



Candidate Information Bulletin

State of Maine

Electrical Examinations

The Electricians’ Examining Board (the Board) of the State of Maine and the Department of Professional and Financial Regulation (the Department) determine eligibility to take license qualification exams.

The Department has contracted with Prometric Inc. (Prometric) to proctor its examination program. Prometric provides computerized examinations through its multistate network of test centers.

At a glance

This bulletin is your guide to the process of obtaining a Maine electrical license. The steps below summarize the process. For information about a step, go to the page listed.



To obtain your license

- 1** Submit an Examination Application form and \$25 application fee to the Board. Exam Applications are available online at www.maine.gov/professionallicensing.
- 2** Once you receive approval from the Board to take your exam, you must then schedule an appointment to take the exam—Page 5.
- 3** Prepare for your exam. Be sure to review the exam content outlines—Page 9.
- 4** Present the required identification and take the exam—Page 7.
- 5** If you pass your exam, the Board will mail you a licensing application form.



To get answers not provided in this bulletin

For questions about applications and licensing:

Electricians’ Examining Board
 Office of Licensing and Registration
 35 State House Station
 Augusta, Maine 04333
 Phone: 207.624.8457
www.maine.gov/professionallicensing

For questions about exams:

Prometric
 1260 Energy Lane
 St. Paul, MN 55108
 Phone: 800.343.6001
 TDD User: 800.790.3926
www.prometric.com/maine

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Pre-exam requirements

To be eligible to take an exam, you must meet the following requirements:

Master Electrician:

- Complete at least 4,000 hours of service as a journeyman electrician or at least 12,000 hours of experience in electrical installations, as defined in section 1101, and complete a program of study comprising 576 hours as approved by the Board or from an accredited institution. The 576 hours must consist of 450 hours of required study (see list below), including a course of not less than 45 hours in the current National Electrical Code and 126 hours of degree-related courses.

Required Study (450 hours)	
Basic Electricity I	Controls II
Basic Electricity II	Current National Electrical Code (45 hours)
Basic Electronics I	Math I
Blue Print Reading/Drafting	Motors
Controls I	Transformers

Journeyman Electrician:

- Complete at least 8,000 hours of service as an apprentice or helper electrician or at least 8,000 hours of experience in electrical installations, as defined in section 1101, and satisfactorily complete a program of study comprising 576 hours as approved by the Board or from an accredited institution. The 576 hours must consist of 225 hours of required study (see list below), including an approved course of not less than 45 hours in the current National Electrical Code; and 351 hours of elective study, comprised of all trade-related electives, or 135 hours of the 351 hours of elective study can be degree related;
- Be a graduate of an accredited regional vocational high school two-year electrical program, have worked 8,000 hours in the field of electrical installations under the supervision of a master electrician or the equivalent and have completed a course of not less than 45 hours in the current National Electrical Code;
- Be a graduate of an accredited Maine community college electrical program, have worked 4,000 hours in the field of electrical installations under the supervision of a master electrician or the equivalent and have completed a course of not less than 45 hours in the current National Electrical Code. If you qualify under this paragraph, you may take the journeyman’s exam upon graduation if application is made within one year of graduation; or
- Be an electrical apprentice registered with the Maine State Apprenticeship and Training Council and have completed 576 hours of related instruction, as defined in this paragraph, prescribed in their apprentice program, the 8,000-hour approved work hours and a course of not less than 45 hours in the current National Electrical Code. If you qualify under this paragraph, you may take the journeyman’s exam after completion of 576 hours of instruction, if application is made within one year of the completion of the instruction.

Required Study (225 hours)	
Basic Electricity I	Controls I
Basic Electricity II	Math I
Current National Electrical Code (45 hours)	

Limited License:

- Low Energy, including Fire Alarms.** A limited electrician in low energy, including fire alarms, must have 270 hours of electrical education (see list below) as approved by the Board or from an accredited institution including an approved course of not less than 45 hours in the current National Electrical Code and 4,000 hours of experience, at least 2,000 hours of which must be in low energy installations. If you have a limited license in fire alarms or experience in the installation of low-energy electronics (as defined by the National Electrical Code) prior to June 14, 1987, you will automatically be licensed as a limited electrician in low energy. (4,000 hours of experience in the installation of low-energy electronics will still have to be documented.

