

Protocol #17

Ergonomics and Materials Handling

DGS Accident and Illness Prevention Program (AIPP)

A. Policy Statement

The following protocol regarding workplace ergonomics is official policy for the PA Department of General Services (DGS) and all its employees. Authority and responsibility for its execution are pursuant to the DGS Secretary “[Safety Program Policy Statement](#),” [PA Management Directive 530.31 Workplace Safety and Health Program](#), [PA Code Title 34 Chapter 129](#) and “[Element C](#)” of the DGS Accident & Illness Prevention Program (AIPP).

Managers and supervisors shall consider ergonomic risk factors during preoperational process reviews ([DGS Protocol #11](#)) if job tasks might include them at hazardous levels, and act to reduce any such risks.

Employees should be familiar with and observe this protocol as well as DGS’ entire AIPP to minimize their risk of injury.

B. Application, Scope, and Purpose

This protocol applies to all occupations and job tasks within DGS. Basic ergonomic topics are covered here. Many others exist and will be considered on a case-by-case basis if they arise. The purpose of this protocol is to reduce the risk of DGS employees developing work-related musculoskeletal disorders (WMSDs).

C. Definitions

Competent person – someone designated by management as capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them, including stopping work until corrective measures are completed.

Ergonomic risk factors – repetitive motions, forceful exertions, awkward postures, contact stress, vibration, prolonged static postures and extreme temperatures which can result in WMSDs if present at hazardous levels.

Ergonomics – the science of adapting the work equipment and practices to fit the natural capabilities of each individual worker's body in order to prevent injuries.

Hazardous ergonomic risk factor levels – the presence of risk factors in a worker’s job functions that have caused, or in the opinion of supervisors or managers could cause WMSD development due to their intensity or duration of exposure.



High-exertion functions – jobs or tasks that involve movement or exertion levels that could produce hazardous force-related ergonomic risk factors, as opposed to low-exertion functions which most commonly produce repetition-related risks.

Low-exertion functions – jobs or tasks involving sitting or standing still and requiring minimal movement and exertion, which can produce risks associated with repetition.

Office ergonomic concern process – a process administered by DGS’ Fire, Safety and Environmental Division (FSED) that analyzes a worker’s office arrangements in order to minimize harmful factors that could contribute to WMSDs.

Personal protective equipment (PPE) – specialized clothing or equipment worn by an employee for protection against a hazard.

Pinch grip – gripping something with the fingers.

Power grip – gripping something with the entire hand.

Power zone – an area directly in front of and close to the body between the lower hips and shoulders where loads can be handled with the least effort.

Work – an activity in which one exerts strength or faculties to do or perform a task.

Work-related musculoskeletal disorder (WMSD) – a disorder of the muscles, nerves, tendons, ligaments, joints, cartilage, blood vessels or spinal disks impacting the neck, shoulder, elbow, forearm, wrist, hand, abdomen (hernia only), back, knee, ankle and foot (except for any injuries arising from slips, trips, falls, motor vehicle accidents or blunt trauma.)

D. Requirements

1. Pre-operational planning according to [DGS AIPP protocol P-11](#) shall be conducted before any new, unique or potentially hazardous process begins. One of its purposes is to identify and minimize ergonomic risk factors that managers or supervisors have deemed to be hazardous due to intensity, frequency and/or duration of exposure.
2. While many work-related ergonomic risk factors do not result in injury, their impacts can become hazardous if their intensity, frequency or duration increases beyond certain levels. Managers and supervisors shall take steps to reduce the impact of ergonomic risk factors if they deem them to be at hazardous levels.



3. Employees will be trained to perform their jobs in an ergonomically favorable manner. This training shall include identifying and minimizing ergonomic hazards to prevent WMSDs. If employees have suggestions for improving ergonomics, they should report them to their manager, supervisor or DGS Safety Coordinator.
4. Office ergonomic concerns must be addressed utilizing the process outlined in Appendix B. For non-office ergonomic concerns to be evaluated, the DGS Safety Coordinator should be contacted.

