Section V:	**Human Resources**
Title:	**Safety and Benefits**
Chapter:	**Materials Handling**
Current Effective Date:	**9/21/16**
Revision History:	**9/21/16**
Original Effective Date:	**6/1/13**

Purpose:

The purpose of this policy is to provide a guideline for NC Department of Health and Human Services (DHHS) employees in order to safely handle materials.

Policy:

To define the procedures and responsibilities to ensure the safety and health of DHHS employees while storing or handling materials.

Definitions:

1. **Flammable** – A material capable of being easily ignited that burns intensely or rapidly spreads flames.
2. **Handling** – The movement of materials by either manual lifting, or mechanical means.
3. **Mechanical Equipment** – Forklifts, cranes, front-end loaders, pallet jacks, backhoes, hand trucks, etc.

Implementation:

Employees who handle materials in maintenance shops, warehouses, offices, labs, etc., must always have the means and knowledge to ensure safe handling of materials in order to eliminate or significantly reduce the risk of injury. When existing material-handling hazards cannot be eliminated, then engineering controls, administrative practices, personal protective equipment (PPE), and proper training regarding the hazards will be implemented to ensure the safety of employees and the public.

Materials should be stored in such a way as to reduce unnecessary handling of hazardous materials. Adequate space and proper storage planning greatly reduces handling and movement of material, and ultimately reduces injury hazards.

Training:

Training is required for employees who manually handle or move materials and for employees who perform equipment assisted material handling. This training is provided and documented prior to an employees' assumption of jobs that require manual handling or equipment assisted

handling tasks. The initial training should be based on the discretion of the supervisor and supplemented with required or recommended refresher training.

Applicable training will include instructions for proper lifting techniques for manual materials handling, types of equipment available for equipment assisted material handling, operations for applicable materials handling equipment and any special rules or guidelines that cover specific types of material handling equipment.

Manual Materials Handling:

1. Manual materials handling involves the handling, moving, lifting and carrying of materials without the use of mechanical equipment. Employees should minimize the risk of injuries by following these basic materials-handling methods:

    A. Inspect materials for slivers, jagged edges, burrs, rough or slippery surfaces.

    B. Establish a firm grip on the object.

    C. Keep fingers away from pinch points, especially when setting down materials.

    D. Keep hands away from ends of lumber, pipe, or other long objects to prevent pinching.

    E. Wipe off greasy, wet, slippery or dirty objects before attempting to handle them.

    F. Keep hands free of oil and grease.

2. Each division/facility/school must ensure that:

    A. Gloves, hand leathers, or other hand protectors are provided and worn whenever possible to prevent hand injuries.

    Employees are physically screened before being required to perform jobs that require heavy and/or frequent lifting. If a load is believed to be heavier than one employee can handle, two employees must be assigned to the operation or materials-handling equipment..

    B. All employees that lift materials are trained in the proper way to lift and put down heavy, bulky, awkward, or long objects.

    C. When feasible, efforts are made to reduce manual lifting by using mechanical equipment or rearranging the storage of materials.

Materials-Handling Equipment:

When manual handling is required for materials over 50 pounds, a variety of tools and equipment are available to assist employees with these materials. All employees assigned to operate materials-handling equipment (manual, electrical, powered, etc.) must be trained prior to use. These tools and equipment fall into the following categories:

1. Manual Materials-Handling Equipment: Training must be completed and documented before an employee is authorized by their immediate supervisor. Each of these items must only be used for its designed task and kept in proper working condition. Examples of manual materials handling equipment include:

   A. Bars – adds extra leverage to help push or maneuver materials; employees should remember to position themselves to avoid materials that may slip or fall.

   B. Hooks – use in a safe manner so as to not glance off hard objects. Store hooks in a safe place and maintain them in ready to use condition.

   C. Dollies – load materials evenly on dollies to prevent tipping or view obstruction. Dollies should be pushed unless especially designed for pulling.

   D. Two wheel trucks – select trucks with widely spaced wheels to prevent overloading. Use knuckle guards to protect hands from contact. Make sure that hand trucks are stored in a vertical position when not in use.

   E. Rollers – keep hands and feet away from pinch points and make sure that rollers extend beyond the load.

   F. Jacks – Use with the appropriate rating for the load. Place the jack on a level, stable and clean surface. Avoid metal-to-metal contact (or jack-to-surface being lifted) by using wooden shims and block the load after the jack lift.

