



Program Description

Table of Contents

Welcome and Program Definitions	1
Program Outline	2
Curriculum (condensed)	3
Curriculum (expanded)	5
CET-S Costs	12
CET-S Candidate Process Flow Chart	13
Supplemental Books for CET-S	14
CET Costs	15
CET Candidate Process Flow Chart	17
CET Flow Chart	18
Codes of Conduct	22
Appeals Process	23

NAEC'S CERTIFIED ELEVATOR TECHNICIAN PROGRAM

Welcome to the Certified Elevator Technician (CET®) Education Program. This is a self-paced program which spans four years and 12 courses of study. While it is structured to meet Federal Apprenticeship requirements of 144 classroom hours of related instruction and 2000 on-the-job training hours annually, the goal of the education program is certification. The administrator and certifying body is the National Association of Elevator Contractors (NAEC).

Here are some definitions that are important to the program:

CET Candidate is a student in the CET® Education Program; an individual who has met all of the application requirements of the NAEC CET program and has been accepted into the program.

AET™ is an Associate Elevator Technician; an individual who has met all of the application requirements of the NAEC CET program, has successfully completed all course requirements of the NAEC CET Level 1 program or documented program as approved by the NAEC Education Committee and has passed the required qualifying examination.

CET is a Certified Elevator Technician:

- a) an individual who has met all the grandparent application requirements of the NAEC CET program; has successfully passed the required grandparent exam and has been approved by the Certification Board.
- b) an individual who has met all of the application requirements of the NAEC CET program; has successfully completed all course requirements of the NAEC CET® Level 1 and Level 2, or documented program as approved by the NAEC Education Committee, and has passed the required qualifying examination.

CET-MC is a CET-Modernization and Construction; an individual who has met all of the application requirements of the NAEC CET program; has successfully completed all course requirements of the CET Level 1 and Level 2; has completed the skills verifications for Courses 1, 2, 4, 5, 6, 7, 8, 9 and has passed the required qualifying examination.

CET-MR is a CET-Maintenance and Repair; an individual who has met all of the application requirements of the NAEC CET program; has successfully completed all course requirements of the CET Level 1 and Level 2; has completed the skills verifications for Courses 1, 3, 4, 5, 6, 8, 9, 10 and has passed the required qualifying examination.

CET-E is a CET-Escalator; an individual who has met all of the application requirements of the NAEC CET program; has successfully completed all course requirements of the CET Level 1 and Level 2; has completed the skills verifications for Courses 1, 4, 5, 6, 8, 9, 11 and has passed the required qualifying examination.

CET-S is a CET supervisor/administrator; an individual who is a CET (see definition above) and who has successfully completed the NAEC CET Supervisor Training Course. Each participating company must have a CET-S.

The role of the CET-S is to:

- Help the CET Candidate succeed in completing the CET program and securing the CET® Certification.
- Ensure that candidates have the required basic skills to complete the program study materials.
- Administer the Basic Skills Test.
- Assist candidates with their on-line Candidate Application.
- Ensure that candidates have met all their requirements prior to taking each exam.
- Ensure that the on-line exams are taken under conditions set forth by NAEC.

Copyright© 2007 by *National Association of Elevator Contractors (NAEC)* Published by Elevator World, Inc.

The CET® Education and Certification Program is sponsored and administered by National Association of Elevator Contractors (NAEC). Information on applications, curriculum, testing, interactive education and continuing education programs may be obtained from their website: <http://www.naec.org> or by calling (770) 760-9660.

All CET® course materials are available from Elevator World, Inc. They may be purchased on the website: <http://www.elevatorbooks.com> by using the candidate number assigned to each CET® student when applications are accepted. Candidates may also call Elevator World, Inc. at phone: (251) 479-4514. Text-based continuing education is also available from Elevator World, Inc.

CET® is a registered trademark of the National Association of Elevator Contractors.

Program Outline

CET Candidate Qualifications:

- High school diploma, GED or equivalent
- 18 years of age
- CET Basic Skills Assessment (optional)
- Approval of candidate application
- Payment of annual enrollment fee
- Access to the supervision of a CET-S

CET Level I (Core Curriculum) Program Outline

1. Four courses
2. 290 total classroom hours
3. Approximately 2 years to complete
4. Most of the 12 units will consist of 3 basic parts:
 - Text-based workbook
 - Skills verification on the job
 - Web-based courses
5. Curriculum can be purchased from approved NAEC vendor, Elevator World, Inc., at www.elevatorbooks.com using the student number assigned upon approval of candidate application.
6. Upon completion of each unit an exam will be given:
 - Closed book
 - Multiple choice
 - Score of 85% or higher required to pass
 - Questions chosen from study questions at end of each unit chapter
 - Online at www.naec.org (under testing conditions in accordance with NAEC certification guidelines)
7. CET Level I Exam – Upon completion of CET Level I, the candidate will be required to pass a CET Level I Exam. All rules applying to unit exams apply to the CET Level I exam.

Upon successful completion of all unit exams, all required skill verifications, all required web-based courses and the CET Level I Exam the candidate will become an Associate Elevator Technician (AET™) and will be given a certificate. The candidate may then advance to the CET Level 2 Program.

CET Level 2 (Advanced Curriculum) Program Outline

1. Eight courses
2. 290 total classroom hours
3. Approximately 2 years to complete
4. Most of the courses consist of:
 - Text-based workbooks
 - Skills verification on the job
 - Course on CD-ROM
5. Curriculum can be purchased from approved NAEC vendor, Elevator World, Inc., at www.elevatorbooks.com using the student number assigned upon approval of candidate application.
6. Upon completion of each unit, an exam will be given:
 - Closed book
 - Multiple choice
 - Score of 85% or higher to pass
 - Questions chosen from study questions at end of each unit chapter
 - Online at www.naec.org (testing conditions in accordance with NAEC certification guidelines)
7. CET Level 2 Exam – Upon completion of CET Level 2, the candidate will be required to pass a CET Level 2 Exam. All rules applying to unit exams apply to the CET Level 2 Exam.

Upon successful completion of all the unit exams, all required skills verification, all required web-based courses and the CET Level 1 and Level 2 Exams, the candidate will become a Certified Elevator Technician and be given a certification card and number from the NAEC Certification Board. This certification is renewable every year by December 31st. The yearly re-certification requires 10 contact hours of continuing education every year from an NAEC-approved provider. (See www.naec.org for approved CET courses.)

Curriculum Summary

(Expanded outline page 5)

LEVEL 1 – CORE CURRICULUM

The core level of Certification Education should take approximately two years to complete and includes 290 class hours and 4,000 field hours.

Class hours

Basic training (recommended course for new hires)12

COURSE 1 – INTRODUCTION TO ELEVATORS

(Field hours – 1,000)

Unit 1: Elevator History and Basic Safety35
Unit 2: Basic Print Reading24
Unit 3: Handling Materials and Tools • Rigging and Hoisting20

COURSE 2 – BASICS OF INSTALLING ELEVATOR COMPONENTS

(Field hours – 1,000)

Unit 4: Pit Equipment25
Unit 5: Guide Rails10
Unit 6: Machine Room Equipment30
Unit 7: Hoistway Equipment25

COURSE 3 – MAINTENANCE PRACTICES AND TESTING

(Field hours – 1,000)

Unit 8: General Maintenance Practices22
Unit 9: Maintenance of Traction Elevators30
Unit 10: Maintenance of Hydraulic Elevators20
Unit 11: Maintenance of Escalators and Moving Walks15

COURSE 4 – ELECTRICAL SAFETY AND ELECTRICAL THEORY

(Web-based course)

(Field hours – 1,000)

Basic Math10
Basic Electricity6
AC Circuits6
National Electrical Code6
Electrical Safety6

LEVEL 2 – ADVANCED CURRICULUM

The advanced level of Certification Education should take approximately two years and includes 290 classroom hours and 4,200 field hours.

COURSE 5 – ELEVATOR DOORS AND EQUIPMENT

Class hours

(Field hours – 300)

Unit 12: Elevator Doors and Equipment20

COURSE 6 – TRACTION ELEVATORS: MOTORS, MOTOR CONTROL AND FAULT FINDING

(Field hours – 1,400)

Part 1: AC and DC Motors, Generators and Motor Control65
Part 2: Elevator Related Circuits and Basic Circuit Analysis40

COURSE 7 – ELECTRICAL WIRING AND EQUIPMENT

(Field hours – 300)

Unit 13: Construction, Wiring and Equipment2

COURSE 8 – HYDRAULIC THEORY AND INSTALLATION

(Field hours – 400)

Unit 14: Hydraulic Theory and Installation35

COURSE 9 – BASIC ELECTRONICS AND FUNDAMENTALS

(Field hours – 800)

Unit 15: Study Questions and Skills for Electronics and Solid State40

COURSE 10 – MACHINERY TROUBLESHOOTING AND ROPE REPLACEMENT

(Field hours – 400)

Unit 16: Elevator Rope Replacement6

Unit 17: Machinery Troubleshooting/Repair24

COURSE 11 – ESCALATORS AND MOVING WALKS

(Field hours – 300)

Unit 18: Escalators and Moving Walks20

COURSE 12 – ACCESSIBILITY

(Field hours – 300)

Unit 19: Introduction to the Vertical Transportation Industry (CAT Unit 1)20

EXPANDED CURRICULUM OUTLINE LEVEL 1 – CORE CURRICULUM

BASIC TRAINING

(Recommended for new hires, but not required. NAEC will assist with an outline or suggestions.)

