have sufficient adjustability so that the employee is able to be in a safe working posture and to make occasional changes in posture while performing VDT tasks.		
23. VDT Workstation, equipment and accessories are maintained in serviceable condition and function properly.		
PASSING SCORE = "YES" answer on all "working postures" items (A-J) and no more than two "NO" answers on remainder of checklist (1-23).		