Required Study (270 hours)	
Basic Electricity I	Controls I
Basic Electricity II	Blueprint Reading
Electronics I	
Current National Electrical Code (45 hours)	

- House Wiring.** A limited electrician in house wiring must have 225 hours of electrical education (see list below) as approved by the Board or from an accredited institution including an approved course of not less than 45 hours in the current National Electrical Code and 4,000 hours of experience, at least 2,000 hours of which must be in installing house wiring. The privileges of practice will be restricted to one-family and two-family dwellings, including modular and mobile homes.

Required Study (225 hours)	
Basic Electricity I	Controls I
Basic Electricity II	Blueprint Reading
Current National Electrical Code (45 hours)	

- Gasoline Dispensing.** A limited electrician in gasoline dispensing must have 135 hours of electrical education (see list below) as approved by the Board or from an accredited institution including an approved course of not less than 45 hours in the current National Electrical Code and 2,000 hours of experience, at least 1,000 hours of which must be in installing gasoline dispensing equipment. The privileges of practice will be restricted to electrical work between the branch circuit and the power supply.

Required Study (135 hours)	
Basic Electricity I	Controls I
Current National Electrical Code (45 hours)	

PRE-EXAM REQUIREMENTS

- Outdoor Signs, including Sign Lighting.** A limited electrician in outdoor signs, including sign lighting, must have 135 hours of limited electrical education (see list below) as approved by the Board or from an accredited institution including an approved course of not less than 45 hours in the current National Electrical Code and 2,000 hours of experience, at least 1,000 hours of which must be in installing outdoor signs and sign lighting. The privileges of practice do not include branch circuit wiring.

Required Study (135 hours)	
Basic Electricity I	Controls I
Current National Electrical Code (45 hours)	

- Refrigeration.** A limited electrician in refrigeration must have 270 hours of electrical education (see list below) as approved by the Board or from an accredited institution including an approved course of not less than 45 hours in the current National Electrical Code and 6,000 hours of experience, at least 3,000 hours of which must be in installing refrigeration. Graduates of a Maine vocational-technical institute electrical program in refrigeration approved by the Board or from an accredited institution will be credited with 4,000 hours of experience upon graduation. Privileges of practice will be restricted to all associated wire from the loadside of distribution.

Required Study (270 hours)	
Basic Electricity I	Controls I
Basic Electricity II	Controls II
Motors/Transformers	
Current National Electrical Code (45 hours)	

- Traffic Signals, including Outdoor Lighting of Traffic Signals.** A limited electrician in traffic signals, including outdoor lighting of traffic signals, must have 135 hours of electrical education (see list below) as approved by the Board or from an accredited institution including an approved course of not less than 45 hours in the current National Electrical Code and 2,000 hours of experience, at least 1,000 hours of which must be in installing traffic signals.

Required Study (135 hours)	
Basic Electricity I	Electronics I/Controls I
Current National Electrical Code (45 hours)	

- Water Pumps.** A limited electrician in water pumps must have 135 hours of electrical education (see list below) as approved by the Board or from an accredited institution including an approved course of not less than 45 hours in the current National Electrical Code and 2,000 hours of experience, at least 1,000 hours of which must be in installing water pumps. The privileges of practice will be restricted to electrical work between branch circuits and power supplies.

Required Study (135 hours)	
Basic Electricity I	Motors/Controls I
Current National Electrical Code (45 hours)	

- **Crane Technician.** A limited electrician as a crane technician must have 135 hours of electrical education (see list below) as approved by the Board or from an accredited institution including an approved course of not less than 45 hours in the current National Electrical Code and 2,000 hours of experience. Privileges of practice covers the installation of electrical equipment and wiring used in connection with cranes, monorail hoists, hoists and runways.

Required Study (135 hours)	
Basic Electricity I	Controls I
Current National Electrical Code (45 hours)	

Submitting your exam application

Before you can schedule an exam, you must complete an Examination Application and submit it, along with the application fee to the Board. Application forms are available online at www.maine.gov/professionallicensing. If the Board approves your application, you will be sent written notification on the procedures to schedule your exam appointment.