Class hours – 12 hours

Field hours – 400 hours

- A. Public Relations
- B. Communications
- C. Work Ethic
- D. Study Habits
- E. Rewards
- F. Paperwork
- G. Policy and Procedure Requirements
- H. Minimum Qualifications – TABE Testing
- I. Tools for Success (sexual harassment and first aid courses to be delivered by local providers)

MATERIALS VENDORS:

- CTB/McGRAW-HILL's Tests of Adult Basic Education (TABE)
- PRIMEDIA Web-Based Education: *Safety Orientation*
- Elevator World, Inc.: *Sam and Samantha*

COURSE 1 – INTRODUCTION TO ELEVATORS

Class hours – 79

Field hours – 1,000

COURSE 1 Print materials are available in a complete kit from Elevator World, Inc. at <http://www.elevatorbooks.com>

COURSE 1 Web-based education is available from PRIMEDIA Workplace Learning via a link on NAEC's website <http://www.naec.org>

Upon completion of Course 1, the student should have:

- Gained knowledge of elevator history and equipment.
- Gained knowledge of overall safe methods of operation in the industry.
- Gained knowledge of the elevator related drawings and terminology used in the industry.
- Demonstrated the ability to properly handle material and assist in hoisting and rigging.
- Demonstrated the ability to identify, use and care for the tools involved in the industry.
- Demonstrated the ability to identify, use and care for the personal protective equipment.

Additional Text-Based Materials Required Includes:

- *Elevator Industry Field Employees' Safety Handbook*

- *Field Maintenance Guide* by Zack McCain
- *Safety Training for Elevator Service and Construction* (Video)

Unit 1: ELEVATOR HISTORY AND BASIC SAFETY

1. History of Elevators
2. Elevator Industry Organizations
3. Anatomy of an Elevator
4. Types of Elevators and Driving Machines
5. Escalators and Moving Walks
6. Applicable Codes and Publications
7. Work of the Elevator Professional
8. General Safety
Additional Web-Based Education Requirement
Includes: *Back Safety*
9. Component Installation Safety Practices
Additional Web-Based Education Includes: *Ladders and Scaffolds • Fall Protection*
10. Service Safety
11. Terminology

Unit 2: BASIC PRINT READING

1. Print Terminology
2. Drawing to Scale
3. Introduction to Installation Drawings
4. Detail Drawing and Layout
5. Fits, Tolerances and Fasteners
Additional Web-Based Education
Includes: *Mechanical Fasteners • Electrical Fasteners*

Unit 3: HANDLING MATERIALS AND TOOLS

• RIGGING AND HOISTING

1. Handling Materials and Tools
Additional Web-Based Education
Includes: *Introduction to hand tools, power tools and precision measuring tools*
2. Rigging and Hoisting
Additional Web-Based Education Includes: *Basics, basic lifting and heavy lifting*
3. Handling Materials – Storage at the Jobsite

COURSE 2 – BASICS OF INSTALLING ELEVATOR COMPONENTS

Class hours – 90

Field hours – 1,000

COURSE 2 Print materials are available in a complete kit from Elevator World, Inc. at <http://www.elevatorbooks.com>

Upon completion of Course 2, the student should have:

- Gained fundamental knowledge of all components that comprise an elevator installation.
- Gained fundamental knowledge of the method of installing each component.
- Gained fundamental knowledge of the code related requirements for each component.

Additional Text-Based Materials Required Includes:

- *The Installation Manual*
- *Electric Elevators* by Fred Hymans

Unit 4: PIT EQUIPMENT

1. Introduction and Pit Construction
2. Buffers
3. Governor Rope Tension Sheaves
4. Compensating Equipment
5. Tension Sheaves for Selectors and Floor Controllers
6. Limit Switches

Unit 5: GUIDE RAILS

1. Guide Rail Construction and Code Requirements
2. Plumbing the Hoistway
3. Guide Rail-Bracket Fastening and Setting
4. Installing the Guide Rails
5. Guide Rail Gauging, Aligning and Filing

Unit 6: MACHINE ROOM EQUIPMENT

1. Machine Installation
2. Machine Room Accessories and Installation
3. Hydraulic Components

Unit 7: HOISTWAY EQUIPMENT

1. Car and Counterweight Assemblies
2. Elevator Rope and Roping
3. Hydraulic Driving Components
4. Top of Car Equipment
5. Operating Fixtures and ADA

COURSE 3 – MAINTENANCE PRACTICES AND TESTING

Class hours – 87

Field hours – 1,000

COURSE 3 Print materials are available in a complete kit from Elevator World, Inc. at <http://www.elevatorbooks.com>

COURSE 3 Web-based education is available from PRIME MEDIA Workplace Learning via a link on NAEC's website <http://www.naec.org>

Upon completion of Course 3, the student should have gained:

- Fundamental knowledge of all components that comprise an elevator installation.
- Fundamental knowledge of the method for maintaining, adjusting and performing the replacement of maintenance-related components.
- Fundamental knowledge of code-related requirements.
- Fundamental knowledge of code-required system testing.

Additional Text-Based Materials Required Includes:

- *The Maintenance Manual* by Zack McCain
- *The Maintenance Field Guide* by Zack McCain
- *The Inspection Handbook* by Zack McCain
- *Sam and Samantha* by George R. Strakosch
- *The Elevator Industry Field Testing Guide*

Unit 8: GENERAL MAINTENANCE PRACTICES

1. Lubrication
2. Bolting Practices
3. Elevator Ropes
4. Wiring Diagrams
5. Belts and Chains
6. Code Requirements
7. Testing Requirements,
Additional Web-Based Education
Required Includes: *Basic Lubrication*

Unit 9: MAINTENANCE OF TRACTION ELEVATORS

1. Introduction
2. Maintenance inside the Car and outside the Hoistway
3. Maintenance in Machine Room
4. Top of Car and Hoistway Maintenance
5. Pit and Bottom of Car Maintenance
6. Maintenance Code Requirements
7. Tests

Unit 10: MAINTENANCE OF HYDRAULIC ELEVATORS

1. Introduction
2. Maintenance inside the Car and outside the Hoistway
3. Maintenance in Machine Room
4. Top of Car and Hoistway Maintenance
5. Pit and Bottom of Car Maintenance
6. Maintenance Code Requirements
7. Tests

Unit 11: MAINTENANCE OF ESCALATORS AND MOVING WALKS

1. Introduction
2. Exterior Maintenance
3. Interior Maintenance
4. Testing

COURSE 4 – ELECTRICAL SAFETY AND ELECTRICAL THEORY

Class hours – 34

Field hours – 1,000

COURSE 4 is delivered through PRIMEDIA Workplace Learning's web-based education system. It is accessible via a link from NAEC's website, <http://www.naec.org>.

COURSE 4 Skills Verification Portfolio is available from Elevator World, Inc. at <http://www.elevatorbooks.com>.

Upon completion of Course 4, the student should:

- Have an understanding of the basic aspects of working safely around electrical equipment.
- Have an understanding of the principles associated with electricity and electrical circuits.
- Be able to explain where electricity comes from; what voltage, current and resistance are and how their values can be calculated for various types of circuits.
- Be able to explain how electrical circuits are affected by induction, inductance and capacitance.
- Have an understanding of the basic concepts associated with the operation of AC circuits.
- Be familiar with the electrical code and its purpose.

ELECTRICAL SAFETY AND ELECTRICAL THEORY

Part 1: Basic Math

1. Working with Numbers
2. Angles and Shapes
3. Areas of Volume

Part 2: Basic Electricity Review

1. Basic Concepts
2. Circuit Types
3. Circuit Characteristics

Part 3: AC CIRCUITS

1. AC
2. Inductance
3. Capacitance
4. AC Power

Part 4: National Electrical Code

1. Overview
2. Using the NEC

Part 5: Electrical Safety

1. Electrical Concepts
2. Shock
3. Hazards

When all courses and skills in the Core Curriculum are complete, the candidate will take an Associate Elevator Technician (AET) Test. Only after passing this exam can the candidate move on to Years Three and Four of the Advanced Curriculum.

