

## Master Electrician

# COMPETENCY PROFILE

## Overview

The Electrical Safety Authority (ESA) is an administrative authority designated by the provincial government to administer and enforce Electricity Act, 1998 (the Act) and relevant regulations under the Act. As part of its mandate, the ESA licenses and sets licensing requirements for businesses (Licensed Electrical Contractors) and individuals (Master Electricians) who are responsible for the personal planning and direct supervision of electrical work carried out on behalf of the Licensed Electrical Contractor.

This Competency Profile describes the minimum expectations (i.e., professional competencies) of an individual applying for a Master Electrician (ME) licence with the ESA. These expectations are defined as *“an observable ability of individual at the point of qualifying for a Master Electrician Licence that integrates the knowledge, skills, and judgment required to operate safely and ethically”*. The Competency Profile may be used for many purposes, including but not limited to:

- Setting licensure requirements, including the Master Electrician Exam
- Communicating to external stakeholders what Master Electricians do
- Providing advice/guidance to members

- Developing standards and policies
- Informing matters related to professional conduct
- Developing training curriculum
- Informing continuing education requirements

Individuals must be able to demonstrate all competencies listed herein to qualify for an ME licence. These competencies must also be retained and developed post-licensure as an ME progresses throughout their career. While not every ME may be appointed as a Designated Master Electrician (DME), the ME licence entitles every ME to be designated to oversee affairs of the Licenced Electrical Contracting (LEC) business. As a result, these competencies are applicable to all ME licence holders.

Further, we acknowledge that professional experiences, projects and duties may vary for each ME and DME depending on the specialty, size, type of the employer and other circumstances. As a result, the degree of proficiency in these competencies may be specific to the area of practice, experience and role and responsibility within the business.

As licensed professionals, Master Electricians have responsibility to manage their licence and are accountable to the public, their employer, colleagues, ESA and themselves.

## Context of the Master Electrician Licence

The ME licence is an advanced professional designation. To be eligible, individuals require at least three years of relevant experience realized through one of the following:

- Practicing the trade of electrician – construction and maintenance; electrician – domestic and rural or industrial electrician under a valid Certificate of Qualification
- Practicing the trade of powerline technician under a valid Certificate of Qualification
- Working for an electrical contractor as a licensed Professional Engineer registered with the Professional Engineers Ontario
- Working for an electrical contractor as a Certified Engineering Technologist or Technician registered with the Ontario Association of Certified Engineering Technicians & Technologists

Eligible applicants must pass the Master Electrician Exam to receive their ME licence.

## Competency Profile Development

A robust methodology, based on industry best practices, was used to develop the Competency Profile. A team of nine subject matter experts (master electricians and regulators) drawn from across the province worked to generate the associated content. Input gathered from a series of interviews with key stakeholders and relevant literature, regulations and legislation were also incorporated. The draft set of competencies was then validated via an online survey of master electricians currently licensed with the ESA.

## Acknowledgement

The Electrical Safety Authority would like to acknowledge individuals across the industry who shared their time, expertise, and commitment, shaping this Competency Profile. We specifically would like to thank the Subject Matter Working Group and members of ECRA AC and MEC for their invaluable contribution.

# Document Structure

This Competency Profile consists of sixty-five competencies organized thematically under 9 “domains” (categories):

<b>1</b>  <b>Health and Safety</b> (5 competencies)	<b>2</b>  <b>Ontario Electrical Safety Code</b> (5 competencies)	<b>3</b>  <b>Legal</b> (5 competencies)
<b>4</b>  <b>Financial</b> (5 competencies)	<b>5</b>  <b>Management and Administration</b> (12 competencies)	<b>6</b>  <b>Technical Knowledge and Skills</b> (9 competencies)
<b>7</b>  <b>Advocacy</b> (6 competencies)	<b>8</b>  <b>Professionalism and Ethics</b> (13 competencies)	<b>9</b>  <b>Continuing Education</b> (4 competencies)

## DOMAINS

## COMPETENCIES

# 1

### Health and Safety



- 1.1 Ensure compliance with the Occupational Health and Safety Act<sup>1</sup>.
- 1.2 Support safety training to workers ahead of assigned work.
- 1.3 Ensure workers are provided with **personal protective equipment** to carry out safe **electrical work** practices.
- 1.4 Engage with Health and Safety committees, as required.
- 1.5 Recognize, act on and report health and safety violations to applicable parties and **Authority Having Jurisdiction**.