Scheduling an exam

After you receive notification from the Board that you have been approved to sit for an exam, you must contact Prometric to:

- 1 Schedule an exam appointment.
- 2 Pay the exam fee:
 - \$50 through 5/1/11.
 - \$60 beginning 5/2/11.

Test center locations. You may take your exam at any Prometric test center in the United States. A complete list of test center locations may be found by going to www.prometric.com/maine/construction and clicking on the "Do More" button. Alternatively, you may call 800.853.5448.

Accommodations. If you require ADA accommodation, see "Special consideration" on Page 6 before registering.

Holidays. Testing generally does not occur on the following holidays:

- New Year's Day
- Martin Luther King Jr. Day
- Presidents' Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Day

Additional state holidays may be observed in the state where you schedule your exam appointment.



To schedule an exam online

To schedule an exam online, go to www.prometric.com/maine/construction. In the **Do More** box, click on **Continue** and follow the prompts.



To schedule an exam by phone

You may schedule your exam by calling 800.343.6001 between 8 a.m. and 9 p.m. (Eastern time), Monday through Friday. Please have your Visa or MasterCard information available. At the end of the call, you will be given a number confirming your appointment. Record and keep this confirmation number for your records.



Important You have two years from the exam approval date to sit for and pass the exam. After two years, you will need to reapply as a new candidate with the Board and pay all applicable fees.

Special consideration

ADA accommodation. If you require testing accommodations under the Americans with Disabilities Act (ADA), please call Prometric at 888.226.9406 to obtain an accommodation request form. Reasonable testing accommodations are provided to allow candidates with documented disabilities recognized under the ADA an opportunity to demonstrate their skills and knowledge.

Submit professional documentation of your disability with your application to help us determine the necessary testing arrangements. Thirty days’ advance notice is required for all special testing arrangements. There is no additional charge for these accommodations.

ESL note. If English is your second language, please note that a language barrier is not considered a disability.

Rescheduling an exam appointment

To avoid a rescheduling fee, you must contact Prometric at least **three full business days** before the day of your scheduled appointment. **Before you reschedule your exam**, refer to the following table to determine the **last day** you may reschedule without paying a \$40 rescheduling fee.

Last day to reschedule with no fee

If your exam is on:	Call by 9 p.m. (Eastern time) the previous:
Monday	Tuesday
Tuesday	Wednesday
Wednesday	Thursday
Thursday	Friday
Friday	Monday

Note that this schedule **does not** include holidays. Since holidays are not business days, they do not count against the three days (call earlier).

If you do not allow at least three full business days to reschedule your appointment, you must pay a \$40 rescheduling fee before choosing another appointment. To pay this fee by Visa or MasterCard and reschedule your appointment, call Prometric at 800.343.6001. You may also pay the rescheduling fee by mailing a cashier’s check, company check, money order or Visa or MasterCard information to Prometric.

If absent or late for your appointment

If you miss your appointment or arrive late and are not allowed to test, you must pay a \$40 rescheduling fee before choosing another appointment. This fee will allow you to use your original exam registration.

If you are unable to attend your scheduled exam due to illness or emergency, call Prometric. Under certain circumstances, the fee to reschedule may be waived. Prometric reserves the right to request documentation to support any illness or emergency claim.

Emergency closings

Severe weather or an emergency could require canceling scheduled exams. If this occurs, Prometric will attempt to contact you by phone or e-mail; however, you may check for testing site closures by calling Prometric. If the site is closed, your exam will be rescheduled without a rescheduling fee.

If a test center is open for testing and you choose not to appear for your appointment, you must pay a \$40 rescheduling fee before choosing another appointment.

Taking your exam

Your exam will be given by computer at a Prometric test center. You do not need any computer experience or typing skill to take your exam. Before you start the exam, you will receive a personalized introduction to the testing system. You can also take an introductory lesson on the computer.

Arrival. You should arrive at least **30 minutes before** your scheduled exam appointment. This allows time for you to sign in and for staff to verify your identification.

Identification required. You must present a valid form of identification before you can test. That identification document **must**:

- Be government-issued (e.g., driver's license, state-issued identification card, military identification card or passport).
- Contain both a current photo (or a physical description) and your signature.
- Have a name that exactly matches the name used to register for the exam (including designations such as "Jr." and "III").



Important Failure to provide appropriate identification at the time of the exam is considered a missed appointment.

