Module No. X Answer Key, TCFH 1/28/2014, Rev1.0

This answer key is provided for the . Completing the test with 100% correct answers will result in 1 credit hour of Safety and Loss Prevention training.

MANUAL LIFTING PROCEDURES & ERGONOMICS

Ergonomics is a word derived from the Greek word *érgon* which means work*.* Ergonomics involves the design of tools, personal protective equipment, machinery, and even physical layout to reduce the amount grading supervisor to and skeletal system of the body. Ergonomics also involves redesigning the way tasks are performed. Ergonomics, properly employed, makes work easier and results in fewer soft tissue injuries.

Prior to manual lifting, a hazard assessment will be performed using our hazard identification & risk assessment procedures.

This entails the supervisor, working with employees who actually will perform the lifting using a worksheet and listing all components of the task. Working together, they will list all things that could go wrong resulting in an accident or injury. Specific steps will be developed to eliminate the probability of an accident or injury. These steps will be transferred to our task analysis form which will be kept on the job site.

Things that could go wrong manually lifting an item could include, but not be limited to:

1. Item is too heavy.
2. Item is too bulky.
3. Item blocks line of sight.
4. Item can cut hands.
5. Surface is slippery.

The order of precedence and effectiveness of hazard control for manual lifting is as follows:

1. Engineering controls.
2. Administrative controls.
3. Personal protective equipment.

Supervisors will inspect and enforce the use of the above controls.

Engineering controls include the following use of mechanical devices such as:

1. Dollies.
2. Hand trucks.
3. Lift assist devices.
4. Jacks.
5. Carts.
6. Conveyors.
7. Lift tables.
8. Increasing the heat – muscles are less likely to cramp in warmer temperatures.

Administrative controls include the following use of mechanical devices such as:

1. Using two (2) persons to perform the lift.
2. Increasing the time between lifts.
3. Lifting training.

Personal Protective Equipment would include, but not be limited to:

1. Using gloves to address cuts, firm grip and warmth.
2. Appropriate steel toed footwear to address slips and items falling on feet
3. Eye protection to prevent items hitting eyes.
4. Back braces.

Ergonomics & Manual Lifting:

Correct Neutural Postures

Postures where the body is aligned and balanced while sitting or standing. The head is kept upright and is not turned to either side more than about 30 degrees or tilted forward or backward more than about 15 degrees.

When the worker is standing, the torso is not bent more than 10 to 20 degrees from the vertical position and the natural curves of the spine are maintained. The pelvis and shoulders should face straight ahead to avoid twisting the torso. The shoulders are relaxed and knees slightly bent. The arms hang normally at the side, with elbows close to the body. The elbows are not bent more than about 90 degrees and the palms face in toward each other and the center line of the body. The wrists are in line with the forearms and are not bent sideways, forward (towards the palm), or backward (towards the back of the hand.)

When lifting, every attempt should be made to not put stress on the body which is beyond the correct neutural posture.

Proper Lifting Techniques:

Musculoskeletal Injuries are often caused by the obvious -- putting excessive strain on the lower back by lifting an object that is too heavy or awkward, or by bending and/or twisting while lifting.

However, lifting injuries are also caused by less obvious reasons:

* 1. poor physical condition
  2. poor posture
  3. poor judgment (lifting, pulling, pushing an object that is obviously too heavy or awkward without seeking assistance or a mechanical lifting device.)

**NOTE: Where the use of lifting equipment is impractical, two man lifts must be performed.**

* 1. lack of exercise
  2. excessive body weight

Training will be given in proper lifting techniques. Below are lifting techniques that will reduce the likelihood of injury:

1. lift objects comfortably, not necessarily the quickest or easiest way.
2. lift, push, and pull with your legs, not your arms or back.
3. when changing direction while moving an object, turn with your feet, not by twisting at the waist.
4. avoid lifting higher than your shoulder height.
5. when standing while working, stand straight.
6. when walking, maintain an erect posture; wear slip-resistant, supportive shoes.
7. when carrying heavy objects, carry them close to the body and avoid carrying them in one hand.
8. when heavy or bulky objects need to be moved, obtain help or use a mechanical aid such as a dolly, hand truck, forklift, etc..
9. when stepping down from a height of more than eight inches, step down backwards, not forward.
10. Lift heavy objects close to the body -- avoid reaching out. The power zone for lifting is close to the body, between mid-thigh and mid-chest height. Comparable to the strike zone in baseball, this zone is where arms and back can lift the most with the least amount of effort.
11. lift gradually and smoothly. Avoid jerky motions.
12. maintain a clear line of vision.

Ergonomics & Other Job Site Tasks:

Repetitive wrist motions should not exceed 30° of flexion or extension. A wrist restraint can keep your wrist from exceeding 30° extension. Vibration can be reduced to a minimum be something as simple as proper gloves.

Soft tissue damage can be reduced by wearing proper footwear and not continually standing on hard work surfaces.

Investigation of Injuries:

The Safety Director will investigate all injuries caused by improper lifting and, as part of that investigation, incorporate those finding into work procedures to preclude a reoccurrence.

Injuries will be recorded and reported in compliance with 29 CFR 1904,

*Recording and Reporting Occupational Injuries and Illnesses.*

A concentrated effort will be made to ensure that the corrective measures

**do not create hazards** in and of themselves.

To prevent injuries in the first place, supervisors will periodically evaluate our manual lifting techniques to assess the potential for and prevention of injuries.

**As part of our risk assessment process, new operations will be evaluated to engineer our hazards before manual lifting is begun.**