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MANUAL MATERIAL HANDLING—LIFTING AND LOWERING

A poorly designed materials-handling task is one where the strength requirements to complete the task exceed the strength capabilities of most workers. Most workers would not be able to perform the task without overexertion.

Poorly designed tasks generally require workers to lift, lower, push, pull, or carry heavy loads. These tasks may also include excessive bending, reaching, or twisting of the body.
The following guidelines provide suggestions on how to properly lift and lower various objects.
To increase material flow through the workplace:

- Establish adequate receiving, storage, and shipping facilities including loading docks, ramps, fork lifts, hand trucks, and roller conveyor systems. Maintain adequate aisle and access areas.

- Design the workplace to minimize material movement for operations relying on frequent manual handling.

Eliminate the need to lift or lower manually, by using—

- Lift tables and platforms,
- Lift trucks,
- Cranes and hoists,
- Drum and barrel dumpers,
- Elevating conveyors,
- Elevated pallets,
- Gravity dump and/or chute systems,
- Vacuum systems, or
- Automatic feed systems.

Source: U.S. Air Force photo by Staff Sgt. R. Alex Durbin. Cleared for public release.

To increase weight to a point where it must be mechanically handled—

- Use pallets to handle raw materials and products in bulk quantities.

- Use the unit load concept (e.g., bulk handling of large bins or containers).

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To reduce the weight of the object(s) or the force required to lift or lower the object(s)—

- Reduce the weight and capacity of the container(s).
- Improve the handhold or grip on the object.
- Specify the quantity per container to suppliers.
- Assign the job to two or more persons.

Source: U.S. Air Force photo by Tech. Sgt. Michael Matkin. Cleared for public release.

To reduce the hand distance from the body—

- Change the shape of the object or container.
- Provide grips or handles.
- Provide better access to objects.

To convert lift/carry or lower/carry combinations to a push or pull task, use—

- Conveyors.
- Hand trucks.
- Roller or ball-caster tables.
- Four-wheel carts.