# 2

### Ontario Electrical Safety Code



- 2.1 Ensure compliance with Ontario Electrical Safety **Code**<sup>2</sup>.
- 2.2 Explain the importance of electrical safety, safe electrical installation practices and other key concepts to stakeholders.
- 2.3 Recognize, act on and report non-compliant **Code** installations to the Electrical Safety Authority.
- 2.4 Recognize, act on and report hazardous electrical incidents to applicable parties and **Authority Having Jurisdiction** within specified timelines.
- 2.5 Report unsafe electrical conditions to the applicable parties and **Authority Having Jurisdiction**.
- 2.6 Integrate knowledge of **Code** to all **building systems**.

# 3

### Legal



- 3.1 Ensure that **electrical work** is carried out in accordance with **applicable laws**.
- 3.2 Maintain currency and base qualifications for Master Electrician licence.
- 3.3 Maintain all required **certifications**.
- 3.4 Maintain current and accurate records including licenses, **certifications**, invoices, quotes, corresponding notifications and training information.
- 3.5 Ensure compliance with the Consumer Protection Act<sup>3</sup>.

1 "Occupational Health and Safety Act, R.S.O. 1990, c. O.1." Government of Ontario, 1 July 2022.: <https://www.ontario.ca/laws/statute/90o01>

2 "O. Reg. 21/777: ELECTRICAL SAFETY CODE." Government of Ontario, 19 November 2018. <https://www.ontario.ca/laws/regulation/r21777>

3 "Consumer Protection Act, 2002, S.O. 2002, c. 30, Sched. A." Government of Ontario, 1 March 2022. <https://www.ontario.ca/laws/statute/02c30>

4 "Construction Act, R.S.O. 1990, c. C.30." Government of Ontario, 1 September 2021. <https://www.ontario.ca/laws/statute/90c30>

## DOMAINS

## COMPETENCIES

### 4 Financial



- 4.1 Understand the importance of accounting systems, forecasting and financial planning.
- 4.2 Demonstrate knowledge of contracting, quoting and tendering practices.
- 4.3 Support elements of estimating and budgeting processes.
- 4.4 Identify financial obligations to applicable government agencies.
- 4.5 Demonstrate basic knowledge of the Construction Lien Act<sup>4</sup> and associated timelines for filing a lien.

### 5 Management and Administration



- 5.1 Comply with legislation related to **skilled trades**.
- 5.2 Understand relationships between project stakeholders.
- 5.3 Conduct personal planning and direct supervision of the work carried out on behalf of the **Licensed Electrical Contractor**.
- 5.4 Track project deliverables and objectives to meet contractual obligations.
- 5.5 Maintain jobsite presence to verify compliance with health and safety policies and applicable labour laws.
- 5.6 Oversee safe operating procedures in all **electrical work**-related activities.
- 5.7 Ensure that electrical workers are qualified to complete the assigned work.
- 5.8 Adhere to contractual obligations and timelines.
- 5.9 Ensure applicable permits and notifications of work are obtained at the correct time for the correct purpose.
- 5.10 Plan and schedule inspections.
- 5.11 Integrate relevant knowledge of the construction industry, rules, laws and regulations into the operations of the **Licensed Electrical Contractor**.
- 5.12 Resolve non-technical challenges including stakeholder communication challenges, vendor and supplier communications.

<sup>4</sup> "Construction Act, R.S.O. 1990, c. C.30." Government of Ontario, 1 September 2021. <https://www.ontario.ca/laws/statute/90c30>

## DOMAINS

## COMPETENCIES

# 6

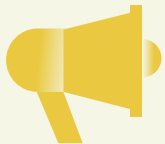
### Technical knowledge and skills



- 6.1** Provide guidance on **electrical equipment** and its installation methods.
- 6.2** Interpret applicable codes, standards, regulations and acts.
- 6.3** Recognize and address jobsite hazards, deficiencies and high-risk activities.
- 6.4** Interpret electrical **drawings and specifications**.
- 6.5** Interpret job specifications, construction drawings and general instructions as they may relate to daily electrical contracting field activities.
- 6.6** Distinguish between approved and unapproved electrical products and **electrical equipment**.
- 6.7** Apply electrical theory to all aspects of **electrical work** and **electrical installations**.
- 6.8** Resolve technical challenges including calculations, installation practices and compliance issues.
- 6.9** Recognize limitations of personal expertise and qualifications and obtain support as necessary.