If you cannot provide the identification listed above, contact Prometric **before** scheduling your appointment to arrange an alternative way to meet this requirement.

Test center regulations

To ensure that all candidates are tested under equally favorable conditions, the following regulations and procedures will be observed at each test center. Failure to follow any of these security procedures may result in disqualification of your examination. Prometric reserves the right to audiotape and videotape any examination session.

References

- You must bring the approved references, including the correct edition of the National Electrical Code with you to the test center. The Hardcover Handbook is not allowed. Photocopies may not be used. Highlighting and hand-written notes are permitted in the Code Book if done prior to arriving at the test site. During the exam, you **may not** write in the Code Book. No additional notes (Post-it® notes) or loose papers are allowed in the Code Book.
- Reference materials will be checked at the exam site before and after the examination. Any reference material that has been written in during the exam will be confiscated.

- Sharing reference materials is not allowed.
- No other reference materials, papers or study materials are allowed at the test center. If you are found with these or any other aids, you will not be allowed to continue the exam and your answers will not be scored.

Calculators

- Only silent, handheld, solar or battery-operated, nonprogrammable calculators (without paper tape-printing capabilities or alphabetic keypads) may be used. Calculators will be available at the test center.

Personal items

We recommend that you avoid bringing personal items to the test center. Note the following:

- Electronic equipment—cameras, tape recorders, cell phones, PDAs, pagers, etc.—is not permitted in the testing area.
- Other personal items—briefcases, backpacks, etc.—are not permitted in the testing area. **Note:** It is recommended that purses not be brought to the test center as access to purses will not be allowed during testing.

Breaks

- If you leave the testing room while an exam is in progress, you must sign out/in on the roster and you will lose exam time.
- You are not allowed to use any electronic devices or phones during breaks.

Visitors

- No guests, visitors or family members are allowed in the testing area.

Misconduct or disruptive behavior

- Candidates who engage in any kind of misconduct or disruptive or offensive behavior may be dismissed from the examination. Examples are: giving or receiving help, sharing supplies, taking part in an act of impersonation, removing test materials or notes from the testing room, using rude or offensive language and behavior that delays or interrupts testing.

Weapons

- Weapons are not allowed at the test center.



Important Every time you enter the test room, you will be asked to turn your pockets inside out to confirm that you have no prohibited items. The test center administrator will collect any materials that violate the rules.

Copyrighted questions. All test questions are the property of Prometric Inc. and are protected by copyright. Federal law provides severe civil and criminal penalties for the unauthorized reproduction, distribution, or exhibition of copyrighted materials.

Your exam results

At the end of your exam, your score will be shown on the screen and you will receive a printed score report. The report indicates your overall score and grade, including the numerical percentage of questions answered correctly and whether you passed or failed.

Passing score. A score of 70 percent or above is required to pass each exam. Scores are based on the number of questions answered correctly. You will not be given credit for any question answered incorrectly, marked with more than one answer or left blank. There is no penalty for guessing, so be sure to mark an answer for each question.

Once the exam scores have been released to the Board, the Board will mail a licensing application to candidates who pass the exam.

Release of score information. Exam scores are released only with the candidate's written consent. The exam registration form constitutes written authorization for Prometric to release exam scores to the Board.

Retake information. You must wait 14 days before retaking a failed exam. If you do not obtain a passing score during the 24 months after approval, you must reapply through the state.

Appeals process

Our goal is to provide a quality exam and a pleasant testing experience for every candidate. If you are dissatisfied with either and believe we can correct the problem, we would like to hear from you. We provide an opportunity for general comments at the end of your exam. Your comments will be reviewed by our personnel, but you will not receive a direct response.

If you are requesting a response about exam content, registration, scheduling or test administration (testing site procedures, equipment, personnel, etc.), please submit an appeal in writing. Your appeal letter must provide your name and Social Security number, the exam title, the date you tested and the details of your concern, including all relevant facts. Be sure to include your signature and return address. Mail your appeal letter to:

Prometric
ATTN: Appeals Committee
 1260 Energy Lane
 St. Paul, MN 55108

The Appeals Committee will review your concern and send you a written response within 10 business days of receipt. **Faxed appeals are not accepted** because an original signature is required.