EXPANDED CURRICULUM OUTLINE **CET LEVEL 2 – ADVANCED CURRICULUM**

The CET Advanced Curriculum covers approximately two years of study and is divided into two segments. CET Year-Three contains materials and instructions on Courses 5-7 and any supplemental print materials needed. CET Year-Four contains materials and instructions on Courses 8-12 and any supplemental print materials needed. Unit books and all additional text-based materials covering each year of study are available in a complete kit from Elevator World, Inc. at <http://www.elevatorbooks.com>.

Additional text-based materials required for Year Three (Courses 5-7) include:

- *Education Focus Compilation*
- *Electrical Engineering Pocket Handbook*
- *Superflex Installation Guide* (Draka)
- *Whisperflex Installation Guide* (Draka)

Additional text-based materials required for Year Four (Courses 8-12) include:

- *Library of Basic Electronics* by Sy Levine
- *ADA and Building Transportation* by Ed Donoghue
- *Elevators* by John Jallings
- *Cylinder Head Packing Booklet* (From Texacone)

YEAR THREE

COURSE 5 – ELEVATOR DOORS AND EQUIPMENT

Class hours – 20

Field hours – 300

UNIT 12: ELEVATOR DOORS AND EQUIPMENT

This unit will explain the installation of elevator hoistway entrances and doors, including car door and operators and the principles of operations of various types of door operators.

1. Door Types
2. Preparation of Shaft and Clearances
3. Installation of Sliding Passenger Elevator Entrances
4. Hoistway Equipment
5. Car Equipment
6. Swing Hoistway Doors
7. Types of Freight Doors
8. Preparation of Site
9. Freight Door Systems
10. Car Gate System
11. Retiring Cam System
12. Controller
13. Final Adjustments and Maintenance
14. Dumbwaiter Overview

15. Preliminary Drawings and Field Conditions
16. Anatomy of Dumbwaiter Doors and Installation
17. Anatomy of Dumbwaiter Gates and Installation
18. Dumbwaiter Door Interlocks and Cams
19. Maintenance, Troubleshooting and Replacement

Additional Web-based or CBT education suggested:

Manufacturers' video of installation and maintenance techniques

COURSE 6 – TRACTION ELEVATORS: MOTORS, MOTOR CONTROL AND FAULT FINDING

Class hours – 105

Field hours – 1,400

Course 6 is an interactive CD from LIEA, a NAEC approved provider. This course will be provided in the Year Three Package available from www.elevatorbooks.com.

Upon completion of Course 6, the student should:

- Have obtained a detailed knowledge of the construction and operation of AC machines used on elevator systems.
- Have obtained a detailed knowledge of the construction and operation of DC machines used on elevator systems.
- Understand the Ward-Leonard System of obtaining DC supply and relate the Ward-Leonard System to elevator control.
- Be able to diagnose electrical faults and apply remedial action.
- Be able to sketch mechanical and electrical wiring diagrams.
- Be able to explain with the aid of diagrams, the construction and operation of field regulators.

PART 1: AC and DC Motors, Generators and Motor Control

1. AC Motors
2. DC Motors
3. Motor Control
4. Regulators
5. Gearless Machines
6. Braking
7. Electrical Fault Finding

PART 2: Elevator Related Circuits and Basic Circuit Analysis

1. Elevator Related Circuits
2. Schematic Circuit Diagrams
3. Testing Instruments and Procedures
4. Sequence of Investigation

COURSE 7 – ELECTRICAL WIRING AND EQUIPMENT

Class hours – 20

Field hours – 300

UNIT 13: CONSTRUCTION, WIRING AND EQUIPMENT

This course will detail all the electrical work done by the elevator technician on an elevator installation. This includes the installation of all conduit, duct, fittings, operating and signaling fixtures, wiring and connections between the different components of an elevator.

1. Planning and Installation
2. Raceway and Conductor Installation
3. Traveling Cable Installation
4. Powering Up the Elevator

YEAR FOUR**COURSE 8 – HYDRAULIC THEORY AND INSTALLATION**

Class hours – 35
Field hours – 400

UNIT 14: HYDRAULIC THEORY AND INSTALLATION

This course will define a hydraulic elevator and explain its operation and the installation of components of a hydraulic elevator.

1. Basic Hydraulic Theory
2. Drilling and Casing the Jack Hole
3. Installing the Jack and Components
4. Installing and Piping the Hydraulic Machines
5. Guide Rails, Car Slings, Entrances and Doors, and Wiring
6. Car Enclosure and Operation

COURSE 9 – BASIC ELECTRONICS AND FUNDAMENTALS

Class hours – 40
Field hours – 800

UNIT 15: STUDY QUESTIONS AND SKILLS FOR ELECTRONICS AND SOLID STATE

Upon completion of this course, the student should:

- Have gained knowledge of electronic and solid-state devices and components and its use in the elevator industry.
- Have demonstrated the ability to identify, use and care for tools and instruments.

1. Basic Concepts
2. Resistors
3. Capacitors
4. Switches, Keyboards and Relays
5. Magnetic Components
6. Miscellaneous Passive Components and Technology Trends
7. Discrete Semiconductors, Definitions and General Information
8. Diode Manufacture
9. Diode Characteristics and Specifications

10. Diode Applications
 11. Thyristors (AC Switches)
 12. Bipolar Transistors
 13. Field-Effect Transistors (FETs)
 14. Light-Emitting Diodes (LEDs)
 15. LED Displays
 16. Other Display Technologies
 17. Opto-Couplers (Opto-Isolators)
 18. Solid-State Relays (SSRs) and Optoelectronic Technology Update
 19. Skills Verification
- Additional Text-Based Materials Required
Include: *Library of Basic Electronics, Books 1 and 2* by Sy Levine

COURSE 10 – MACHINERY TROUBLESHOOTING AND ROPE REPLACEMENT

Class hours – 30
Field hours – 400

The first part of this course is about the care and condition of wire rope and the methods for replacement of wire ropes and chains.

The second part of this course is about the identification, care, diagnosis and replacement of elevator machinery and its components.

UNIT 16: ELEVATOR ROPE REPLACEMENT

1. Wire-Rope Terminology
2. Procedures for Inspection and Criteria for Rope Removal
3. Additional Inspections Prior to Re-Roping
4. Re-Roping
5. Field Maintenance and Troubleshooting

UNIT 17: MACHINERY TROUBLESHOOTING/REPAIR

1. Mechanical Driving Systems
2. Troubleshooting, Diagnosis and Planning
3. Repair and Replacement of Machinery Components
4. Related Mechanical Equipment
5. Testing and Lubrication of Equipment

COURSE 11 – ESCALATORS AND MOVING WALKS

Class hours – 20
Field hours – 300

This course examines the components of an escalator and the installation of these components.

UNIT 18: ESCALATORS AND MOVING WALKS

1. Safety
2. Escalator/Moving Walk Familiarization and Safety
3. Escalator/Moving Walk Safety Code

4. Introduction to Escalator Installation Procedure
5. Truss Installation
6. Truss Adjusting and Anchoring
7. Installing Center Line on Truss
8. Upper and Lower Carriage Installation
9. Controller Installation
10. Step and Handrail Installation
11. Final installations, Tests and Inspections
12. Maintenance Requirements

COURSE 12 – ACCESSIBILITY

Class hours – 20

Field hours – 300

This course examines the different accessibility products and the installation of these components.

UNIT 19: INTRODUCTION TO THE VERTICAL TRANSPORTATION INDUSTRY

Unit 19 of CET is also Unit 1 of the Certified Accessibility and Private Residential Lift Technician (CAT) Program. It is a “bridge unit” which can be counted towards credit in both programs.

1. Vertical Transportation History
2. Organization Relevant to the Vertical Transportation Industry
3. National Applicable Codes and Regulations
4. Accessibility Industry Glossary of Terms
5. Types of Accessibility and Residential Equipment
6. General Safety
7. Introduction to Basic Electricity
8. Print Reading
9. Installation

FINAL EXAM

Upon completion of CET Level 2 the candidate will be required to pass a CET Level 2 Exam. All rules applying to unit exams apply to the CET Level 2 Exam. Upon successful completion of all unit exams, all required skills verifications, all web-based courses and the CET Level 1 and 2 Exams the candidate will become a Certified Elevator Technician and be given a certification card and number from the NAEC Certification Board.

USE OF THE CET LOGO

Upon awarding of a CET Certification, the awardee may use the respective NAEC CET logo and/or status on his or her uniform, clothes, business cards, letterhead, and other business items. In all instances, the use of the CET logo and/or status is an individual-based logo and/or status and may only be used by the individual duly authorized by the NAEC Certification Board. Under no circumstance may the CET Logo and/or status be used in a

manner to imply that a company or organization is certified under the NAEC Certification Program. Also, use of the NAEC CET logo and/ status is prohibited in such a manner as to bring the NAEC or the NAEC Certification Board and program into disrepute or in a manner that is considered misleading.