2. Powered Industrial Trucks: Generally classified as either rider-operated (mostly forklifts) or walker-operated (motorized hand trucks). Powered industrial trucks are efficient materials-handling equipment, which have eliminated many high-risk manual handling tasks. However, there are inherent hazards from their physical and operational design that can lead to accidents. For more information refer to the DHHS Powered Industrial Trucks Plan.

Materials Storage

The level of precaution should match the potential for injury posed by particular substances. Recommended material storage guidelines are as follows:

1. Warehouse Storage: Materials cannot obstruct fire alarm boxes, sprinkler system controls, sprinkler heads, fire extinguishers, first-aid equipment, lights, or electric switches. All exits and aisles must be kept clear at all times and must be appropriately marked. No Smoking signs must be posted where necessary throughout the warehouses. Maximum safe load limits of floors within buildings and structures, in pounds per square foot, must be conspicuously posted in all storage areas, except for floors or slabs on grade. Maximum safe loads shall not be exceeded.

2. Open Yard Storage: Plan open-yard storage to ensure driveways between and around combustible storage piles are at least 15 feet wide and maintained free from accumulation of rubbish, equipment, or other materials. Driveways should be spaced so that a maximum grid system unit of 50 feet is produced. Combustible materials must be piled with due regard to the stability of piles and no higher than 20 feet.

3. Lumber: For outdoor storage of lumber, select ground that is firm and unyielding. The area must be well-drained to remove surface water and prevent softening of the soil. A periodic check should be made to determine if there is any shifting of materials. For long-term piling, substantial bearings or dunnage is recommended. Concrete with spread footing extending below the frost line is a good method. For temporary piling, heavy timbers may be used to support the cross-pieces. This type of support must be inspected periodically for deterioration which may cause the pile to list dangerously. If lumber must be moved manually to or from a higher pile, the pile must be not more than 16 feet high and safe means of access to the top, such as a ladder, must be provided. Tie pieces are needed to stabilize the pile and provide air circulation, and must not extend into walkways, but cut flush with the pile.

4. Bagged Material must be cross-tied with the mouths of the bags toward the inside of the pile. When the pile reaches five feet in height, it must be stepped back one row for each additional three feet of height. A pile of sacks must never be undermined by the removal of sacks from lower rows.

5. Pipes and Bar Stock must be stored on specially designed skills or racks safely blocked to prevent rolling or spreading. When moving these materials, employees should work from the end of the pile as much as possible. Employees must be instructed never to attempt to stop rolling or sliding pipes or bar stock.

6. Sheet Metal must be handled with hand leathers, leather gloves, or gloves with metal inserts. All bundles must be separated by strips of wood to facilitate handling when the material is needed for production and to lessen chances of shifting or sliding of the piles of material.

7. Brick and Masonry Block: Brick stacks shall not be more than seven feet in height. When a loose brick stack reaches a height of four feet, it must be tapered back two inches in every foot of height above the 4-foot level. Bricks must never be stacked for storage purposes on scaffolds or runways. This does not prohibit normal supplies on bricklayers' scaffolds during actual bricklaying operations. Masonry blocks should be limited to a stacked pile height of six feet. If blocks are stacked higher than six feet, the stack shall be tapered back one-half block per tier above the 6-foot level.

Housekeeping:

1. Storage areas must be kept free from excess materials that create hazards that result in fire, explosion, slips, trips, or infestation by insects or rodents. Weeds and other vegetation must be controlled by cutting or using herbicides when necessary.

2. Aisles and Passageways Labels, Signs, and Markings: Where mechanical handling equipment is used, sufficient safe clearances must be allowed for aisles, at loading docks, through doorways and wherever turns or passage must be made. Aisles and passageways must be kept clear and in good repair, with no obstruction across or in aisles that could create a hazard. Permanent aisles and passageways must be appropriately marked, and clearance signs and warning of clearance limits must be posted. Equipment is marked accordingly to indicate the working load it will safely support.

References:

1. NC Employees Workplace Program Requirements for Safety and Health: Materials Handling

2. Occupational Safety and Health Standards

   A. 29 CFR 1910.106, Hazardous Materials, Flammable Liquids

   B. 29 CFR 1910.176, Materials Handling and Storage, Handling Materials

   C. 29 CFR 1910.178, Materials Handling and Storage, Powered Industrial Trucks

   D. 29 CFR 1926.250, Materials Handling, Storage, Use, and Disposal, General Requirements for Storage

For questions or clarification on any of the information contained in this policy, please contact Human Resources. For general questions about department-wide policies and procedures, contact the DHHS Policy Coordinator.