



MASTER LICENSE REQUIREMENTS & EXAMINATION CONTENT & DESCRIPTION

Master Electrician – A person having the necessary qualifications, training, experience, and technical knowledge to supervise the installation of electrical wiring and equipment in accordance with the standard rules and regulations governing that work. *Skilled Trades Regulation Act (PA 407 of 2016)*

- ✓ Must be at least 22 years of age.
- ✓ Must be a Detroit resident and show proof of residency
- ✓ Must complete a [Master application form](#) and submit a letter of documentation from one or more employer(s) attesting to not less than 12,000 hours of practical experience obtained over a period of not less than six years related to electrical construction or maintenance of buildings or electrical wiring or equipment under the supervision of a Master Electrician licensed by the City of Detroit, City of Grand Rapids, or the State of Michigan.
- ✓ Must have held and maintained a valid electrical Journeyman’s License for not less than 2 years.

For additional information, please see the [Electrical Licensing Procedures Guide](#).

The Master Examination consists of 75 multiple choice questions worth 1.33 points each with a 3-hour time limit. This exam is based on:

- [Public Act 217 of 1956](#), as amended (*Electrical Administrative Act*)
- [Public Act 230 of 1972](#), as amended (*State Construction Code Act*)
- State Electrical Code (*2011 National Electrical Code®*, and [Part 8 Rules](#), Michigan amendments)

Part I	Public Act 217/ Part 8 Rules	15 questions	20
Part II	National Electrical Code	30 questions	40
Part III	Calculation Problem	15 problems	20
Part IV	Electrical Theory and Concepts	15 questions	20
Total Points			100

All examinations are **open book**. A *National Electrical Code®* (NEC) book, [2011 Part 8 Rules](#), and [Public Act 217](#) are available to all applicants for the examination. Applicants may bring an unmarked NEC book for use during the examination. Code books may include *NFPA 70* approved index tabs (**not homemade varieties**).

No markings will be allowed on or within the code book. This includes margin notes, test notes, highlighting, paper clips, or other testing aids. **Handbooks and/or Ugly’s books are not allowed.** Applicants may bring a basic four function, non-programmable calculator that is silent, battery operated, does not have paper tape printing capabilities, and does not have a keyboard containing the alphabet.

Applicants are not allowed to have personal belongings in the exam room including, but not limited to: cell phones, recording devices, ear buds, headphones, Bluetooth devices, electronic watches, electronic devices, cameras, pagers, laptop computers, tablet computers, music players, smart watches, radios, electronic games, notebooks, reference or reading material, briefcases, backpacks, other writing devices, and good luck items.

Any applicant possessing prohibited items, giving or receiving assistance on an exam, and/or found with unauthorized materials in the examination room shall immediately surrender all examination materials, shall have his or her test results invalidated, and will be reported to the Board of Electrical Examiners.

Applicants for examination are required to bring picture identification to the examination site. (Current and valid Driver's License/State ID preferred) A score of 75% or better is required to pass the examination. If you do not pass, you **may not** review your exam.

EXAM RESULTS ARE NOT GIVEN OVER THE TELEPHONE.

The Master Electrician examination covers additional knowledge required to plan and supervise electrical installations as outlined in all categories listed below.

Boxes, Cabinets, Panelboards, and Non-Raceway Enclosures

Application of the proper type, use and support of boxes and cabinets, etc. Includes calculation of proper size and rating.

Branch Circuits, Wire Connections, and Devices

Knowledge of circuit classifications, ratings, design, and use requirements. Knowledge and calculation of branch circuit loads. Application of code rules covering electrical outlets and devices, including wiring connectors and methods.

Conductors

Determine ampacity, type of insulation, usage requirements, methods of installation, protection, support and termination. Includes calculation of voltage drop.

General Knowledge of the Electrical Trade

Terminology and practical calculations such as power factor, voltage and current ratings of equipment.

General Use Equipment

Knowledge of code rules covering appliances, heating and air conditioning equipment, generators, transformers, etc.

Grounding and Bonding

Demonstrate knowledge of system and circuit grounding requirements, methods and location of grounding connections. Selection of proper size grounding conductors, bonding of enclosures, equipment, and interior metal piping systems.

Lighting and Lamps

Knowledge of all types and applications of lighting fixtures, luminaires, ratings, requirements for occupancies, special provisions, clearances, etc. Includes load calculations for lighting.

Low Voltage Circuits and Equipment

Knowledge of circuits and equipment characterized by usage and electrical power limitations, which differentiate them from electric light and power circuits. Includes remote-control, signaling, and power limited circuits.

Motors, Controls, and Equipment

Knowledge of code rules governing installation of motors and controls. Includes calculations for motor feeder and branch circuits, short circuit, ground fault, and overload protection, and disconnecting means. Knowledge of all control circuits and motor type application and usage.

Overcurrent Protection

Knowledge of fuse application, circuit breakers and all types of protective devices for conductors and equipment. Includes rules on taps and splices.

Raceways

Knowledge of all types of raceways and their uses. Determining proper size, conductor fill, support and methods of installation.

Services and Feeders

Knowledge of code rules covering services. Calculation of electrical loads and determination of proper size, rating and type of service and feeder conductors.

Special Occupancies and Equipment

Knowledge of code rules as they apply to hazardous locations, health care facilities, places of assembly, etc. Includes code rules on signs, welders, industrial machinery, swimming pools, etc.