Department-Approved Course Requirements: 8-Hour Master Rigger Renewal

REVISED 7/24

Course Required for: ☒ License Qualification

Purpose: Before January 1, 2025, this course will be accepted for renewal of a NYC Master Riggers license.

Duration: 8 Hours of instructional time, excluding breaks and meals

Class Size: 1 – 30 trainees

NYC Requirement: Before January 1, 2025, licensees may successfully complete 8 hours of a master rigger training course to renew their New York Master Rigger license.

Delivery Requirements: Where the Instruction Delivery Method indicates:

- Classroom Lecture/Discussion w A/V (Audio-Visual): the instruction may be delivered by virtual live classroom; however, self-study modules are not permissible.

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, projector, video/DVD player, etc.).
- 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.
- Comply with all applicable Federal, State, and local laws, rules and regulations, and the Department's Industry Code of Conduct.

Course Requirement: All topics listed under Course Content Requirements 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.

All statistics referenced should reflect the latest publicly available statistics. The selection of Case Studies should prioritize incidents in NYC since the prior renewal period and contain relevant and illustrative photos where available.

Refresher or Renewal Courses should focus on the updates since the prior renewal period.

Content Course Requirements	Instruction Delivery Method
1. Introduction to Cranes and Derricks • Instruction on inspection, maintenance, repair, use, installation, and hazards associated with the relevant sections of the building code and industry practice with regards to rigging	Classroom Lecture/Discussion w A/V
2. Crane and Rigging Incidents • Common causes of incidents with cranes • Historical crane incidents in NYC and other major cities • Overview of rigging incident statistics for the most current 24-month period: o Failure; injury; death • Close review of two failure scenarios with emphasis on what went wrong and how the incident could have been prevented	Classroom Lecture/Discussion w A/V
3. CFR 29 OSHA 1926 Overview • Subpart E (PPE-Personal Protective Equipment) • Subpart H (Material Handling, Storage) • Subpart K (Electrical) • Subpart L (Scaffolds) • Subpart M (Fall Protection) • Subpart CC (Cranes and Derricks in Construction)	Classroom Lecture/Discussion w A/V
4. NYC Code Review – All applicable: • Codes • Rules • Department-related policy statements • Regulatory notices • Bulletins and memos, including: o 2022 Building Code, Chapter 33	Classroom Lecture/Discussion w A/V
5. NYC Department of Buildings – All applicable: • Administrative standard operating procedures • Policy and procedure notices • Permits • Department notifications • Forms • Filing and site documents • Plans • Inspection checklists/logs • Wind and weather advisories	Classroom Lecture/Discussion w A/V
6. NYC Department of Transportation (DOT) – All applicable required by NYC DOT to operate a crane/derrick: • Codes • Rules • Regulations • Operating procedures • Policy and procedures • Permits/notifications • Forms • Filing and site documents • Plans, etc., **r**equired traffic/pedestrian controls for crane/derrick operations (flag persons, signs, barricades, etc.)	Classroom Lecture/Discussion w A/V

Content Course Requirements	Instruction Delivery Method
7. NYC Transit Authority (NYCTA) – All applicable required by NYC Transit Authority to operate a crane/derrick near TA infrastructure: • Codes • Rules • Regulations • Operating procedures • Policy and procedures • Permits/notifications • Forms • Filing and site documents • Plans, etc. required by the MTA/ NYC Transit Authority to operate a crane near TA infrastructure	Classroom Lecture/Discussion w A/V
8. Basic Building Structure • Structural framing • Floor framing • Roof framing • Exterior envelope • Roof parapet • Masonry walls columns • Concrete slabs, walls, and columns • Special emphasis on building structures traditionally used to support rigging equipment o Floors o Exterior walls • Bearing and non-bearing o Parapets o Roof dunnage o Structural steel beams and columns	Classroom Lecture/Discussion w A/V
9. Inspection of Cranes, Ropes and Operator Responsibility • Periodic/annual inspection performed by owner and the Department of Buildings o Documentation to be maintained • Frequent inspection o Who can perform o Documentation to be maintained o How to perform a frequent inspection o Components inspected during a frequent inspection o How to identify hazards o Steps to take if hazard discovered • Inspection process and safety checklists including: o What to inspect o How to inspect o How frequently to inspect, including: • Rigging systems and anchorage • Individual components • Slings • Hoists • Mortars, etc. • Identification of wear, defects, failure signs in all rigging equipment • Handling, maintenance, repair/replacement of rigging equipment, rope, hardware, etc. • Rope (wire and fiber) and hardware used in rigging o Type, strength, application, manufacturers' specifications and limitations, handling o Connection and termination of wire/fiber rope (fasteners, knots, hitches, hooks, shackles, thimbles, eyes, tackle blocks, etc.) including: • Connection to suspended work platforms, (i.e., scaffold platforms); hoist loads (materials, equipment)	Classroom Lecture/Discussion w A/V

