

## Material Handling and Storage

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### 19.1 PURPOSE

To provide guidelines for the safe handling and storage of materials.

### 19.2 GENERAL

Permanent and temporary storage should always be neat and orderly. When planning material storage, several things must be taken into consideration:

- 1) Clearance of automatic sprinkler systems must meet National Fire Protection Association standards.
- 2) Aisle ways must be wide enough to make all items accessible with ease of access and egress, at minimum a 2' walkway from front to back.
- 3) Never block exits, fire equipment, or emergency first aid kits.
- 4) Non-compatible materials must be segregated when stored.
- 5) Always choose the appropriate storage racks or bins for the material and do not overload them.
- 6) In field locations, material must be stored at least six feet back from any building hoistway or floor opening and ten feet back from any building exterior unless a wall extends above the top of the material being stored.
- 7) Objects shall not be dropped from a structure. Debris dropped from an upper level in excess of 20 feet must be through a chute or equivalent protection
- 8) Utilize the "5S Process":

**Sort:** Materials and tools in each work area should be sorted regularly. Every item has 3 options – trash, keep for immediate use, or send to the storage area.

**Straighten & Shine:** These steps usually occur simultaneously. Straightening and shining is about organizing materials and tools according to a project plan. This may include lay down areas, tool storage, ladder storage, housekeeping standards and the like.

**Standardize:** This is an outgrowth of Straighten & Shine. Standardizing across the jobsite the way tool chests are organized or the way materials are stacked reduces confusion. Material handling procedures should be standardized regardless of division or location of assigned work.

**Sustain:** All employees must work to sustain the “5 S Process”. Supervisors are responsible for the planning and follow-through. All employees are responsible for maintaining the “5 S” structure on projects.

### **19.3 LUMBER / STEEL STORAGE**

Lumber is to be stacked on solid, level areas. Cross strips or cross pilings are to be used where the stack is more than four feet high. The top of each stack is to be as level as possible when lumber is being removed. Nails are to be removed from used lumber before it is piled. Long or hard-to-handle boards are to be handled by at least two employees.

Steel should be stored in the same manner, and segregated from lumber.

### **19.4 BULK STORAGE IN TANKS OR DRUMS**

Petroleum products stored in drums must be protected against loss of identification (labels, drum markings, etc.). No drums will be accepted or shipped without proper markings or labels. Storage areas for these types of products will have fire extinguishers readily available in accordance with the National Fire Protection Association (NFPA). Appropriate warning signs must be posted in the storage areas (DANGER, NO SMOKING, NO OPEN FLAMES).

### **19.5 FLAMMABLE LIQUID AND GAS STORAGE**

**19.5.1** Flammable liquids and gasses can be ignited by open flames, sparks or excessive heat. It is necessary that each of these factors be considered when choosing a location for their storage. No other equipment or items should be stored in these same areas. This is especially true for petroleum products and compressed gasses.

**19.5.2** All areas to be used for the storage of flammable materials should be clearly labeled as “no smoking” areas, with easy access for local fire protection agencies.

**19.5.3** Only approved storage containers are to be used for the storage of flammable liquids. Each container must have an emergency venting device and a label identifying the contents. All containers used for fueling purposes, such as gasoline tanks, diesel tanks and propane tanks, must be properly grounded and equipped with a bonding cable to prevent static electricity.

Vented storage cans often used for gasoline and diesel cannot be stored in a connex without ventilation due to the accumulation of fumes.

Gas cylinders should be stored up right on appropriate stands with safety chains and safety caps in place.

## **19.6 MATERIALS HANDLING**

**19.6.1** Supervisors should give advance consideration to the size, shape, and weight of materials to be handled and should plan the safest and most efficient way to accomplish the task.

**19.6.2** Select employees carefully, matching the work assignment to the person in terms of knowledge and physical abilities.

**19.6.3** All hazards will be analyzed prior to the job and the proper personal protective equipment chosen.

**19.6.4** Prior to beginning hazardous or unusual work, employees are to be educated regarding possible hazards.

## **19.7 PROPER LIFTING HABITS**

Special efforts should be made to prevent lifting injuries. Employees naturally try to bend at the waist and lift loads with their back and arms. Proper lifting habits must be taught.

When preparing to lift heavy objects, the following must be done:

- 1) Size up the load. Determine the weight and shape of the materials to be lifted. Determine if manual lifting or mechanized lifting is appropriate.
- 2) If manually lifting, stand as close to the load as possible while still maintaining good balance. Feet should be a shoulder distance apart with one foot slightly ahead of the other.
- 3) Bend at the knees and get a good grip on the load. Use appropriate hand protection as necessary.

- 4) Keeping the back straight, lift the load with the legs. Chin should be tucked down in order to maintain a straight spine during the lift.
- 5) Prior to lifting the item, the leader should reinforce that at a designated cue all will begin the lift.
- 6) No employee should walk backwards while handling materials or equipment. Prior to the lift, good housekeeping procedures should ensure that there is a clear path of access. Prior to movement, the leader should communicate the start of movement.
- 7) Upon reaching the designated spot, the leader should cue all employees as to when to lower the equipment. Care must be taken to alleviate potential strain and crush accidents.
- 8) As with the initial lift, when lowering the load, keep the back straight and bend at the knees. Lower the load slowly on command of the leader.

REMEMBER IF THE LOAD IS TOO HEAVY,  
GET HELP OR USE MECHANICAL EQUIPMENT.