Use of the NAEC CET logo and/or status in accordance with these provisions by an individual is authorized as long as that individual is certified as a CET by the NAEC Certification Board. Authorization for use of the NAEC CET logo and/or status is automatically revoked in the event that an individual fails to properly apply and receive renewal of the certification from the Certification Board, in the event that the respective individual's CET certification is suspended or revoked, or in instances the individual has improperly used the CET logo and/or status.

AFTER GRADUATION

Continuing Education Requirements

CET Continuing Education – Successfully complete ten (10) contact hours each year of NAEC approved continuing education designated for CET. All applicable courses must be completed in the current calendar year. There is a maximum of 4 Continuing Education hours that can be carried over from one year to the next.

Safety Course – At least one (1) contact hour in safety must be included in the ten (10) contact hours required for continuing education. Safety hours **cannot** be rolled over. A maximum of three (3) contact hours in safety will be accepted. All safety contact hours in excess of the maximum will **not** be applied towards CET renewal contact hours.

Courses submitted for the previous year's renewal **cannot** be taken again and applied towards the current year's renewal - there must be at least 1 year between completion dates before a repeat course can be given credit again.

CET/CAT Dual Continuing Education – Successfully complete fifteen (15) contact hours each year of NAEC approved continuing education. A minimum of ten (10) contact hours designated for CET and five (5) contact hours designated for CAT. All applicable courses must be completed in the current calendar year.

Safety Course – At least one (1) contact hour in safety must be included in the fifteen (15) contact hours required for continuing education. Safety hours **cannot** be rolled over. A maximum of three (3) contact hours in safety will be accepted. All safety contact hours in excess of the maximum will **not** be applied towards CET/CAT renewal contact hours.

Courses submitted for the previous year's renewal **cannot** be taken again and applied towards the current year's renewal - there must be at least 1 year between completion dates before a repeat course can be given credit again.

The NAEC Education Committee has approved hundreds of courses for continuing education. New courses and programs are approved every month; the NAEC website (www.naec.org) contains the complete updated list broken down into text-based, web-based, seminar/classroom and article-based.

Continuing Education is available at many industry events including those of NAEC, NAVTP, NAESA, Elevator-U, ECNY, etc.

Text-based continuing education is available from Elevator World, Inc. based on the following books:

- *The Elevator Industry Field Employees' Safety Handbook*
- *Elevator Maintenance Manual* by Zack McCain
- *The Educational Focus Compilation*

Six or more articles a year in the monthly ELEVATOR WORLD magazines provide 1-3 hours of CE each.

Many industry vendors and suppliers have made their education available for continuing education credit. Please see a complete list at www.naec.org, www.naec.org/UserFiles/Cont_Ed_4.2.08.pdf.

Cost of the CET-S® Program June 1, 2008

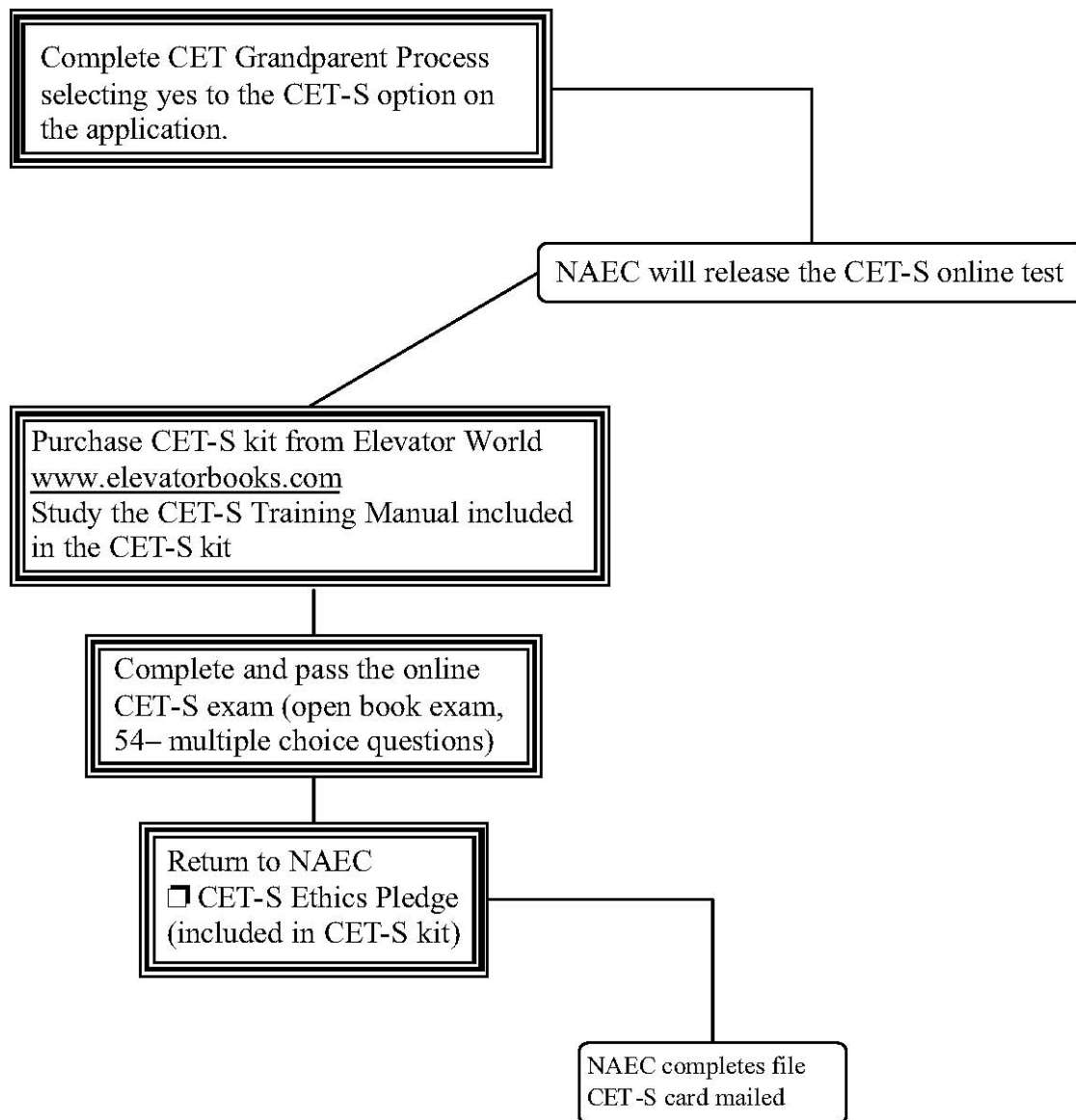
The first step in getting your company started in the CET Candidate Program is to get your company's CET-S in place. (See Flow Chart on next page.) The CET-S is the company administrator of the program. The CET-S is a CET who has successfully completed the NAEC CET Supervisor Training Course. Each Participating Company must have a CET-S in place.

CET-S Fees:

<p>CET Special Circumstances Application Fee includes:</p> <ul style="list-style-type: none"> • One-time Application Fee • Testing (includes 2 attempts at passing test, third attempt will require an additional testing fee of \$100) • (Please note that the applicant must meet Qualification Requirements) 	<p>\$500.00 NAEC Member \$900.00 Non-member</p>
<p>CET-S Core Curriculum Kit includes:</p> <ul style="list-style-type: none"> • CET-S Training Manual • CET-S Log Book • Unit 1 – Elevator History and Basic Safety • Unit 2 – Basic Print Reading • Unit 3 – Handling Materials & Tools / Rigging & Hoisting • Unit 4 – Pit Equipment • Unit 5 – Guide Rails • Unit 6 – Machine Room Equipment • Unit 7 – Hoistway Equipment • Unit 8 – General Maintenance Practices • Unit 9 – Maintenance of Traction Elevators • Unit 10 – Maintenance of Hydraulic Elevators • Unit 11 – Maintenance of Escalators & Moving Walks • Poster of Elevator Systems <p>(Please note the CET-S Kit can be a one-time purchase – the kit can be maintained in-house and used by more than one CET-S. The CET-S Training Manual and CET-S Log Books cannot be shared, but can be purchased separately after the purchase of the initial Kit if you have multiple CET-S' in your company)</p>	<p>\$600.00 NAEC Member \$750 Non-member</p>
<p>CET-S Advanced Curriculum Kit Includes:</p> <ul style="list-style-type: none"> • Year 3 & 4 Course Map • CET-S Training Manual • CET-S Log Book • Course 5 - Unit 12 - Elevator Doors and Equipment • Course 6 CD Rom - Traction Elevators/Motors, Motor Control and Faultfinding (From the LIEA program) • Course 7 - Unit 13 - Construction Wiring and Equipment • Course 8 - Unit 14 - Hydraulic Theory and Installation • Course 9 - Teachers Guide to Questions and Exercises for Basic Electronics and Fundamentals • Course 10 - Unit 16 - Elevator Rope Replacement • Course 10 - Unit 17 - Machine Troubleshooting and Repair • Course 11 - Unit 18 - Escalators and Moving Walks • Course 12 - Unit 19 - Accessibility Equipment, Safety and installation • Courses 5 - 12 Skills Verification sheets 	<p>\$600.00 NAEC Member \$750.00 Non-member</p>
<p>CET-S Core and Advanced Curriculum Combination Kit</p>	<p>\$1,000.00 NAEC Member \$1,200.00 Non-member</p>
<p>TABE-PC Starter Set - Includes initial starter software and 7 test administrations</p>	<p>\$175.00 NAEC Member \$200.00 Non-member</p>
<p>TABE-PC 50 - Includes 50 test administrations (must have previously purchased the starter set)</p>	<p>\$442.00 NAEC Member \$530.00 Non-member</p>
<p>TABE-PC 100 - Includes 100 test administrations (must have previously purchased the starter set)</p>	<p>\$837.00 NAEC Member \$1,005.00 Non-member</p>