Content Course Requirements	Instruction Delivery Method
10. Maintenance and Repair of Cranes and Ropes • Types of maintenance required • Who can maintain cranes • Who can repair a crane • Safeguards to take before beginning maintenance or repairs	Classroom Lecture/Discussion w A/V
11. Crane Setup • Ground conditions • Deviation from plans not permitted • Founding of crane, outrigger placement and cribbing • Danger to underground infrastructure, excavations, foundations, etc.	Classroom Lecture/Discussion w A/V
12. Reading Plans	Classroom Lecture/Discussion w A/V
13. Operating Cranes • Starting up the crane • Hazards of operating in a dense urban environment • High wind hazards • Operating near power lines • Prohibition against hoisting over pedestrians, traffic and adjoining buildings • Requirements for shutting down and securing the crane • Communication between workers and supervisors while rigging: radios; hand signals; flags; etc.	Classroom Lecture/Discussion w A/V
14. Reading Load Charts • NYC-approved load charts	Classroom Lecture/Discussion w A/V

Content Course Requirements	Instruction Delivery Method

15. Lifting and Lowering Loads
• Weights and materials
• Center of gravity
• Rigging requirements
• Critical picks
• Logs and record keeping
  o Including maintenance records for equipment, pre-task and safety meetings
• Hoisting and hoisting equipment (manual, electric, etc.)
  o Pulley
  o Block/tackle
  o Sheaves
  o Drums
  o Slings (all types)
  o Chains
  o Electric hoist motors
  o Capacity
  o Rigging of motors
  o Mechanical/electrical safety devices and their operation
• Critical picks
• Construction and use of suspended working platforms
  o Manufacturer's specifications
  o Limitations
  o Max spans
  o Guardrails
  o Planking
  o Debris netting
  o Stirrups
  o Maneuvering
  o Drifting
  o Securing of platform during and end of shift
  o Suspension methods
  • Slings
  • C-hooks
  • Outrigger beams
  • Clamps
  • Counterweights
  • Shoring scaffolds (outrigger supports)
  • Masonry and concrete anchors (expansion, adhesive, screw)
  • Pull testing of anchorage devices
  • Off-the-shelf hardware
  • Site-built hardware systems
	Classroom Lecture/Discussion w A/V

16. Operational Aids and Safety Devices • Types of aids, safety devices • Functions • How to use • Steps to take if operational aid/safety device not working • Acceptable means to substitute for a malfunctioning aid/safety device • Personal fall-arrest systems, use, storage, maintenance, installation and anchorage • Other types of personal protection (hard hats, respirators, gloves, shoes, eye protection, clothing	Classroom Lecture/Discussion w A/V

17. Crane and Derrick Safety Protocols and Emergency Procedures
• Electrical safety during rigging installation and use, including: work performed from suspended working decks (welding, use of electrical equipment, etc.)
• Overhead protection/safety exclusion zones during rigging, hoisting and use of scaffolding:
  o Sidewalk sheds
  o Barriers
  o Flag persons
  o Hazard signage
	Classroom Lecture/Discussion w A/V

Content Course Requirements	Instruction Delivery Method
18. Crane Assembly, Jumping and Disassembly	Classroom Lecture/Discussion w A/V

19. Rigging Requirements
• Definition of rigging
• Traditional uses for rigging in the construction and industrial environment, including industrial rope access (IRA)
• Mathematics of rigging
  ○ Measurement
  ○ Symbols
  ○ Geometry
• Calculations
  ○ Leverage
  ○ Friction
  ○ Fulcrum
  ○ Center of gravity
  ○ Uniform and concentrated loading
• Wind effects on netting and other components
• Calculation of
  ○ Weight
  ○ Loads
  ○ Sling loads
  ○ Drifting loads
  ○ Balance and tipping points of objects
• Center of gravity, non-symmetrical center of gravity
• Buoyancy (lifting in water)
	Classroom Lecture/Discussion w A/V

20. General Construction Site Hazards	Classroom Lecture/Discussion w A/V
21. Handouts • NYC Buildings Unsafe Condition (311) Notification Procedure • NYC/DOI Buildings Integrity Training Contact Information Sheet	Provide Copy to Trainee & Discuss
22. Review all Training Topics	Discussion with Questions & Answers
23. Written (Multiple Choice) Assessment	Classroom