CONTINUING EDUCATION
CEO35 Traction Elevator Code Course
10 Hours

NEIEP Continuing Education Series
Program: National Elevator Educational Program Continuing Education
Division: Licensing Renewal

Course Contact Hours: 10 Hours

Course Objective:
This course is designed to provide the Licensed Elevator Constructor with industry specific continuing education in an effort to satisfy the requirements established in, and in accordance with, the Administrative Code having jurisdiction.

Upon completion of this course, the mechanic will have completed a code course designed to provide detailed information regarding the elevator code.This course covers the Elevator Pits, Elevator Hoistway, Elevator Counterweights, Car Frames, Elevator Car Enclosure, Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms, Elevator — Machine-Room-Less (MRL) and OPERATING DEVICES AND CONTROL EQUIPMENT requirements from sections of ASME A17.1 2013 and ASME A17.2 2014.

Instruction: This course is offered online.

COURSE CONTENT:

Elevator Pits

- Design and Construction of Pits
- Guards Between Adjacent Pits
- Pit Access
- Illumination of Pits
- Stop Switch in Pits
- Minimum Pit Depths Required
- Access to Underside of Car
- Working Areas in the Pit
- Compensation Means

VERTICAL CLEARANCES AND RUNBYS FOR CARS AND COUNTERWEIGHTS

- Bottom Car Clearances
- Minimum Bottom Runby for Counterweighted Elevators
- Minimum Bottom Runby for Uncounterweighted Elevators
- Maximum Bottom Runby
- Counterweight Runby Data Plate

BUFFERS AND BUMPERS

- Solid Bumpers
- Spring Buffers
- Oil Buffers

Elevator Hoistway

- Fire-Resistive Construction
- Construction at Top and Bottom of the Hoistway
- Floor Over Hoistways
- Control of Smoke and Hot Gases
- Windows and Skylights
- Projections, Recesses, and Setbacks in Hoistway Enclosures
- Maximum Upward Movement of the Car
- Top of Car Clearances

HORIZONTAL CAR AND COUNTERWEIGHT CLEARANCES

- Clearances Between Cars, Counterweights, and Hoistway Enclosures

PROTECTION OF SPACE BELOW HOISTWAYS

- Where the Space Is Underneath the Car or Counterweight and/or Its Guides

CAR AND COUNTERWEIGHT GUIDE RAILS, GUIDE-RAIL SUPPORTS, AND FASTENINGS

- Material
- Rail Section
- Maximum Load on Rails in Relation to the Bracket Spacing
- Stresses and Deflections
- Guide-Rail Surfaces
- Rail Joints and Fishplates
- Overall Length of Guide Rails
- Guide-Rail Brackets and Building Supports
- Fastening of Guide Rails to Rail Brackets

TERMINAL STOPPING DEVICES

- Normal Terminal Stopping Devices
- Final Terminal Stopping Devices
- Emergency Terminal Stopping Means

Elevator Counterweights

- Counterweight Guards
- Remote Counterweight Hoistways
- Counterweight Runway Enclosures
- Top of Counterweight Clearances
- Frames
- Guiding Means
- Design Requirements for Frames and Rods
- Factor of Safety
- Sheaves
- Suspension-Rope Hitch or Shapes
- Securing of Weights in Frames
- Cars Counterbalancing One Another

Car Frames

- Guiding Means
- Design of Car Frames and Guiding Members
- Underslung or Sub-Post Frames
- Car Platforms
- Materials for Car Frames and Platform Frames
- Car Frame and Platform Connections
- Protection of Platforms Against Fire
- Platform Guards
- Maximum Allowable Stresses in Car Frame and Platform Members and Connections
- Maximum Allowable Deflections of Car Frame and Platform Members
- Car Frames With Sheaves
- Suspension-Rope Hitch Plates or Shapes
- Calculation of Stresses in Car-Frame and Platform-Frame Members
- Platform Side Braces
- Hinged Platform Sills

Elevator Car Enclosure

- Securing of Enclosures
- Strength and Deflection of Enclosure Walls
- Number of Compartments in Passenger and Freight Elevator Cars
- Top Emergency Exits
- Car Enclosure Tops
- Railing and Equipment on Car Enclosure Top
- Glass in Elevator Cars
- Equipment Inside Cars
- Material for Car Enclosures, Enclosure Linings, and Floor Coverings
- Ventilation
- Headroom in Elevator Cars

- Vision Panels
- Access Panels
- Freight-Car Enclosure
- Illumination of Cars and Lighting Fixtures

CAPACITY AND LOADING

- Minimum Rated Load for Passenger Elevators
- Minimum Rated Load for Freight Elevators
- Capacity and Data Plates
- Carrying of Passengers on Freight Elevators
- Signs Required in Freight Elevator Cars
- Overloading of Freight Elevators
- Carrying of One-Piece Loads Exceeding the Rated Load
- Symbols

Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms

- Enclosure of Rooms and Spaces
- Maintenance Path and Clearance
- Access to Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms
- Headroom in Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms
- Working Areas Inside the Hoistway and in the Pit
- Location of Machinery Spaces, Machine Rooms, Control Spaces, Control Rooms, and Equipment
- Machine Rooms and Control Rooms Underneath the Hoistway
- Remote Machine Rooms and Control Rooms
- Lighting, Temperature, and Humidity in Machinery Spaces, Machine Rooms, Control Spaces, and Control Rooms

EQUIPMENT IN HOISTWAYS, MACHINERY SPACES, MACHINE ROOMS, CONTROL SPACES AND CONTROL ROOMS

- Electrical Equipment and Wiring
- Pipes, Ducts, Tanks, and Sprinklers
- Electrical Heaters and Air Conditioning

MACHINERY AND SHEAVE BEAMS, SUPPORTS, AND FOUNDATIONS

- Supports Required
- Loads on Machinery and Sheave Beams, Floors, or Foundations and Their Supports
- Securing of Machinery and Equipment to Beams, Foundations, Guide Rails, Structural Walls, or Floors
- Allowable Stresses for Machinery and Sheave Beams or Floors, Their Supports, and Any Support Members That Transmit Load to the Guide Rails or Structural Walls
- Allowable Deflections of Machinery and Sheave Beams, Their Supports, and Any Support Members Loaded in Bending That Transmit Load to Guide Rails or Structural Walls
- Allowable Stresses Due to Emergency Braking
- Guarding of Equipment
- Standard Railing

DRIVING MACHINES AND SHEAVES

- Type of Driving Machines
- Sheaves and Drums
- Factor of Safety for Driving Machines, Sheaves, and Drums
- Fasteners and Connections Transmitting Load
- Shaft Fillets and Keys
- Cast-Iron Worms and Worm Gears
- Friction Gearing and Clutches
- Braking System and Driving-Machine Brakes
- Indirect Driving Machines
- Means for Inspection of Gears

LAYOUT DRAWINGS

- **Information Required on Layout Drawings**

IDENTIFICATION

- **Identification of Equipment**
- **Identification of Floors**

Elevator — Machine-Room-Less (MRL)

- **ACCESS TO MACHINE ROOM/MACHINERY SPACE/CONTROL ROOM/CONTROL SPACE**
- **ACCESS DOOR AND OPENINGS**
- **ENCLOSURE OF ROOMS AND SPACES**
- **MAINTENANCE PATH AND CLEARANCE**
- **MACHINE/CONTROL ROOMS CONTAINING OVERHEAD DRIVE MACHINES**
- **TEMPERATURE/HUMIDITY**
- **DISCONNECTING MEANS**
- **REMOTE MACHINE ROOMS AND CONTROL ROOMS**
- **INSPECTION AND TEST PANELS**
- **GOVERNOR, OVERSPEED SWITCH**
- **EMERGENCY BRAKE**
- **TRACTION SHEAVES, SECONDARY AND DEFLECTOR SHEAVES**
- **TERMINAL STOPPING DEVICES**
- **WORKING AREAS INSIDE THE HOISTWAY AND IN THE PIT**
- **HYDRAULIC ELEVATORS — SHUTOFF/MANUAL LOWERING VALVES**
- **HYDRAULIC ELEVATORS — PRESSURE GAGE FITTINGS**
- **HYDRAULIC ELEVATORS — ATMOSPHERE STORAGE AND DISCHARGE TANKS**
- **HYDRAULIC ELEVATORS — PRESSURE PIPING**

OPERATING DEVICES AND CONTROL EQUIPMENT

- **Electrical Protective Devices**
- **Contactors and Relays for Use in Critical Operating Circuits**
- **Electrical Equipment and Wiring**
- **System to Monitor and Prevent Automatic Operation of the Elevator With Faulty Door Contact Circuits**
- **Phase Protection of Motors**
- **Installation of Capacitors or Other Devices to Make Electrical Protective Devices Ineffective**
- **Release and Application of Driving-Machine Brakes**
- **Control and Operating Circuits**
- **Absorption of Regenerated Power**

Copyright 2013 National Elevator Industry Educational Program Trust Fund. The material contained herein may not be reproduced or used in any manner without the express written permission of the Board of Trustees of NEIEP. This course, like all other National Elevator Industry Educational Program publications, is intended to further the job-related education of each student enrolled in a NEIEP course. While recognizing that other procedures may produce like results, the NEIEP text material is intended to provide the student with tested procedures which have become standards within the elevator industry. The NEIEP writers and staff strive for accuracy and authenticity in this course and in all their publications. However, NEIEP neither claims nor accepts legal responsibility for absolute accuracy in its publications. NEIEP recognizes that the information presented in this course must be used only in conjunction with the applicable manufacturer's instructions, the Standard Agreement, and national, state, and local codes.