CET-S Process

*Employer must have a CET-S in place to enroll personnel in the Candidate Program



Congratulations, you are a CET-S!

SUPPLEMENTAL BOOKS FOR CET-S

The CET-S (Supervisor) who is coaching CET Candidates in the program will have all of the Course Units in his/her CET-S package. However some books that the Candidate receives as a supplemental reading part of the program are not in the CET-S kit. Attached is a book list broken down by year. CET-Ss may order these books separately as needed or as a supplemental library for the company.

CET - The Core Curriculum - Year 1-2

• DVD "Safety While Servicing and Installing Elevators"	\$ 175.95
• Field Maintenance Guide (by McCain)	\$ 13.81
• Elevator Industry Field Employees Safety Handbook	\$ 9.75
• The Installation Manual	\$ 39.10
• Electric Elevators by Hymens	\$ 43.99
• The Maintenance Manual (by McCain)	\$ 53.76
• The Field Inspection Handbook	\$ 18.49
• Elevator Industry Testing Guide	\$ 9.78
• Sam and Samantha – The Maintainers	\$ 21.89
• Identification, Installation, Lubrication and Maintenance of Power Transmission Roller Chains in ANSI B29 & B29.3	\$ 10.00
Total	\$ 396.52

CET – The Advanced Curriculum - Year 3

• Education Focus Compilation	\$ 53.76
• Electrical Engineering Pocket Handbook	\$ 9.78
Total	\$ 63.59

CET – The Advanced Curriculum – Year 4

• Elevators by Jallings	\$ 68.00
• ADA and Building Transportation	\$ 42.50
• Basic Electronics – vols 1 & 2	\$ 110.50
Total	\$ 221.00

Material for all four years = \$681.11

CET-Ss who have purchased any of the CET-S kits (Level 1 Core Curriculum, Level 2 Advanced Curriculum or Comprehensive 4-year Kit) may take an additional 10% off of any set of books above.

COST OF THE CET CANDIDATE PROGRAM - JUNE 1, 2008

Once a company has a CET-S available they may enroll candidates in the 4-year CET Candidate Program. The following are fees (tuition and course materials):

First Year Candidate Fees:

Candidate Fee includes: • Administration Fee • Required Web-based education and testing	\$125.00 NAEC Member \$525.00 Non-member
Course I – Introduction to Elevators includes: • Candidates Course Guide • Unit 1 – Elevator History and Basic Safety • Unit 2 – Basic Print Reading • Unit 3 – Handling Materials & Tools / Rigging & Hoisting Skills Verification Portfolio • Poster of Elevator Systems • Video: Safety While Servicing Elevators • Video: Safety While Installing Elevators • Elevator Industry Field Employees' Safety Handbook • Field Maintenance Guide by Zack McCain • First issue of complimentary subscription of Elevator World	\$500.00 NAEC Member \$600.00 Non-member
Course II – Basics of Installing Elevator Components • Candidates Course Guide • Unit 4 – Pit Equipment • Unit 5 – Guide Rails • Unit 6 – Machine Room Equipment • Unit 7 – Hoistway Equipment • Skills Verification Portfolio • The Installation Manual by Elevator World • Electric Elevators by Hymens	\$550.00 NAEC Member \$650.00 Non-member
Cost for First Year of Program per Candidate	\$1,175.00 NAEC Member \$1,775.00 Non-member

Second Year Candidate Fees:

Candidate Fee includes: • Administration Fee • Required Web-based education and testing	\$125.00 NAEC Member \$525.00 Non-member
Course III – Maintenance Practices and Testing includes: • Candidates Course Guide • Unit 8 – General Maintenance Practices • Unit 9 – Maintenance of Traction Elevators • Unit 10 – Maintenance of Hydraulic Elevators • Unit 11 - Maintenance of Escalators and Moving Walks • Skills Verification Portfolio • The Maintenance Manual by Zack McCain • The Maintenance Field Guide by Zack McCain • The Inspection Handbook by Zack McCain • Identification, Installation, Lubrication and Maintenance of Power Transmission Roller Chains in ANSI B29.1 & B29.3 • The Field Testing Handbook by Robert Seymour • Sam And Samantha by George Strakosch	\$560.00 NAEC Member \$660.00 Non-member
Course IV – Electrical Safety Web-based Courses • Electrical Safety • Basic Electricity Review • AC Circuits • National Electrical Code • Course 4 Skills Portfolio	\$20.00 NAEC Member \$30.00 Non-member
Cost for Second Year of Program per Candidate	\$705.00 NAEC Member \$1,215.00 Non-member

Third Year Candidate Fees:

Candidate Fee includes: • Administration Fee • Required Web-based education and testing	\$125.00 NAEC Member \$525.00 Non-member
Year III Kit- Includes: • Candidates Course Guide (revised) • Year 3 & 4 Roadmap • Course 5 – Doors and Equipment (Unit 12) • Course 5 Skills Portfolio • Course 6 - Motors, Motor Control and Faultfinding. A CD from the LEIA program • Course 6 Skills Portfolio • Course 7 – Electrical Wiring and Equipment (Unit 13) • Course 7 Skills Portfolio • Education Focus Compilation, 1st Edition • Electrical Engineering Pocket Handbook • SuperFlex Installation Guide • WhisperFlex Installation Guide • Current Elevator World magazine with 1-year subscription	\$1050.00 NAEC Member \$1260.00 Non-member
Cost for Third Year of Program per Candidate	\$1175.00 NAEC Member \$1725.00 Non-member

Fourth Year Candidate Fees:

Candidate Fee includes: • Administration Fee • Required Web-based education and testing	\$125.00 NAEC Member \$525.00 Non-member
Year IV Kit – includes: Web-based Courses • Candidates Course Guide • Year 3 & 4 Roadmap • Course 8 – Hydraulic Theory and Installation (Unit 14) • Course 8 Skills Portfolio • Course 9 – Basic Electronic and Fundamentals (Unit 15) • Course 9 Skills Portfolio • Course 10 – Machinery Troubleshooting and Rope Replacement (Unit 16 & 17) • Course 10 Skills Portfolio • Course 11 – Escalators and Moving Walks (Unit 18) • Course 11 Skills Portfolio • Course 12 – Accessibility (taken from CAT Course 1) • Course 12 Skills Portfolio • Library of Basic Electronics by Sy Levine, Vol 1 & 2 • Elevators by John Jallings • ADA and Building Transportation	\$900.00 NAEC Member \$1100.00 Non-member
Cost for Fourth Year of Program per Candidate	\$1025.00 NAEC Member \$1625.00 Non-member