Exam content outlines

Following are the content outlines for the exams. Each outline indicates the total questions on the exam and the maximum time allowed. It also lists all topics covered in the exam and the percentage of questions asked about each topic.

All exams are open book. They consist of multiple-choice questions, with all questions weighted equally. Some questions may refer to a figure, drawing, table or chart in the exam booklet.

Exam references. Each outline lists references that were used to develop the exams, including references that are allowed in the exam room. You are allowed to use the National Electrical Code during your exam and **must bring** a copy with you to the test center.

Master Electrician

Open Book, 100 questions, 3 hours

Scope – Tests a candidate’s knowledge of the design, plan, installation, repair, alteration, and maintenance of electric conductors, raceways, and equipment for light, heat, and power.

Exam Topic	Percent
General Electrical Knowledge	10
Wiring and Protection	25
Wiring Methods and Materials	20
Equipment for General Use	20
Special Occupancies	10
Special Equipment	5
Special Conditions	5
Communications Systems	5

Reference allowed during the exam

- 1 *NFPA 70 – National Electrical Code*, 2008 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.

References not allowed during the exam

- 1 *Alternating Current Fundamentals*, Seventh Edition, 2006, Delmar Learning, P.O. Box 6904, Florence, KY 41022, www.delmarlearning.com.
- 2 *Mike Holt’s Illustrated Guide to Basic Electrical Theory*, Second Edition, 2007, Mike Holt Enterprises, Inc., 3604 Leesburg, FL 34748, www.NECcode.com.
- 3 *Printreading Based on the 2008 National Electrical Code (NEC)*, 2008 Edition, American Technical Publishers (ATP), 1155 West 175th Street, Homewood, IL 60430-4600, www.go2atp.com.

Journeyman Electrician

Open Book, 80 questions, 3 hours

Scope – Tests a candidate’s knowledge of the planning, installation, repair, alteration, and maintenance of electric conductors, raceways, and equipment for light, heat, and power.

Exam Topic	Percent
General Electrical Knowledge	10
Wiring and Protection	25
Wiring Methods and Materials	30
Equipment for General Use	20
Special Occupancies	5
Special Equipment	3
Special Conditions	2
Communications Systems	5

Reference allowed during the exam

- 1 *NFPA 70 – National Electrical Code*, 2008 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.

References not allowed during the exam

- 1 *Alternating Current Fundamentals*, Seventh Edition, 2006, Delmar Learning, P.O. Box 6904, Florence, KY 41022, www.delmarlearning.com.
- 2 *Mike Holt’s Illustrated Guide to Basic Electrical Theory*, Second Edition, 2007, Mike Holt Enterprises, Inc., 3604 Leesburg, FL 34748, www.NECcode.com.
- 3 *Printreading Based on the 2008 National Electrical Code (NEC)*, 2008 Edition, American Technical Publishers (ATP), 1155 West 175th Street, Homewood, IL 60430-4600, www.go2atp.com.

Limited Electrician – Low Energy and Fire Alarms

Open Book, 50 questions, 3 hours

Scope – Tests a candidate’s knowledge of the installation and service of electrical work related to low energy and fire alarm systems and equipment.

Exam Topic	Percent
General Electrical Knowledge	10
Fire Detection	16
Intrusion Detection	16
Class 1, 2, and 3 Remote Control, Signaling, and Power Limited Circuits	12
Communications Systems	10
Sound and Video	10
Grounding and Bonding	10
Raceways and Enclosures	6
Conductors and Cables	6
Special Occupancies	4

References allowed during the exam

- 1 *NFPA 70 – National Electrical Code*, 2008 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.
- 2 *NFPA 72 – National Fire Alarm Code*, 2007 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.

References not allowed during the exam

- 1 *Alternating Current Fundamentals*, Seventh Edition, 2006, Delmar Learning, P.O. Box 6904, Florence, KY 41022, www.delmarlearning.com.
- 2 *Industrial Motor Control*, Fifth Edition, 2005, Delmar Learning, P.O. Box 6904, Florence, KY 41022, www.delmarlearning.com.

