Chapter 12
General Materials Handling and Storage

A. References:

1. Housekeeping, Drainage & Storage, WAC 296-800-22035
2. Exit Routes, WAC 296-800-310
3. Workplace Structural Integrity, WAC 296-800-27020
4. Materials handling and storage--Handling materials – General https://app.leg.wa.gov/wac/default.aspx?cite=296-24-215
5. Construction Material Handling, Storage, Use and Disposal https://app.leg.wa.gov/WAC/default.aspx?cite=296-155-325
6. Ergonomics SPPM 2.74
7. Safety Precautions for Office Workers SPPM 2.78
8. Flammable/Combustible Liquid Storage SPPM 8.12
9. Storage of Dangerous Chemical Waste SPPM 5.68
10. APP Chapter 7 Compressed Gas Cylinders
11. APP Chapter 11 Fall Protection
12. APP Chapter 10 Ergonomics

B. Purpose:

This APP chapter supports safe material handling and storage practices, intended to reduce or eliminate material handling and storage related accidents and injuries, and maintain clear routes for emergency access and egress.

C. Scope:

This chapter applies to all WSU Tri-Cities employees engaged in material handling and storage activities. Materials storage safety applies to the reduction or elimination of physical hazards e.g. tripping, falling, struck by object and chemical hazards e.g. flammability, corrosivity, reactivity and toxicity. This APP's Ergonomics chapter establishes requirements for reducing or eliminating ergonomic hazards associated with material handling.

D. Responsibilities:

Supervisors are responsible for the following:

- Understanding the contents of this APP chapter;
- Designating appropriate storage areas for materials under their control;
- Designating and providing appropriate storage containers when applicable;
- Identifying appropriate Personal Protective Equipment (PPE).
- Providing necessary material handling equipment to support safe material handling practices e.g. carts, dollies, drum dollies, pallet jacks;
- Training employees on the appropriate material storage locations and practices;
- Training employees on appropriate material handling practices.

Employees are responsible for the following:

- Understanding the contents of this APP chapter;
- Storing materials in designated areas;
- Storing materials in designated containers when applicable;
- Wearing PPE;
- Using material handling equipment safely e.g. carts, dollies, drum dollies, pallet jacks;
- Participating in material storage training;
- Participating in material handling training.

E. Training:

Training will be provided to employees once at the time of hire when related to the employee job classification. Re-training will be required when:

- There have been changes in the workplace, such as new processes or material handling equipment;
- Changes in the types of materials handled and/or stored;
- When an employee exhibits inadequate knowledge, skill and understanding or non-conforming practices in the safe handling and storage of materials.

Training will require participants to demonstrate an understanding of the topic and a proficiency handling and storing materials. Training information will include:

- Storing materials so they do not pose a tripping or other hazard and do not interfere with walkways or emergency egress. Emergency exit routes must be at least 7 feet 6 inches high and no projections may reduce the height from the floor to less than 6 feet 8 inches. Exit routes must be 28 inches wide minimum (or wider to accommodate occupant load).
- Storing materials so they may be accessed safely for retrieval e.g. store heavy materials lower and lighter materials higher.
- Storage capacity of shelving, cabinets, mezzanines, etc.
- Rated capacity of material handling equipment e.g. pallet jacks or powered lifts.
- Designated storage locations e.g. flammable materials storage
- Compatible/incompatible materials storage e.g. do not store oxidizers or reactives with flammables.

F. Requirements:

Moving, handling, and storing materials

For WSU employees moving or handling any materials for storage, please follow guidelines outlined in SPPM 2.74 - *Ergonomics* and this APP's Ergonomics chapter.

- Before moving materials, evaluate the pathway through which the materials will be moved and confirm the path is free from obstruction. Consider the need for assistance or use of equipment if the terrain is uneven.
- Wear appropriate PPE. If you are unsure what PPE might be appropriate, contact your supervisor.
- When manually moving materials, seek help when a load cannot be handled safely.

- When placing blocks under raised loads, ensure the load is not released until hands and feet are clear. Blocking materials must be large and strong enough to support the load safely. Damaged materials will not be used for blocking.
- Stored materials must not create a hazard. Storage areas must be kept free from accumulated materials that may cause tripping, fires, explosions, or contribute to harboring pests. When stacking and piling materials, be aware of such factors as the materials' height and weight, how accessible the stored materials are to the user, and the condition of containers/container's compatibility with the stored materials.
- All bound material must be secured to prevent it from sliding, falling, or collapsing.
- Drums, barrels, and kegs must be stacked symmetrically. If stored on their sides, the bottom tiers must be blocked to prevent rolling. When stacked on end, put planks, sheets of plywood, or pallets between each tier to make a firm, flat, stacking surface. When stacking materials two or more tiers high, the bottom tier must be blocked on each side to prevent shifting in either direction.
- Maximum safe load limits of floors within buildings and structures, in pounds per square foot, shall be shall not be exceeded.
- Gas cylinders shall be capped while moved, gas cylinder carts must be equipped to provide cylinder restraint while in transit. Gas cylinders must be capped while not in use. Oxidizing gas cylinders may not be stored within 20 feet of flammable gas cylinders unless both cylinders are in use. Toxic gas storage requires monitoring equipment or ventilated gas cylinder storage cabinets. Do not exceed fire code allowable quantities. See also this APP's Gas Cylinder chapter. For additional information contact the EHS OHS Assistant Director.
- Chemicals shall be segregated by hazard class when stored or transported. Do not store chemicals alphabetically without first segregating chemicals by hazard class. Flammables shall not be stored with oxidizers or reactives. Do not exceed fire code allowable quantities. For additional information reference the chemical's/product's Safety Data Sheet and/or contact the EHS OHS Assistant Director. See also this APP's Hazard Communication chapter.