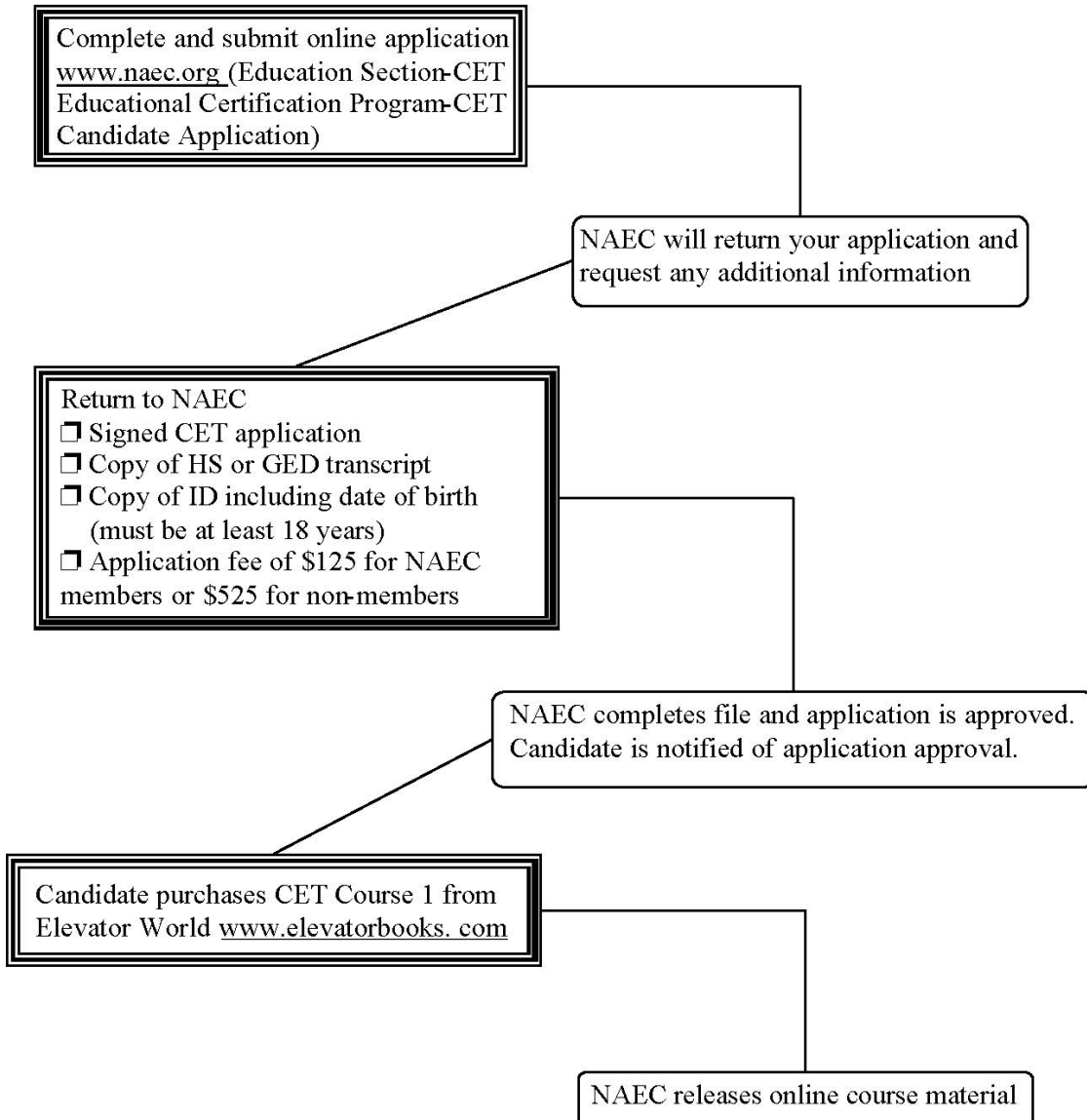
CET Renewal Fees:

CET Renewal Fee:	\$65.00 NAEC Member \$125.00 Non-member
NAEC Sponsored Web-based Continuing Education (prices will vary for non NAEC sponsored courses)	\$35.00 NAEC Member \$50.00 Non-member
CET Renewal Late Fee (if renewal is received after January 30)	\$35.00
CET Reactivation Fee (if file is archived)	\$100.00

Do you have field personnel with less than 10,000 hours (approx. 5-years) of field experience that need to become certified as a CET® ?

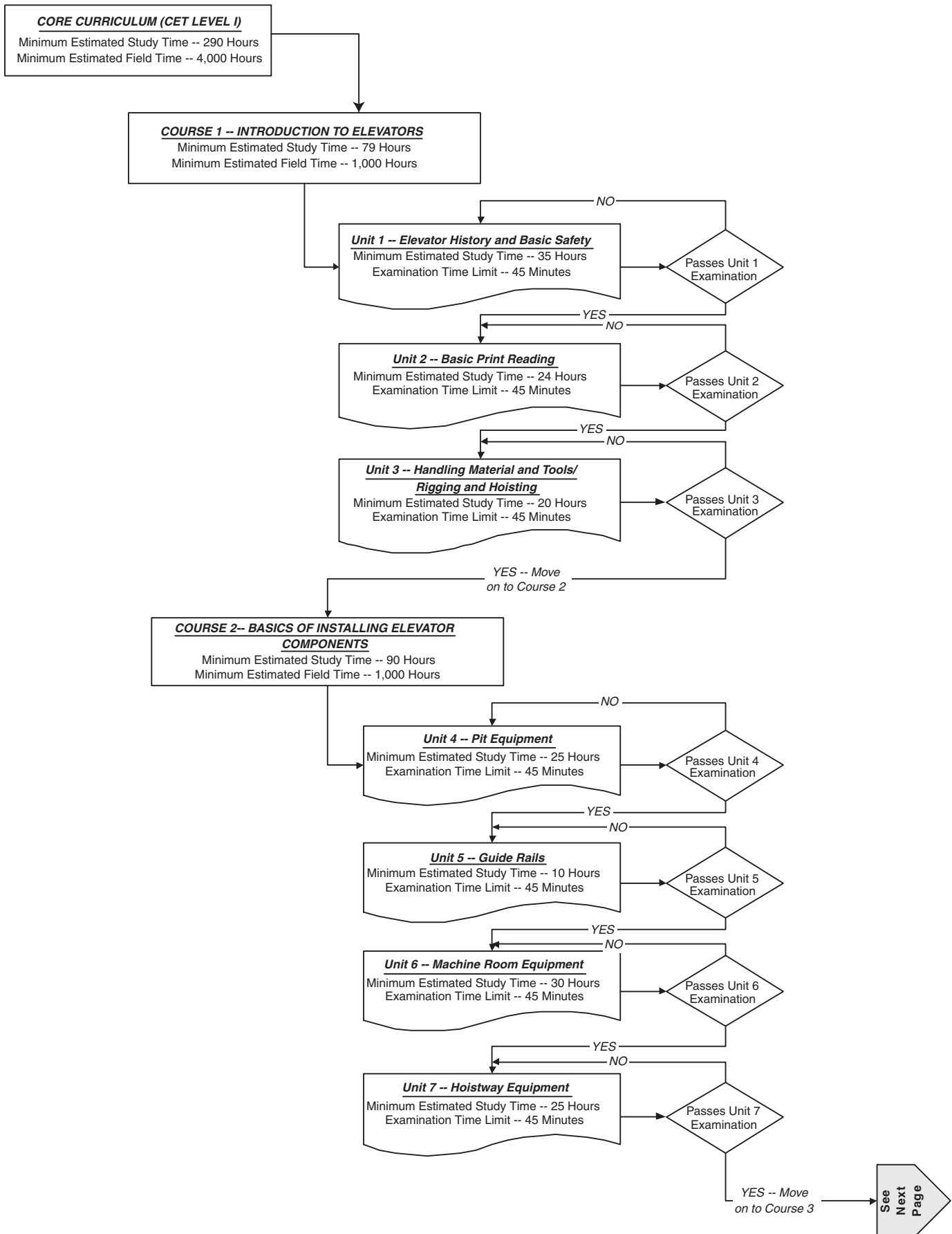
CET Candidate Application Process

*Employer must have a CET -S in place



Begin your studies as a CET® Candidate.

FLOW CHART OF THE CET EDUCATION AND CERTIFICATION PROGRAM



Continued
From
Previous Page

COURSE 3 -- MAINTENANCE PRACTICES AND TESTING
Minimum Estimated Study Time -- 87 Hours
Minimum Estimated Field Time -- 1,000 Hours

Unit 8 -- General Maintenance Practices
Minimum Estimated Study Time -- 22 Hours
Examination Time Limit -- 45 Minutes

Passes Unit 8 Examination

Unit 9 -- Maintenance of Traction Elevators
Minimum Estimated Study Time -- 30 Hours
Examination Time Limit -- 45 Minutes

Passes Unit 9 Examination

Unit 10 -- Maintenance of Hydraulic Elevators
Minimum Estimated Study Time -- 20 Hours
Examination Time Limit -- 45 Minutes

Passes Unit 10 Examination

Unit 11 -- Maintenance of Escalators and Moving Walks
Minimum Estimated Study Time -- 15 Hours
Examination Time Limit -- 45 Minutes

Passes Unit 11 Examination

YES -- Move on to Course 4

COURSE 4 -- ELECTRICAL THEORY
Minimum Estimated Study Time -- 34 Hours
Minimum Estimated Field Time -- 1,000 Hours

Basic Math
Minimum Estimated Study Time -- 10 Hours
Examination Time Limit -- 45 Minutes