References not allowed during the exam

- 3 *Low Voltage Wiring: Security/Fire Alarm Systems*, 2002, McGraw-Hill Publishing, Inc., P.O. Box 182604, Columbus, OH 43272, books.mcgraw-hill.com.
- 4 *Mike Holt's Illustrated Guide to Basic Electrical Theory*, Second Edition, 2007, Mike Holt Enterprises, Inc., 3604 Leesburg, FL 34748, www.NECcode.com.
- 5 *Telecommunications Wiring*, Third Edition, 2001, Prentice Hall/Pearson Education, Order Processing Center, P.O. Box 11071, Des Moines, IA 50336-0693, vig.prenhall.com.

Limited Electrician – House Wiring

Open Book, 50 questions, 3 hours

Scope – Tests a candidate’s knowledge of the installation and service of electrical work related to house wiring systems and equipment. The privileges of practice are restricted to one- and two-family dwellings, including modular and mobile homes.

Exam Topic	Percent
General Electrical Knowledge	10
Services, Feeders, and Branch Circuits	30
Grounding and Bonding	20
Raceways and Enclosures	10
Conductors and Cables	10
Equipment for General Use	10
Low Voltage Circuits	10

Reference allowed during the exam

- 1 *NFPA 70 – National Electrical Code*, 2008 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.

References not allowed during the exam

- 1 *Alternating Current Fundamentals*, Seventh Edition, 2006, Delmar Learning, P.O. Box 6904, Florence, KY 41022, www.delmarlearning.com.
- 2 *Mike Holt's Illustrated Guide to Basic Electrical Theory*, Second Edition, 2007, Mike Holt Enterprises, Inc., 3604 Leesburg, FL 34748, www.NECcode.com.

Limited Electrician – Gasoline Dispensing

Open Book, 50 questions, 3 hours

Scope – Tests a candidate’s knowledge of the installation and service of electrical work related to gasoline dispensing systems and equipment.

Exam Topic	Percent
General Electrical Knowledge	10
Feeders and Branch Circuits	10
Grounding and Bonding	10
Raceways and Enclosures	14
Conductors and Cables	8

Exam Topic	Percent
Motors and Controls	12
Special Occupancies	30
Signaling Circuits	6

References allowed during the exam

- 1 *NFPA 70 – National Electrical Code*, 2008 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.
- 2 *NFPA 30A – Code for Motor Fuel Dispensing Facilities and Repair Garages*, 2008 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.

References not allowed during the exam

- 1 *Alternating Current Fundamentals*, Seventh Edition, 2006, Delmar Learning, P.O. Box 6904, Florence, KY 41022, www.delmarlearning.com.
- 2 *Mike Holt's Illustrated Guide to Basic Electrical Theory*, Second Edition, 2007, Mike Holt Enterprises, Inc., 3604 Leesburg, FL 34748, www.NECcode.com.

Limited Electrician – Outdoor Signs, Sign Lighting

Open Book, 50 questions, 3 hours

Scope – Tests a candidate’s knowledge of the installation and service of electrical work related to outdoor signs and sign lighting systems and equipment.

Exam Topic	Percent
General Electrical Knowledge	10
Services, Feeders, and Branch Circuits	20
Grounding and Bonding	10
Raceways and Enclosures	10
Conductors and Cables	10
Equipment for General Use	10
Special Equipment	30

Reference allowed during the exam

- 1 *NFPA 70 – National Electrical Code*, 2008 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.

References not allowed during the exam

- 1 *Mike Holt's Illustrated Guide to Basic Electrical Theory*, Second Edition, 2007, Mike Holt Enterprises, Inc., 3604 Leesburg, FL 34748, www.NECcode.com.
- 2 *Neon Techniques*, Fourth Edition, 1997, ST Publications, 407 Gilbert Avenue, Cincinnati, OH 45202.
- 3 *Stallcup's Electric Signs and Outline Lighting Book*, 2003, Grayboy Publishing, Order from: National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471, www.nfpa.org/catalog.

EXAM CONTENT OUTLINES

Limited Electrician – Refrigeration

Open Book, 50 questions, 3 hours

Scope – Tests a candidate’s knowledge of the installation and service of electrical work related to refrigeration systems and equipment.

Exam Topic	Percent
General Electrical Knowledge	10
Feeders and Branch Circuits	10
Grounding and Bonding	8
Raceways and Enclosures	16
Conductors	18
Motors and Controls	30
Special Occupancies	8

Reference allowed during the exam

- 1 *NFPA 70 – National Electrical Code*, 2008 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.