# 7

### Advocacy



- 7.1** Promote the profession and the importance of electrical safety.
- 7.2** Promote good relationships and communication with internal and external stakeholders.
- 7.3** Support opportunities for learning and skill development for all workers.
- 7.4** Mentor Master Electricians and electrical workers.
- 7.5** Support the training of **Code** rules to all electrical workers.
- 7.6** Engage with the Electrical Safety Authority<sup>5</sup> to suggest **Code** changes and upgrades as appropriate.

<sup>5</sup> Home Page. Electrical Safety Authority, <https://esasafe.com>

## DOMAINS

## COMPETENCIES

# 8

## Professionalism and Ethics



- 8.1 Demonstrate **professional presence**, leadership and expertise.
- 8.2 Demonstrate organizational skills, attention to detail and digital literacy.
- 8.3 Communicate clearly both orally and in writing.
- 8.4 Lead projects in a respectful and inclusive manner.
- 8.5 Establish and maintain **professional boundaries**.
- 8.6 Engage in respectful collaboration with team members to achieve project completion.
- 8.7 Apply respectful conflict resolution strategies between employees, suppliers and all other pertinent stakeholders.
- 8.8 Support ethical **electrical work** practices.
- 8.9 Demonstrate honesty and integrity in all **electrical contracting business** practices.
- 8.10 Support **equity, diversity** and **inclusion** in the workplace.
- 8.11 Take steps to identify and address **unconscious bias**.
- 8.12 Disclose any **conflicts of interest** to potential customers that may affect work or tender of projects.
- 8.13 Identify and report unethical and dangerous behaviour to **Authority Having Jurisdiction**.

# 9

## Continuing Education



- 9.1 Maintain awareness of emerging technologies and evolving installation practices.
- 9.2 Maintain awareness of **updates**.
- 9.3 Self-evaluate performance and set goals to enhance professional knowledge and skills.
- 9.4 Engage in continuing education and professional development.

# Glossary

Glossary Term	Definition	Reference
<b>Applicable laws</b>	<p>Applicable law, as amended from time to time or any successor legislation and regulations, as amended from time to time, including the OESC, and the laws relating to health and safety and consumer protection including but not limited to:</p> <ul style="list-style-type: none"> <li>• Ontario Electrical Safety Code</li> <li>• Electricity Act, 1998 Part VIII</li> <li>• Ontario Regulation 05/570 (Licensing of Electrical Contractors and Master Electricians)</li> <li>• Building Opportunities in the Skilled Trades Act and associated regulations</li> <li>• Ontario Building Code</li> <li>• Workplace Safety and Insurance Act and associated regulations</li> <li>• Occupational Health and Safety Act and associated regulations</li> <li>• Employment Standards Act and associated regulations</li> <li>• Consumer Protection Act and associated regulations</li> <li>• Corporations Tax Act and associated regulations</li> </ul>	<p>“E-Laws.” Government of Ontario, <a href="https://www.ontario.ca/laws">https://www.ontario.ca/laws</a></p> <p>“Building Opportunities in the Skilled Trades Act, 2021, S.O. 2021, c. 28 - Bill 288. Government of Ontario, <a href="https://www.ontario.ca/laws/statute/s21028">https://www.ontario.ca/laws/statute/s21028</a></p> <p>“O. Reg. 12/332: BUILDING CODE.” Government of Ontario, <a href="https://www.ontario.ca/laws/regulation/120332">https://www.ontario.ca/laws/regulation/120332</a></p>
<b>Authority Having Jurisdiction</b>	<p>Authority Having Jurisdiction means an organization, office, or individual responsible for enforcing the minimum requirements of codes, standards and permits for approving equipment, materials and installations or a procedure within its jurisdiction.</p>	<p>“Authority Having Jurisdiction Definition.” Law Insider, <a href="https://www.lawinsider.com/dictionary/authority-having-jurisdiction-ahj">https://www.lawinsider.com/dictionary/authority-having-jurisdiction-ahj</a></p>
<b>Building systems</b>	<p>Building systems are the critical systems of your facility, such as the Electrical, HVAC, Security, Life Safety, Lighting, Utilities, Telecom, and Energy Management. These systems are rarely, if ever, independent entities; rather, they depend on each other to operate.</p>	<p>“Defining Building Systems.” Archibus, <a href="https://www.archibus.net/ai/abizfiles/v23_help/archibus_help/user_en/Subsystems/webc/Content/asset_mngmt/background/bldg_system_define.htm">https://www.archibus.net/ai/abizfiles/v23_help/archibus_help/user_en/Subsystems/webc/Content/asset_mngmt/background/bldg_system_define.htm</a></p>