Passes Module Examination

Basic Electricity
Minimum Estimated Study Time -- 6 Hours
Examination Time Limit -- 45 Minutes

Passes Module Examination

AC Circuits
Minimum Estimated Study Time -- 6 Hours
Examination Time Limit -- 45 Minutes

Passes Module Examination

National Electrical Code
Minimum Estimated Study Time -- 6 Hours
Examination Time Limit -- 45 Minutes

Passes Module Examination

Electrical Safety
Minimum Estimated Study Time -- 6 Hours
Examination Time Limit -- 45 Minutes

Passes Module Examination

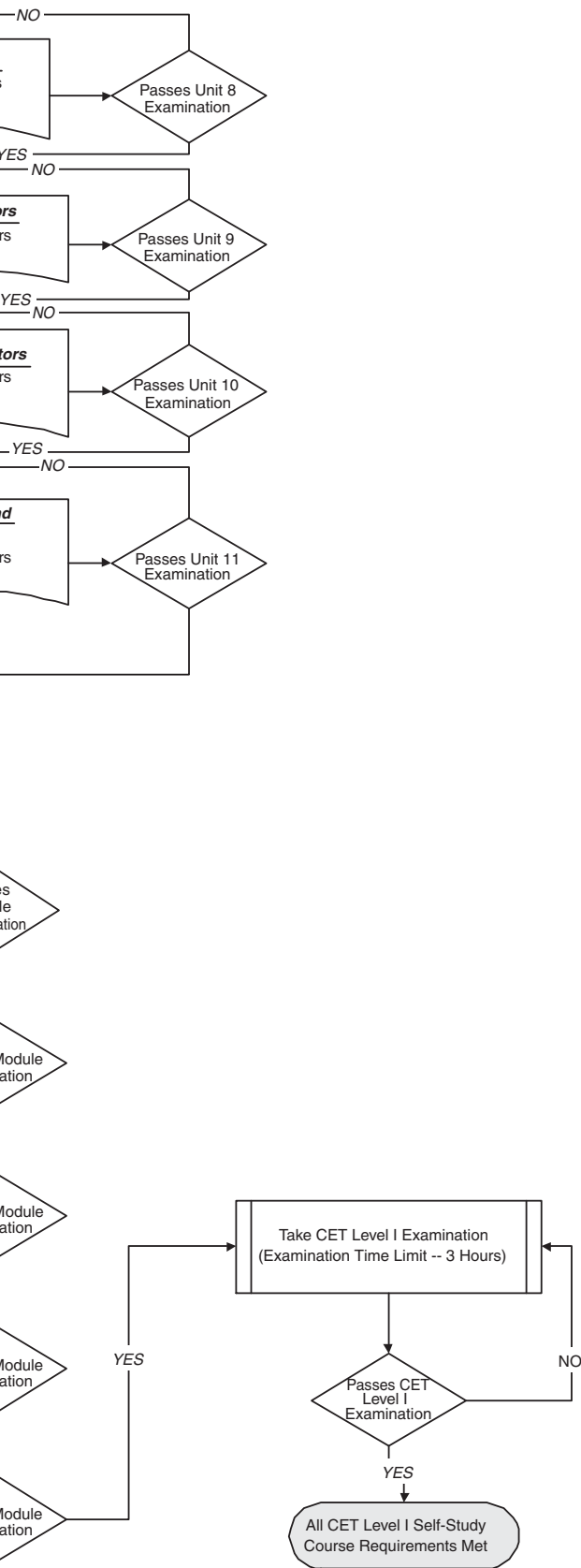
Take CET Level I Examination
(Examination Time Limit -- 3 Hours)

