



BODY OF KNOWLEDGE FOR API SIEE SOURCE INSPECTOR ELECTRICAL EQUIPMENT CERTIFICATION EXAM

The API Source Inspector programs qualify individuals who perform the important task of quality surveillance of materials, equipment, and fabrications at the supplier/vendor level in the oil, petrochemical and gas industries. API SIEE - Source Inspector Electrical Equipment will cover inspection of electrical material and equipment, such as:

- Junction Boxes
- Control Panels
- Electrical Systems
- Transformers
- Switchgears
- Motor Control Centers
- Electric Motors (over 500 HP)

The exam consists of 110 scored questions and 10 pretest questions; and runs for 3 hours and 15 minutes; no references are available during the exam, and nothing may be brought into the test center.

The exam focuses on the content of API SIEE Study Guide and other referenced publications.

REFERENCE PUBLICATIONS:

A. API Publications

- **Guide for Source Inspection and Quality Surveillance of Electrical Equipment**
- **API Recommended Practice 540**, *Electrical Installations in Petroleum Processing Plants*
- **API Standard 541**, *Form-wound Squirrel Cage Induction Motors- 375 kW (500 Horsepower) and Larger*
- **API Recommended Practice 14F**, *Design, Installation, and Maintenance of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class 1, Division 1 and Division 2 Locations*
- **API Recommended Practice 14FZ**, *Design, Installation, and Maintenance of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Zone 0, Zone 1, and Zone 2 Locations*

B. Institute of Electrical and Electronics Engineers (IEEE)

- **IEEE 141**, *Recommended Practice for Electric Power Distribution for Industrial Plants*
- **IEEE 841**, *Standard for Petroleum and Chemical Industry--Premium-Efficiency, Severe-Duty, Totally Enclosed Squirrel Cage Induction Motors from 0.75 kW to 370 kW (1 hp to 500 hp)*,
- **IEEE C37.20.1a**, *Metal-Enclosed Low-Voltage (1000 V ac and below, 3200 V dc and below) Power Circuit Breaker Switchgear – Amendment 1: Control and Secondary*



Circuits and Devices, and All Wiring

- **ANSI/IEEE C37.20.3**, *Metal-Enclosed Interrupter Switchgear (1 kV–38 kV)*
- **ANSI/IEEE C57.12.00**, *General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers*

C. National Electrical Manufacturers Association (NEMA)

- **NEMA ICS 1**, *Industrial Control and Systems: General Requirements*
- **NEMA ICS 2**, *Controllers, Contactors and Overload Relays Rated 600 V*
- **NEMA ICS 3**, *Medium Voltage Controllers Rated 2,001 to 7,200 V AC*
- **NEMA ICS 19**, *Diagrams, Device Designations and Symbols*
- **NEMA MG-1**, *Motors and Generators*

D. International Electrical Testing Association (NETA)

- **NETA ATS**, *Standard for Acceptance Testing Specifications for Electrical Power Equipment and Systems*

E. National Fire Protection Association (NFPA)

- **NFPA 70**, *National Electrical Code*
- **NFPA 70E**, *Standard for Electrical Safety in the Workplace*



Candidates are expected to demonstrate knowledge in the following categories:

- 1. Terms and Definitions**
- 2. Source Inspection Management Program**
- 3. Equipment Risk Assessment**
 - Development of a Source Inspection Project Plan
 - Development of Inspection and Test Plans
 - Report Review
- 4. Source Inspection Performance**
 - Inspector Conduct and Safety
 - Review of Project Documents
 - Report Writing Nonconformance/Deviations
- 5. Examination Methods, Tools and Equipment**
 - Dimensional Inspections
 - Visual Inspections
 - Typical Electrical Testing Techniques
 - Functional Testing
 - Surface Preparation/Coatings Inspections
- 6. Electrical Skid Mounted Equipment**
 - Electrical Equipment for Hazardous (Classified) Locations
 - Purged and Pressurized in a (Classified) Location
 - Cable Support Systems
 - Equipment Grounding
 - AC Control Wiring
 - Industry Codes and Standards
 - Materials of Construction
- 7. Liquid-Immersed Transformers**
 - Design and Construction
 - Industry Codes and Standards
- 8. Switchgear (Low & Medium Voltage)**
 - Design and Construction
 - Ratings Interlocks
 - LV Switchgear Grounding
 - LV AC Switchgear Grounding
 - Wiring
 - Housing Frames and Enclosure Compartment
 - Switchgear Section Compartments
 - Switchgear Compartment Doors
 - Bus Compartment
 - Circuit Breakers
 - Electric Tie Breakers
 - Current Transformers
 - Voltage Transformers
 - Control Power Transformers
 - Metering
- 9. Motor Control Centers (Low to Medium Voltage)**



- Design and Construction Standards
- Materials of Construction
- Enclosures Types
- Circuit Breakers
- Amp Capacity
- Main Feeder Cable Entry Compartment
- Ground Bus
- Main Isolating Switch

10. Electrical Induction Motors

- Design and Construction Standards
- Materials of Construction
- Motor Testing

11. Electrical Inspection Tools and Test Equipment