References not allowed during the exam

- 1 *Alternating Current Fundamentals*, Seventh Edition, 2006, Delmar Learning, P.O. Box 6904, Florence, KY 41022, www.delmarlearning.com.
- 2 *Mike Holt’s Illustrated Guide to Basic Electrical Theory*, Second Edition, 2007, Mike Holt Enterprises, Inc., 3604 Leesburg, FL 34748, www.NECcode.com.
- 3 *Modern Refrigeration and Air Conditioning*, Eighteenth Edition, 2004, Goodheart-Willcox Company, Inc., 18604 West Creek Drive, Tinley Park, IL 60477-6243, www.g-w.com.

Limited Electrician – Traffic Signals, including Outdoor Lighting of Traffic Signals

Open Book, 50 questions, 3 hours

Scope – Tests a candidate’s knowledge of the installation and service of electrical work related to traffic signaling, including outdoor lighting of traffic signaling systems and equipment.

Exam Topic	Percent
General Electrical Knowledge	10
Services, Feeders, and Branch Circuits	30
Grounding and Bonding	10
Raceways and Enclosures	10
Conductors and Cables	10
Equipment for General Use	10
Special Equipment	20

Reference allowed during the exam

- 1 *NFPA 70 – National Electrical Code*, 2008 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.

References not allowed during the exam

- 1 *Alternating Current Fundamentals*, Seventh Edition, 2006, Delmar Learning, P.O. Box 6904, Florence, KY 41022, www.delmarlearning.com.
- 2 *Mike Holt’s Illustrated Guide to Basic Electrical Theory*, Second Edition, 2007, Mike Holt Enterprises, Inc., 3604 Leesburg, FL 34748, www.NECcode.com.

Limited Electrician – Water Pumps

Open Book, 50 questions, 3 hours

Scope – Tests a candidate’s knowledge of the installation and service of electrical work related to water pumping systems and equipment.

Exam Topic	Percent
General Electrical Knowledge	10
Feeders and Branch Circuits	16
Grounding and Bonding	10
Raceways and Enclosures	10
Conductors and Cables	10
Motors and Controls	30
Equipment for General Use	8
Special Occupancies	6

References allowed during the exam

- 1 *NFPA 20 – Installation of Stationary Pumps for Fire Protection*, 2007 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.
- 2 *NFPA 70 – National Electrical Code*, 2008 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.

References not allowed during the exam

- 1 *Alternating Current Fundamentals*, Seventh Edition, 2006, Delmar Learning, P.O. Box 6904, Florence, KY 41022, www.delmarlearning.com.
- 2 *Electric Motor Control*, Eighth Edition, 2006, Delmar Learning, P.O. Box 6904, Florence, KY 41022, www.delmarlearning.com.
- 3 *Mike Holt’s Illustrated Guide to Basic Electrical Theory*, Second Edition, 2007, Mike Holt Enterprises, Inc., 3604 Leesburg, FL 34748, www.NECcode.com.

Limited Electrician – Crane Technician

Open Book, 50 questions, 3 hours

Scope – Tests a candidate’s knowledge of the installation and service of electrical work associated with stationary and moving cranes.

Exam Topic	Percent
General Electrical Knowledge	10
Feeders and Branch Circuits	20
Grounding and Bonding	10
Raceways and Enclosures	10
Conductors and Cables	10
Motors and Controls	10
Special Occupancies	10
Special Equipment	20

Reference allowed during the exam

- 1 *NFPA 70 – National Electrical Code*, 2008 Edition, National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101, www.nfpa.org.

References not allowed during the exam

- 1 *Alternating Current Fundamentals*, Seventh Edition, 2006, Delmar Learning, P.O. Box 6904, Florence, KY 41022, www.delmarlearning.com.
- 2 *Electric Motor Control*, Eighth Edition, 2006, Delmar Learning, P.O. Box 6904, Florence, KY 41022, www.delmarlearning.com.
- 3 *Mike Holt’s Illustrated Guide to Basic Electrical Theory*, Second Edition, 2007, Mike Holt Enterprises, Inc., 3604 Leesburg, FL 34748, www.NECcode.com.