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MATERIALS HANDLING, STORAGE, USE, AND DISPOSAL

MODULE DESCRIPTION

This module covers the safety concerns and necessary precautions you need to be aware of when handling, storing, using, and disposing of materials.

OBJECTIVES

After completing this module, you will be able to:

- List the main types of injuries that occur during the handling, storage, use, and disposal of materials.
- Name the ways to prevent injuries when performing manual lifting.
- Identify ways to eliminate hazards that may lead to injury when using forklifts, cranes, or slings to handle materials.
- List actions that can reduce or eliminate hazards when handling, storing, using, or disposing of materials.

MODULE OUTLINE

1. Introduction
   - The efficient handling and storing of materials is vital to any industry. These operations provide a continuous flow of raw materials, parts, and assemblies through the workplace, and ensure that materials are available when needed. But, improper handling and storing of materials can cause costly injuries.
   - Along with handling and storing, we have to remember that using and disposing of materials safely is also very important.
2. Injuries
   - Injuries can occur anywhere in the workplace. Weight and bulkiness of equipment that is being lifted are major contributing factors for these injuries.
   - According to the Bureau of Labor Statistics, back injuries account for more than 20% of all occupational injuries each year. Lifting objects is a major cause of back injuries in the workplace. Bending, followed by twisting and turning, is another scenario that often causes back injuries.
   - Other injuries include being struck by and/or crushed by equipment that is improperly stored and handled.
   - Employers and employees should always examine their workplace to identify any unsafe or unhealthy conditions, practices, or

equipment and take the necessary measures to correct them.

- Potential hazards relating to injuries include:
  - Improper, manual lifting
  - Carrying loads that are too large or heavy
  - Being struck by materials or caught in pinch points
  - Being crushed by machines, falling materials, or improperly stored materials
  - Incorrectly cutting ties or securing devices
- When manual handling of materials is required, you should seek help if:
  - A load is too bulky to properly grasp or lift.
  - You can't see around or over the load.
  - You can't safely handle the load.

Remember, you can attach handles to loads to reduce the chance of crushing your fingers.

- Manual handling of materials is the primary source of injury in the work place, and four out of five of these injuries affect the lower back. The best way to prevent a back injury is to store heavy objects at waist level.
- Work methods and stations should also be designed to minimize the distance between the person and the object being handled.

3. Preventing Injuries

- To practice safe lifting:
  - Break loads into parts.
  - Get help with heavy or bulky items.
  - Lift with your legs, keep the back straight, and do not twist.
  - Use handling aids, such as steps, trestles, shoulder pads, handles, and wheels.
  - Avoid lifting above shoulder level.
- Safe lift training should include:
  - How to life safely.
  - How to avoid unnecessary physical stress and strain.
  - What you can comfortably handle without undue strain.
  - The proper use of equipment.
  - Explanation of potential hazards and how to prevent or correct them.
- Additional safe lift training should include:
  - Discussion of the health risks related to improper lifting.
  - Explanation of the basic anatomy of the spine, muscles, and joints of the trunk, along with the contributions of intra-abdominal pressure while lifting.
  - Discussion of individual body strengths and weaknesses, and determining one's own lifting capacity.
  - Explanation of physical factors that might contribute to an accident and how to avoid the unexpected.

- Body responses or warning signals to be aware of when lifting.

- Employers and employees also need to remember to use Personal Protective Equipment (PPE) when working with materials. For loads with sharp or rough edges, wear gloves or other hand and forearm protection. In addition, when loads are heavy or bulky, wear steel-toed shoes to prevent foot injuries if the load is dropped.

4. Materials Handling Equipment

- As well as knowing how to prevent injuries when manually handling materials, employees must also be trained in the proper use and limitations of the machines they operate.
- **Forklift**: Center the load on the forks and place it as close to the mast as possible, in order to minimize the risk of the lift tipping or the load falling.• Overloading a forklift makes a load hard to control and easy to tip over.• Place the load at the lowest possible position when moving the forklift.

  To operate a forklift safely, you should:
  - Keep your arms and legs inside the truck.
  - Only handle stable loads.
  - Keep your speed low in case you need to stop.
  - Be careful when making sharp turns.
  - Travel in reverse if your load blocks your view.
  - Never take riders unless there is an approved seat.
  - Not drive with the forks raised at the lowest position possible.
  - Always wear safety belts or other restraint devices.
  - Never turn while driving up or down a rap or incline.
- **Crane**: When operating a crane, remember to:
  - Check the load chart in the cab prior to operation.
  - Inspect the crane frequently.
  - Never use the crane lift people.
  - Check for overhead power lines.
  - Ensure you have a clear path to travel.

·**Sling**: The types of slings discussed in this module are those meant to be used in conjunction with other materials handling equipment, and are made from alloy steel chain, wire rope, metal mesh, natural or synthetic fiber rope, or synthetic web.

- Alloy steel chains adapt to the shape of the load, but can be damaged by sudden shocks. They are the best choice for hoisting very hot materials. All alloy steal chains must be marked with a grade or manufacturer•s mark.
- Wire rope slings should be chosen on the basis of strength; the ability to bend, without failure, from fatigue; the ability to withstand abrasive wear; and the ability to withstand abuse.
- Synthetic web slings should be of uniform thickness and width, and should be clearly marked to show the manufacturer•s name, its rating capacity, and type of material

5. Eliminating Storage and Disposal Hazards

- When storing or disposing of materials, there are several precautions you can take to eliminate hazards.
- When storing materials in tiers, you should secure them by stacking, racking, blocking, or interlocking them to prevent them from falling. You should also post safe load limits for each floor and keep aisles and passageways clear.
- You should never store incompatible materials together, and you should store flammable and combustible materials according to their specific fire characteristics.
- To dispose of materials, use an enclosed chute or drop into an enclosed area. You should also remove all scrap lumber, waste material, and trash from the immediate work area as the work progresses. Keep all solvent waste, oily rags, and flammable liquids in fire-resistant containers until you can remove them from the worksite.