



## eTOOLS

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## Ergonomics eTool: Solutions for Electrical Contractors

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### Materials Handling: Heavy Lifting

Lifting heavy items is one of the leading causes of injury in the workplace. In 2001, the Bureau of Labor Statistics reported that over 36 percent of injuries involving missed workdays were the result of shoulder and back injuries. Overexertion and cumulative trauma were the biggest factors in these injuries.

When employees use smart [lifting practices](#) and work in their "power zone," they are less likely to suffer from back sprains, muscle pulls, wrist injuries, elbow injuries, spinal injuries, and other injuries caused by lifting heavy objects.

- [Weight of Objects](#)
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#### Weight of Objects

##### Potential Hazards:

- Some loads, such as large spools of wire (Figure 1), bundles of conduit, or heavy tools and machinery place great stress on muscles, discs, and vertebrae.
- **Lifting loads heavier than about 50 pounds will increase the risk of injury.**

##### Possible Solutions:

- **Use mechanical means such as forklifts (Figure 2) or duct lifts** to lift heavy spools, transformers, switch gear, service sections, conduit, and machinery.
- Use pallet jacks and hand trucks to transport heavy items.
- Avoid rolling spools. Once they are in motion, it is difficult to stop them.
- Use suction devices (Figure 3) to lift junction boxes and other materials with smooth, flat surfaces. These tools place a temporary handle

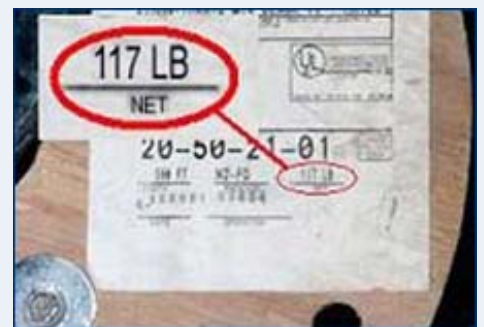


Figure 1  
A spool holding 117 pounds of wire.

that makes lifting easier.

- Use [ramps](#) or lift gates to load machinery into trucks rather than lifting it.
- Materials that must be manually lifted should be placed at "[power zone](#)" height, about mid-thigh to mid-chest. Special care should be taken to ensure proper [lifting principles](#) are used. Maintain neutral and straight spine alignment whenever possible. Usually, bending at the knees, not the waist, helps maintain proper spine alignment.
- Place materials that are to be manually lifted at "power zone" height, about mid-thigh to mid-chest. Maintain neutral and straight spine alignment whenever possible. Usually, bending at the knees, not the waist, helps maintain proper spine alignment.
- Order supplies in smaller quantities and break down loads off-site. When possible, request that vendors and suppliers break down loads prior to delivery.



**Figure 2**  
Forklift.



**Figure 3**  
Suction tool.



**Figure 4**  
Two-man lift.

- Prefabricate items in a central area where [mechanical lifts](#) can be used. Only transport smaller, finished products to the site.
- Limit weight you lift to no more than 50 pounds. When lifting loads heavier than 50 pounds, use two or more people to lift the load (Figure 4).
- Work with suppliers to make smaller, lighter containers.

For more information, please visit - [www.osha.gov/SLTC/etools/electricalcontractors/materials/heavy.html](http://www.osha.gov/SLTC/etools/electricalcontractors/materials/heavy.html)