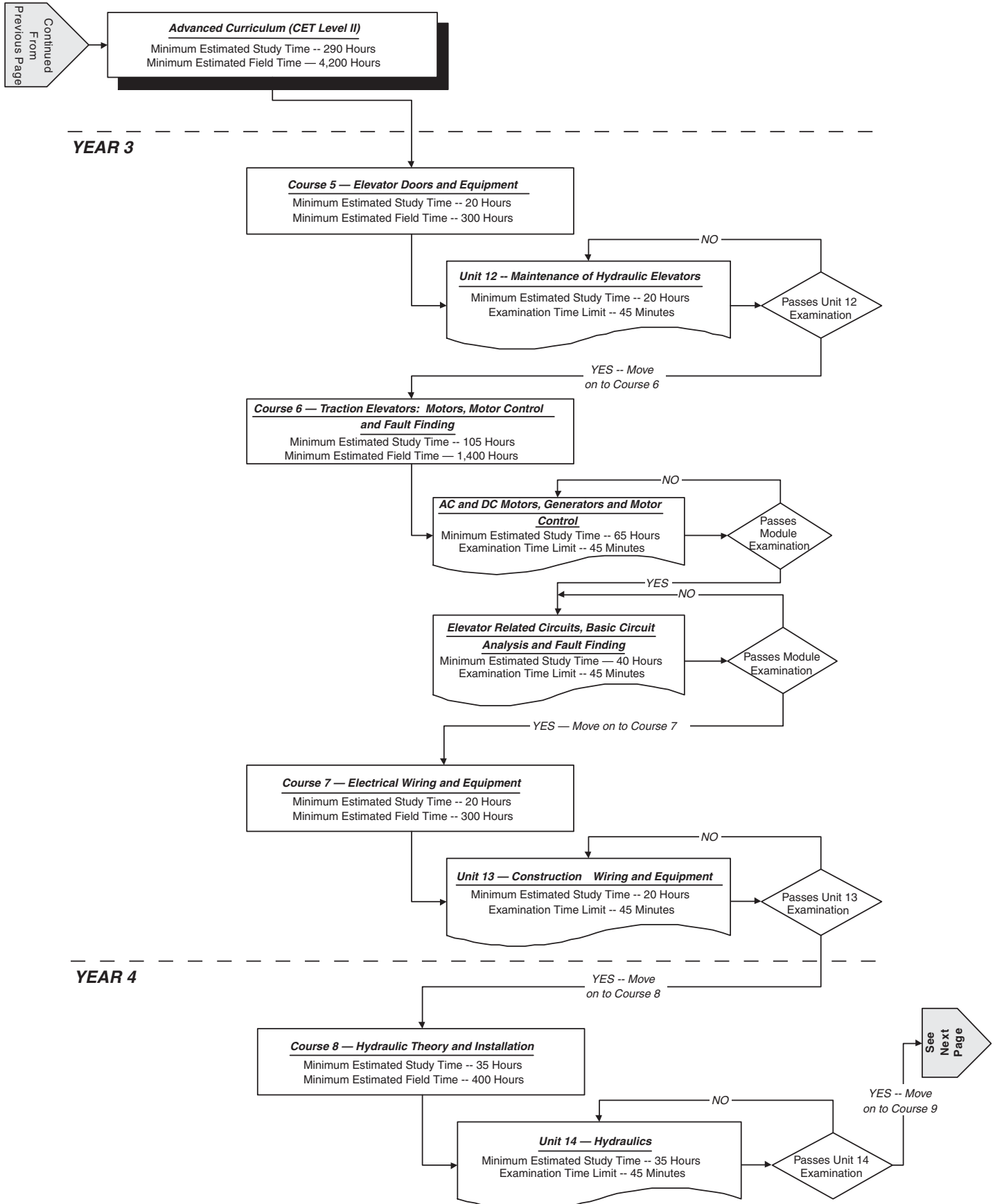
Passes CET Level I Examination

All CET Level I Self-Study Course Requirements Met

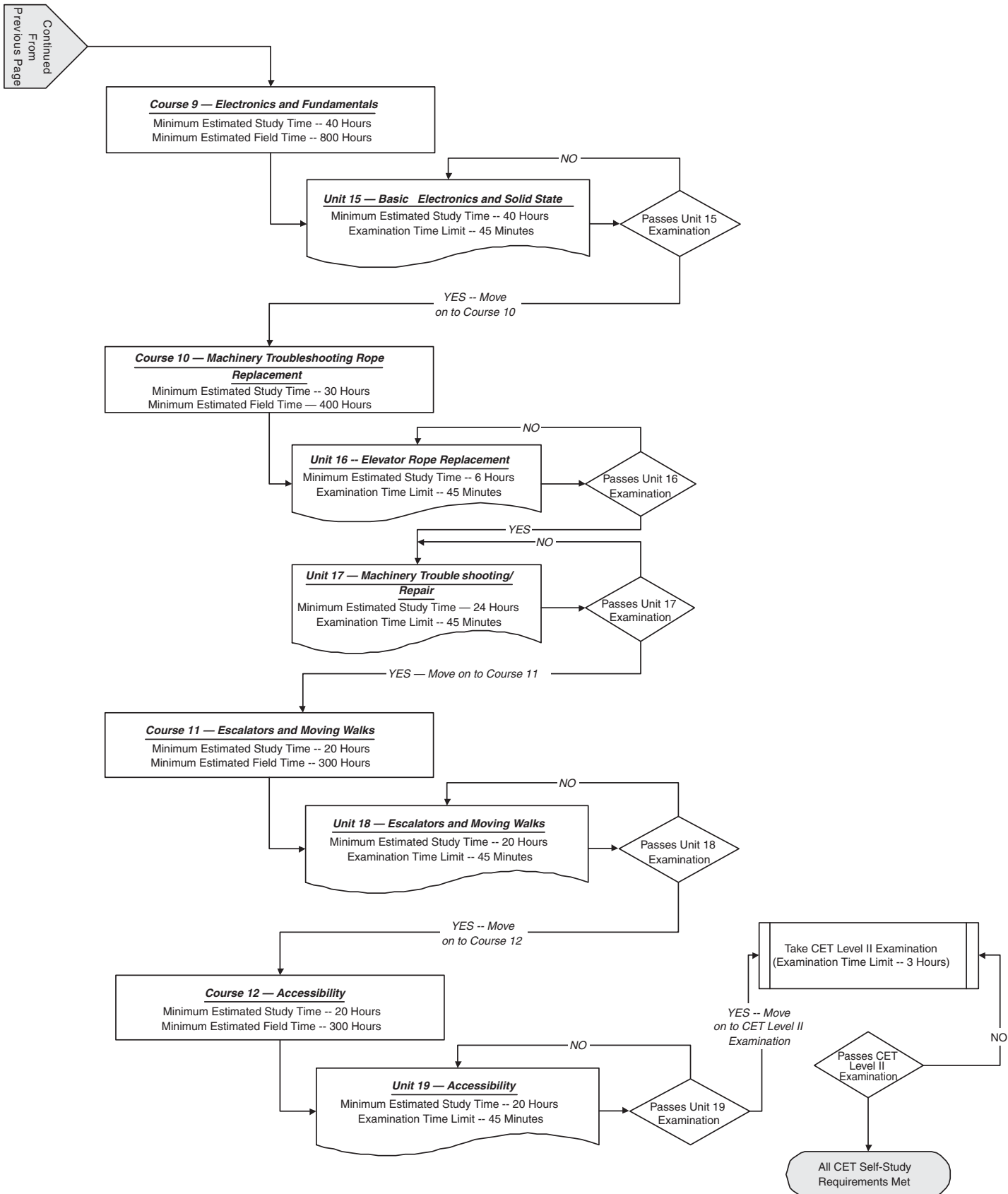
YES

NO





*Courses within Year 3 and within Year 4 may be taken out of order within the given year, however one course may be completed before progressing to another.



CET-S CODE OF ETHICS

Every CET Supervisor (CET-S) is required to sign a document attesting that he or she will follow the NAEC CET-S Code of Ethics. NAEC CET-S Code of Ethics is as follows: In carrying out the responsibilities of a CET-S, I understand and agree to follow all elements of the NAEC CET-S Code of Ethics as specified in the following:

- Ensure that the confidentiality of every CET candidate under my charge is protected and that personal and CET program progress information will only be provided to the management of the sponsoring company and supervisors required to know to properly conduct their jobs.
- Ensure that CET program assessments and examinations of every CET under my charge are properly proctored and that verification by legal identification with pictures is provided to the proctor before the respective CET candidate takes each assessment and examination. In the case of the CET program, proper proctoring means that the CET candidate will not be permitted to use books, notes, or any other information during the examinations and that no one is permitted to help or coach the CET candidate during the examinations. Also, there will be at least one company employee in the same room with the CET candidate during the entire assessment and examination process.
- Ensure that the skills verification for every CET candidate under my charge is signed off only by a qualified CET and that verification by legal picture identification is provided to the CET who will be conducting skills verification for the respective CET candidate.
- Notify my employer and the NAEC in the event that I have witnessed, or have reason to believe, that an individual has obtained CET candidate status, CET, or CET-S certification under false pretenses.
- To act in a professional manner when conducting CET-S responsibilities.

CET CODE OF ETHICS

Every CET Grandparent and CET Candidate is required to sign a document attesting that he or she will follow the NAEC CET Code of Ethics. NAEC CET Code of Ethics is as follows: In studying to become a CET, studying to renew a CET certification, and working as a CET, I understand and agree to follow all elements of the NAEC CET Code of Ethics as specified in the following:

- Providing falsified or misleading information related to my CET renewal constitutes good and sufficient grounds for the immediate cancellation of my CET Certification.
- Providing falsified or misleading information related to my CET Candidate Skills Verification constitutes good and sufficient grounds for the immediate cancellation of my CET Candidate status.
- Providing falsified or misleading information related to a CET Candidate Skills Verification constitutes good and sufficient grounds for the immediate cancellation of my CET status.
- Cheating or receiving help of any type not authorized by the NAEC on any CET examination or test constitutes good and sufficient grounds for the immediate cancellation of my CET or CET Candidate status.
- Providing falsified or misleading information on work-related documents, reports, and logs while working as a CET constitutes good and sufficient grounds for the immediate cancellation of my CET status.
- Failing to follow related industry codes, standards, local and federal laws related to my work-related duties, and company work rules constitutes good and sufficient grounds for the immediate cancellation of my CET status.

APPEALS AND COMPLAINTS ASSOCIATED WITH THE CET™ OR CAT™ PROGRAM

It is the policy of the NAEC Certification Board (Board) that the CET and CAT programs are of quality and that all applicants, candidates, certified persons and their employers, and other parties within the certification process and criteria, as well as the performance of certified persons, have a fair and impartial forum to appeal decisions adversely affecting their certification status and/or a fair and impartial forum for complaints associated with the CET or CAT programs to be heard. Therefore, through this policy, individuals wishing to appeal a decision affecting one's CET/CET-S, CET Candidate, CAT/CAT-S, or CAT Candidate status or having a complaint as to the performance of certified/candidate persons may file an appeal/ complaint within thirty (30) calendar days of the occurrence which the appeal/complaint is about, or of the date on which the Appellant first knew or reasonably should have known of the occurrence. Appeals/complaints are to be submitted to the Certification Board in writing including the full name, postal mailing address, and telephone number of the appellant/complainant and specifying the conditions and circumstances of the appeal/complaint. The Certification Board will not consider anonymous or unsigned appeals/complaints. The written and signed appeal/complaint shall be sent to the Certification Board via the U.S. Postal Service or courier to the following address:

Certification Board
National Association of Elevator Contractors
1298 Wellbrook Circle, NE Suite A
Conyers, GA 30012-3873

The Certification Board will not consider incomplete appeals/complaints or appeals/complaints sent via email or by fax.

Upon receipt of an appeal/complaint, the Chair of the Certification Board shall promptly review the appeal/complaint to determine disposition of the appeal/complaint. If the Chair of the Certification Board determines that the appeal/complaint is of a nature that there should be imposed an interim resolution pending the outcome of the appeals procedure, then he or she may impose an interim resolution of the matter. The interim resolution may include temporary suspension of a certification or candidate status. Such a temporary suspension immediately mitigates a potential public safety issue. Any such temporary resolution shall not be construed as punitive, disciplinary, conclusive, or indicative of guilt.

Within ten (10) calendar days of the date the Certification Board receives an appeal/ complaint, the appeal/complaint will be investigated by an Appeals/Complaint Committee consisting of three individuals: (1) The NAEC Board of Directors Education Committee Liaison, (2) The NAEC Bylaws Committee Chair, and (3) A representative from the Education Committee appointed annually by the Education Committee Chair. The investigation procedure(s) shall include: (1) A factual investigation of the appeal/complaint allegations in light of the applicable NAEC Certification Program rules and regulations as well as any applicable statute, rule, regulation, or policy, with the investigation including, but not necessarily being limited to, interviews of the appellant/complainant and any designated respondent to the appellant/complainant; and (2) A written determination on the disposition of the appeal/complaint. The investigation and final determination report shall be completed and issued to all parties within 30 days of receipt of the assignment of the appeal/ complaint to the Appeals/Complaint Committee from the Certification Board Chair. The resolution determined by the Appeals/Complaint Committee shall be limited to: (1) Exonerating the CET/CET-S, CET Candidate, CAT/CAT-S, or CAT Candidate of any wrong doing, (2) Suspension of the certification or candidate status of the respective CET/CET-S, CET Candidate, CAT/CAT-S, or CAT Candidate status, or (3) Revoking the certification or candidate status of respective CET/CET-S, CET Candidate, CAT/CAT-S, or the CAT Candidate.

The decision of the Appeals/Complaint Committee is final. Also, for purposes of this policy, one-year, annually, and certification period are defined as a calendar year.