Glossary Term	Definition	Reference
<b>Certifications</b>	Certifications include all applicable credentials and qualifications required by applicable law to support skilled trades, equipment operations, Safety, Technical Training and Proper Equipment Operation	
<b>Code</b>	The Ontario Electrical Safety Code (OESC or "the Code") is mostly a technical document and is prescriptive in approach. It describes in detail the standards for electrical installations, products and equipment in Ontario.	"Ontario Electrical Safety Code." About ESA, Electrical Safety Authority, <a href="https://esasafe.com/role/oesc/">https://esasafe.com/role/oesc/</a>
<b>Conflicts of interest</b>	Conflicts of interest exist when an individual has a material interest either directly or indirectly, in a contract or transaction or when an individual's personal interests oppose the corporation's interests. There is a legal requirement to disclose financial conflicts of interest whereas it is best practice to disclose ethical conflicts of interest.	"Competition Bureau guidelines on conflict of interest." Government of Canada, <a href="https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04130.html">https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04130.html</a>
<b>Diversity</b>	The presence of a wide range of human qualities and attributes within an individual, group or organization. Diversity includes such factors as age, sex, race, ethnicity, physical and intellectual ability, religion, sexual orientation, educational background and expertise.	"Teaching human rights in Ontario." Ontario Human Rights Commission. 2013 pp. 57. <a href="https://www3.ohrc.on.ca/sites/default/files/Teaching20%Human20%Rights20%in20%Ontario_2013.pdf">https://www3.ohrc.on.ca/sites/default/files/Teaching20%Human20%Rights20%in20%Ontario_2013.pdf</a>
<b>Drawings and Specifications</b>	Drawings include plans, blueprints, schematics, diagrams and specifications necessary to properly assess, review and execute the proposed electrical work.	"Drawings and Specifications Definition." Law insider, <a href="https://www.lawinsider.com/dictionary/drawing-and-specifications">https://www.lawinsider.com/dictionary/drawing-and-specifications</a>
<b>Electrical Contracting Business</b>	A business that is engaged in the carrying out of electrical work.	"O. Reg. 05/570: Licensing of Electrical Contractors and Master Electricians." Government of Canada, <a href="https://www.ontario.ca/laws/regulation/050570">https://www.ontario.ca/laws/regulation/050570</a>

Glossary Term	Definition	Reference
<b>Electrical Equipment</b>	<p>Any apparatus, appliance, device, instrument, fitting fixture, machinery, material or thing used in or for, or capable of being used in or for, the generation, transformation, transmission, distribution, supply or utilization of electric power or energy, and, without restricting the generality of the foregoing, includes any assemblage or combination of materials or things which is used, or is capable</p> <p>of being used or adapted, to serve or perform any particular purpose or function when connected to an electrical installation, notwithstanding that any of such materials or things may be mechanical, metallic or non-electric in origin.</p>	<p>"O. Reg. 05/570: Licensing of Electrical Contractors and Master Electricians." Government of Canada, 2022. <a href="https://www.ontario.ca/laws/regulation/050570">https://www.ontario.ca/laws/regulation/050570</a></p>
<b>Electrical Installation</b>	<p>The installation of any wiring in or upon any land, building or premises from the point or points where electric power or energy can be supplied from any source to the point or points where such power or energy can be used in or on the land, building or premises by any electrical equipment, including the connection of any such wiring with any of that equipment, and any part of the wiring, and the maintenance, alteration, extension and repair of such wiring.</p>	<p>"O. Reg. 05/570: Licensing of Electrical Contractors and Master Electricians." Government of Canada, 2022. <a href="https://www.ontario.ca/laws/regulation/050570">https://www.ontario.ca/laws/regulation/050570</a></p>
<b>Electrical Work</b>	<p>Work within the scope of the Ontario Electrical Safety Code that consists of constructing, installing, protecting, maintaining, repairing, extending, altering, connecting or disconnecting any electrical installation or electrical equipment.</p>	<p>"O. Reg. 05/570: Licensing of Electrical Contractors and Master Electricians." Government of Canada, 2022. <a href="https://www.ontario.ca/laws/regulation/050570">https://www.ontario.ca/laws/regulation/050570</a></p>
<b>Equity</b>	<p>Equity is defined as fairness, impartiality, even-handedness. A distinct process of recognizing differences within groups of individuals and using this understanding to achieve substantive equality in all aspects of a person's life.</p>	<p>"Teaching human rights in Ontario." Ontario Human Rights Commission. 2013 pp. 58. <a href="https://www3.ohrc.on.ca/sites/default/files/Teaching20%Human20%Rights20%in20%Ontario_2013.pdf">https://www3.ohrc.on.ca/sites/default/files/Teaching20%Human20%Rights20%in20%Ontario_2013.pdf</a></p>
<b>Inclusion</b>	<p>Appreciating and using our unique differences – strengths, talents, weaknesses and frailties – in a way that shows respect for the individual and ultimately creates a dynamic multi-dimensional organization.</p>	<p>"Teaching human rights in Ontario." Ontario Human Rights Commission. 2013 pp. 59. <a href="https://www3.ohrc.on.ca/sites/default/files/Teaching20%Human20%Rights20%in20%Ontario_2013.pdf">https://www3.ohrc.on.ca/sites/default/files/Teaching20%Human20%Rights20%in20%Ontario_2013.pdf</a></p>

