



Department-Approved Course Requirements: 1-Hour Concrete and Masonry Construction

Course Required for:

Worker Training

Purpose:

This course is a specialized 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 and 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
Handouts:	Slides, references and handbook
Guided Learning:	Illustration

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 generally familiar with various processes of cast in place concrete operations.
 - ii. Trainees will be able to recognize hazards associated with typical cast in place concrete operations.
 - iii. Trainees will be able to avoid health hazards associated with concrete.
2. Briefly, in nonscientific terms, explain the physical nature of concrete and reinforced concrete, so trainees have a better 'big picture' perspective of concrete as a fundamental building material.
 - a. Concrete
 - i. History
 - ii. Composition
 - iii. Weight
 - iv. Design and compressive strengths
 - b. Associated chemical hazards: Briefly describe occupational hazards and environmental hazards such as the reason for concrete washout regulations.
 - i. Alkalinity (Hazard Communications)
 - ii. Silica (Hazard Communications)
 - iii. Environmental hazards associated with concrete washout tasks (Chapter 33 Section 3303.5.3)
 - c. Reinforced Concrete (for familiarity purposes, non-engineering language)
 - i. Explain how reinforcing steel rebar works
 - ii. Simply describe Tension and Compression strengths
 - iii. Explain and illustrate the purpose and function of reinforcing steel
 - iv. Illustrate the placement and assembly of reinforcing steel
3. Describe and illustrate hazards associated with typical concrete operations (decking and forming, finishing and removal of forms 'stripping' activities) and respective hazard controls.
 - a. Falls, including:
 - i. Falls to lower level
 - ii. Falls into shafts/holes
 - iii. Falls from forming systems (use specific illustrations from common manufactured systems)
 - iv. Tripping to same level
 - v. Falls into impalement hazards

- vi. Personal Protection Equipment
 - b. Struck-by equipment
 - c. Struck-by material or debris (swing path and fall zones)
 - d. Stuck-by load
 - e. Rigging failure (staying clear of load)
 - f. Overexertion
 - g. Impalement from unprotected rebar
 - h. Collapse of formwork
 - i. Collapse of newly cast in place concrete structures (early loading)
 - j. Failures associated with concrete pumping operations (bursting, rupture, blowout)
 - k. Chemical burns
 - l. Fire
4. Describe and illustrate various components associated with typical concrete operations and typical hazard concerns and controls.
- a. Working deck
 - b. Walking deck
 - c. Unenclosed perimeters
 - d. Horizontal netting systems
 - e. Vertical netting systems
 - f. Controlled Access Zones
 - g. Means of placing concrete
 - h. Concrete pumps
 - i. Crane concrete crane bucket
 - ii. Concrete buggy
 - i. Support of decking, formwork and concrete loads
 - j. Shoring, shores and braces
 - i. Reshoring
 - ii. Formwork systems
 - iii. Multi-stage shores
 - iv. Lateral bracing
 - v. Beams and girders
 - vi. Plumb and level measurements
 - k. Trucks, vehicular traffic and pedestrian management around concrete operations
5. Describe various personnel involved in concrete operations and their respective roles and responsibilities. Emphasize that CONCRETE WORKERS MUST BE SPECIALLY TRAINED IN SPECIFIC CONCRETE OPERATIONS ACCORDING TO THE TYPE OF SYSTEMS THEIR EMPLOYERS OR CONTROLLING EMPLOYERS CHOOSE TO USE
- a. Concrete Safety Manager
 - b. Registered Design Professional
 - c. Concrete Contractor
 - d. Riggers
 - e. Signal Persons and Lift Director
 - f. Competent Persons

- g. Lift Director
 - h. Crane Operator
6. Explain, illustrate and describe hazards associated with heating operations during concrete curing processes.
- a. Fire and fire watch
 - b. Fuel use and storage
 - c. Escape hatches and ladder chases
 - d. Means of egress
 - e. Housekeeping
 - f. Monitoring of Carbon monoxide
 - g. FDNY administrative requirements
7. Resources:
- a. Applicable OSHA Standards Subpart Q, Subpart H and Subpart F, CFR Title 29 1926
 - b. ANSI/ASME Regulations and Standards
 - c. Worker's Rights (See OSHA: <https://www.osha.gov/Publications/OSHA3146.pdf>)
 - d. OSHA Regional Map: <https://www.osha.gov/html/RAmap.html>
8. 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.
9. Written (Multiple Choice) Assessment