E. Ergonomic Safety for High-Exertion Functions

1. When lifting or lowering objects:
 - a. Bend the knees to involve the legs,
 - b. Support the spine by tightening abdominal muscles,
 - c. Keep the spine as erect as is comfortably possible,
 - d. Look forward,
 - e. Return to a relaxed and comfortable posture between repetitions and,
 - f. Maintain good balance.
2. Look towards the destination before beginning to walk with a load of any weight. Be sure the path is clear and be aware of any possible obstacles. Remain alert.
3. If it is necessary to handle or work on objects that are outside the power zone (above shoulder-height, below the lower hips, off to the side) avoid powerful exertions and take brief breaks periodically to avoid strain injury.
4. If performing a function repetitively, take occasional brief breaks to gently stretch, or break up the repetitions with a different task if possible.
5. Although using a pinch grip is not always avoidable, avoid it in favor of the power grip as much as possible. Long-term, repetitive tasks requiring pinch gripping are hazardous and must be properly arranged to reduce the risks involved.
6. Be alert while working. Stumbling while carrying objects can dramatically increase the effective weight of an object and is therefore a hazardous ergonomic risk factor.

7. Cradling anything between an ear and shoulder is a hazardous ergonomic risk factor. In addition to the distractions usually involved, this practice can irritate the neck and spine.
8. Keep objects within the power zone. Forces upon the lower spine are greatly magnified by exertions outside the power zone.
9. Do not twist at the waist while handling objects. If it is necessary to turn while holding an object, refrain from twisting at the waist and shift the feet towards the desired direction while keeping the object within the power zone.

F. Ergonomic Safety for Low-Exertion Functions

1. Observe the recommendations listed in section E if applicable at any time.
2. Avoid maintaining one position for long periods of time. Assume a different and relaxed posture occasionally to prevent muscular stress from accumulating.
3. Workers who sit a lot need to consider posture, quick stretch breaks, chair settings and workspace layout to prevent the development of WMSDs. DGS provides an office ergonomic concern process for employees and their supervisors that includes web-based training. DGS' Safety Coordinator is also available to assist if a concern cannot be corrected.
4. Workers who stand a lot also need to consider posture and quick stretch breaks from time to time. An individualized ergonomic concern process will be initiated if concerns are reported.
5. To initiate DGS' office ergonomic concern process, an employee who is experiencing difficulties should notify their supervisor a problem exists. The supervisor and employee will then follow the instructions included in this protocol as Appendix B.

G. Communication of Hazards

1. Employees will be taught via agency publications such as this protocol and safety talks to recognize the ergonomic hazards they are likely to encounter and reduce the risks that they pose.
2. If a manager or supervisor decides that a job task includes potentially hazardous ergonomic risk factor levels, they will identify and discuss them with employees along with proper risk reduction methods including any recommended PPE.

H. Training

1. Training that informs employees about the basics of ergonomic hazards and associated risk reduction methods shall be arranged by managers for their employees. This protocol can be used as a training hand-out and guide.
2. Safety talks and other resources on ergonomics will also be used or made available at the discretion of managers and supervisors.

I. Recordkeeping

1. A copy of the attached attendance record shall be provided to the DGS Safety Coordinator following ergonomics training based on this document.

Appendix B – Office Ergonomics Concern Process Instructions

1. The initial required steps in this process are for the employee and supervisor to view the web-based training courses on the [My Learning Platform](#) listed below and print and use the two forms listed at “c.” below. Most ergonomic concerns will be solved if the remedial actions included in these courses and documents are implemented.
 - a. Employee web-based training course: “Office Ergonomics for Employees WBT”
 - b. Supervisor web-based training course: “Office Ergonomics Assessment Process WBT”
 - c. Supervisor and employee print and use the two forms: [“Office Ergonomics Concerns”](#) and [“Ergonomic Assessment”](#)
2. If problems or concerns remain 2 weeks after the employee and supervisor took action or if an urgent issue exists, the employee or supervisor will contact the DGS Safety Coordinator and request the involvement of DGS’ Fire, Safety and Environmental Division (FSED). FSED staff will follow direction from the DGS Safety Coordinator.