Glossary Term	Definition	Reference
<b>Licensed Electrical Contractor</b>	An individual or business that is licensed to operate an electrical contracting business in accordance with the licensing regulation; Ontario Regulation 05/570 made under Part VIII of the Electricity Act.	"Guideline to the Duties and Responsibilities of Licensed Electrical Contractors (LECs) and Designated Master Electricians (DMEs)." Electrical Safety Authority, April 2022, pp. 5. <a href="https://esasafe.com/assets/files/esasafe/pdf/Contractor/Guideline_Duties-and-Responsibilities-of-LECs-and-DMEs2022-.pdf">https://esasafe.com/assets/files/esasafe/pdf/Contractor/Guideline_Duties-and-Responsibilities-of-LECs-and-DMEs2022-.pdf</a>
<b>Personal protective equipment</b>	Personal protective equipment (PPE) is designed to protect against safety and/or health hazards. Hard hats, safety glasses, and safety boots, for instance, are designed to prevent or reduce the severity of injury if an accident occurs. Other PPE, such as hearing and respiratory protection, is designed to prevent illnesses and unwanted health effects.	"Personal protective equipment (PPE)." Infrastructure Health and Safety Association, <a href="https://www.ihsa.ca/topics_hazards/ppe.aspx">https://www.ihsa.ca/topics_hazards/ppe.aspx</a>
<b>Professional boundaries</b>	The point at which the relationship changes from professional to unprofessional and personal. It defines the limit of the professional role. Crossing a boundary means the master electrician is misusing power in the relationship or behaving in an unprofessional manner with the client, co-workers or contractors. The misuse of power does not have to be intentional to be considered a boundary crossing.	"Therapeutic Nurse-Client Relationship: Maintaining Boundaries." College of Nurses of Ontario, 2011. <a href="https://www.cno.org/globalassets/-4_learnaboutstandardsandguidelines/prac/learn/webcasts/tncr-webcast-boundaries.pdf">https://www.cno.org/globalassets/-4_learnaboutstandardsandguidelines/prac/learn/webcasts/tncr-webcast-boundaries.pdf</a>
<b>Professional presence</b>	The demonstration of respect, confidence, integrity, positivity, engagement and empathy in accordance with legislation, practice standards, guidelines and code of ethics through verbal and non-verbal communications.	"Professional Presence." Nova Scotia College of Nursing, <a href="https://www.nscn.ca/professional-practice/practice-support/practice-support-tools/professional-presence">https://www.nscn.ca/professional-practice/practice-support/practice-support-tools/professional-presence</a>
<b>Skilled trades</b>	A skilled trade is a career path that requires hands-on work and specialty knowledge. Skilled trades workers build and maintain infrastructure like our homes, schools, hospitals, roads, farms and parks.	"Skilled Trades." Government of Ontario, <a href="https://www.ontario.ca/page/skilled-trades">https://www.ontario.ca/page/skilled-trades</a>

Glossary Term	Definition	Reference
<b>Unconscious bias</b>	Unconscious bias (also known as an implicit bias) refers to the unconscious assumptions, beliefs, attitudes and stereotypes that human brains have about different groups. These learned mental shortcuts affect how we perceive and respond to people.	"Unconscious Bias." University of Victoria, Equity and Human Rights. <a href="https://www.uvic.ca/equity/employment-equity/bias/index.php">https://www.uvic.ca/equity/employment-equity/bias/index.php</a>
<b>Updates</b>	Updates include the details of the OESC, Bulletins and other applicable codes, standards as well as Applicable Laws.	