



Department-Approved Course Requirements: 1-Hour Handling Heavy Materials and Proper Lifting Techniques

Course Required for: Worker Training

Purpose: This course is a general elective course that can help fulfill the requirement for an individual applying for a Site Safety Training Card. **THIS IS AN AWARENESS-LEVEL TRAINING ONLY and does not provide any other qualification or authorization outside of the Site Safety Training Card.**

Duration: 1 Hour of instructional time, excluding breaks

Class Size: 1-40 Trainees

NYC Requirement: In order to continue to operate in the City of New York, the designated construction worker is required to complete a minimum number of hours of approved site safety training and to carry site safety identification cards as proof of completion of the training (As per New York City Local Law 196 of 2017 also known as 'LL196' or 'Local Law'). This course provides one hour towards the satisfaction of that requirement.

Facility Requirements: The Training Facility used by the Course Provider must:

- Have sufficient room to accommodate all expected attendees and the equipment needed to perform hands-on exercises where required as part of the course.
- Make provisions for the presentation of training material in all media types (computer, projectors, video/DVD players, etc.); and
- Comply with all applicable laws, rules and regulations relating to occupancy, zoning, egress, fire detection, fire suppression, light, ventilation, cleanliness, sanitary facilities, emergency notification and evacuation procedures.

Training may be held at construction sites, provided the above requirements are met.

Instructor Requirement: To deliver this course the instructor(s) must demonstrate that he or she is credentialed or trained in instructional methods and learning processes. The instructor(s) must also successfully demonstrate his or her ability to solve or resolve problems relating to the subject matter by possession of a recognized degree, certificate, licensure or professional standing, or by extensive knowledge, training, and experience, in the subject matter being taught. To the extent that the course instructor(s) holds, or has held, a trade license issued by the Department, it must be in good standing and not be surrendered to, suspended by or revoked by the Department.

The instructor(s) must also be authorized by the Occupational Safety and Health Administration ('OSHA') as a trainer(s) for its Construction and Outreach Program.

Curriculum Requirement: All **topics** listed under **Course Content Outline** must be covered using the listed **Instructional Delivery Method**. The time dedicated to each outline topic should be appropriate for the course content and can vary depending on the trade or job performed by the trainee. The **Instructional Delivery Materials** used in this course must contain all current applicable NYC Construction Code references, current rules, policies & bulletins.

Course Curriculum Proposal Package Review: A comprehensive review will be performed by the **Department of Buildings** to determine compliance with these Course Curriculum Requirements.

Instruction Delivery Method

- Media:** Lecture/Discussion, Slide Presentation, Videos, Empty cardboard boxes that will represent different weights, sizes and shapes to simulate lifting loads.
- Handouts:** Slides, references and handbook
- Guided Learning:** Illustrative demonstrations on work practice controls

Course Content Outline

1. Introduction
 - a. Instructor introduces topic and describes their qualifications and relevant experience for training this module.
 - b. Establish that all trainees can hear and fully understand you i.e. 'raise your hand if you fully understand me' or 'clap your hands if you fully understand me'
 - c. State basic classroom rules, bearings and decorum
 - i. Inform trainees of duration or training and breaks (if any)
 - ii. Remind trainees about limiting distractions (phone use, texting, sidebar conversations)
 - iii. Emergency procedures (location and means of egress, exits or other contingencies)
 - iv. Location of restrooms
 - d. Training Objectives and Expectations:
 - i. Trainees will become familiar with hierarchical strategy of moving/lifting heavy material.
 - ii. Trainees will be able to recognize hazards associated with overexertion and musculoskeletal stress.
 - iii. Trainees will be able to avoid injuries associated with lifting.
2. Explain that lifting heavy items is one of the leading causes of injury in the workplace.
 - a. Provide illustrative information from sources such as the Bureau of Labor Statistics that report over 30 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. Lifting can also cause:
 - i. Back sprains
 - ii. muscle pulls
 - iii. wrist injuries
 - iv. elbow injuries
 - v. spinal injuries
 - vi. hernias
 - vii. struck-by a falling object due to losing grip or dropping
3. Explain the effects of overexertion and muscle skeleton issues
 - a. Short term, such as muscles pulls, strains, and sprains
 - b. Long-term cumulative effects i.e. arthritis, expedited joint degradation
 - c. Fatigue and mental distraction causing someone to drop something that they are carrying or handling.
4. Describe and illustrate contributing factors to lifting injury
 - a. The weight of objects
 - b. Awkward postures when attempting to move, lift, pull, push carry
 - c. High-frequency and long-duration of lifting, pulling, pushing, moving, carrying activities
 - d. Inadequate handholds
 - e. Asymmetrical weight distribution of load
 - f. Dynamic loads such as liquids

- g. Shape and size of objects (sail effect from surface area)
 - h. Environmental factors such as extreme heat, cold, wind, terrain, slopes, stairs etc.
5. Illustrate, in simple understandable terms, the physics behind the different classifications of levers and further demonstrate how the human body in motion utilizes these simple mechanisms. (Trainees will validate the lifting suggestions when these see how levers actual work.)
- a. Class 1: Fulcrum in the middle, i.e. seesaw
 - b. Class 2: Resistance (or load) in the middle, i.e. wheelbarrow, nutcracker
 - c. Class 3: Effort in the middle, i.e. a pair of tweezers or the human jaw action (mandible)
6. Describe, explain and illustrate how employees and managers can think through a hierarchy of controls making it less likely to suffer from back sprains, muscle pulls, wrist injuries, elbow injuries, spinal injuries, and other injuries caused by lifting heavy objects. Utilizing a hierarchal lifting process, describe how to employ such controls:
- a. Eliminate heavy lifting
 - i. Order material in smaller lighter bundles
 - ii. Load material in smaller lighter bundles
 - iii. Can load be broken down in to smaller lighter bundles
 - b. Substitute for lighter materials
 - c. Utilize lifting equipment (Engineering Controls)
 - i. Hydraulic lifts
 - ii. Forklift
 - iii. Dollies
 - iv. Pallet jacks
 - v. Industrial truck
 - d. The 'buddy system' (get help lifting from other people)
 - e. Good housekeeping
 - f. Stacking and Racking to keep loads off of floor
 - g. Design pulls
 - h. Proper ergonomically friendly storage (higher and more accessible reach)
 - i. Provide grabs handles and handholds
 - j. Staging
 - k. Pulling vs. Pushing vs. Carrying
 - l. Correct, neutral posture
 - m. Proper lifting work practices
 - n. Task Rotation
 - o. Warm up and stretching of muscles before lifting
7. Illustrate and define a work practice control for lifting the cardboard box making sure to show the counter weight and balance of an object with the center of gravity becoming a fulcrum point.
8. Cardboard box Exercise: Have different cardboard boxes represent various weights and shaped then challenge trainees to find the best ways to move the boxes to a desktop or carry from point 'A' to point 'B.'
- a. Make the experience competitive by adding points to decisions
9. Resources:
- a. <https://www.osha.gov/SLTC/etools/electricalcontractors/materials/heavy.html>
 - b. Worker's Rights (See OSHA: <https://www.osha.gov/Publications/OSHA3146.pdf>)
 - c. OSHA Regional Map: <https://www.osha.gov/html/RAmap.html>

10. Debriefing (Informal evaluation)

- a. Guided by instructor, trainees, in a class discussion talk about the course's content and means of delivery and provide verbal feedback to the instructor.
- b. Instructor takes notes (either committing them to writing during discussion or ascribing them later into noted-comments).
- c. Instructor applies lessons learned from debriefing to future trainings.

11. Written (Multiple Choice) Assessment