



**Skilled  
Trades**  
Ontario

**Métiers  
spécialisés**  
Ontario

## **Supplemental Resource Guide**

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Electrician – Construction and Maintenance (309A)

Electrician – Domestic and Rural (309C)

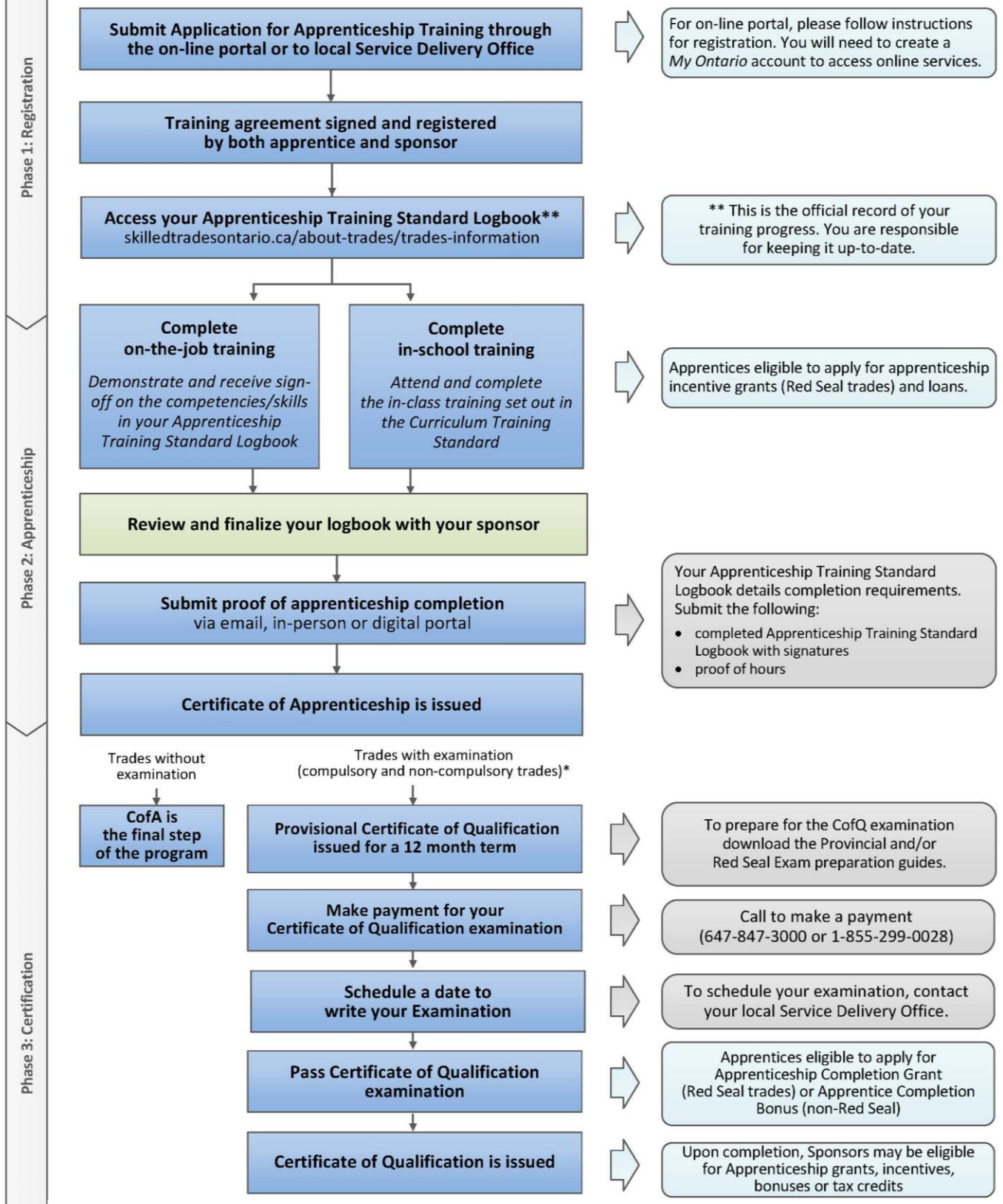
Industrial Electrician (442A)



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# Apprenticeship Pathway to a Certificate of Qualification



\* For a list of trades subject to a certification examination, visit: skilledtradesontario.ca

## Program Summary: Reportable Subjects and Recommended Hours

Electrician – Construction and Maintenance  
Electrician – Domestic and Rural  
Industrial Electrician

The total hours/weeks for each level in the Electrical Trades' Curriculum Standard is as follows:

- Level 1– 270 hours (9 weeks)
- Level 2 - 270 hours (9 weeks)
- Level 3– 270 hours (9 weeks)
- Level 4 Industrial Electrician– 240 hours (8 weeks)
- Level 4 Electrician-Construction and Maintenance– 240 hours (8 weeks)

### Level 1 Program Summary of Reportable Subjects\*

Number	Reportable Subjects	Hours Total	Hours Theory	Hours Practical
3365	Communication and Documentation	27	27	0
3366	Introduction to the Canadian Electrical Code	36	36	0
3367	Trade Practices	36	36	0
3368	Installation and Maintenance Methods	54	9	45
3369	Electrical Fundamentals	81	54	27
3370	Drawings, Specifications and Standards Fundamentals	36	36	0
	<b>Total</b>	<b>270</b>	<b>198</b>	<b>72</b>

\*This Level is 100% common core between the three electrical trades: Electrician - Construction and Maintenance, Electrician-Domestic and Rural and Industrial Electrician.

### Level 2 Program Summary of Reportable Subjects\*

Number	Reportable Subjects	Hours Total	Hours Theory	Hours Practical
3371	Electrical Systems	72	63	9
3372	Electronic Fundamentals	36	18	18
3373	Drawings, Specifications and Standards Intermediate	36	36	0
3374	Motor Controls and Devices	45	18	27
3375	Communication and Monitoring Systems	45	18	27
3376	Canadian Electrical Code II	36	36	0
	<b>Total</b>	<b>270</b>	<b>189</b>	<b>81</b>

\*This Level is 100% common core between the three electrical trades: Electrician - Construction and Maintenance, Electrician-Domestic and Rural and Industrial Electrician

### Level 3 Program Summary of Reportable Subjects\*

Number	Reportable Subjects	Hours Total	Hours Theory	Hours Practical
3377	Renewable Energy Generating and Storage Systems	27	18	9
3378	Electrical Theory and Application	72	45	27
3379	PLC Fundamentals	27	9	18
3380	Power Electronics	36	18	18
3381	Drawings, Specifications and Standards Advanced	36	36	0
3382	Introduction to Instrumentation	36	18	18
3383	Canadian Electrical Code III	36	36	0
	<b>Total</b>	<b>270</b>	<b>180</b>	<b>90</b>

\*This Level is 100% common core between the three electrical trades: Electrician - Construction and Maintenance, Electrician-Domestic and Rural and Industrial Electrician.

### Level 4 Program Summary of Reportable Subjects\* — Industrial Electrician

Number	Reportable Subjects	Hours Total	Hours Theory	Hours Practical
3384	Building Automation Systems (Common Core)	32	24	8
3385	Professionalism and Ethics (Common Core)	16	16	0
3386	Power Conditioning (Common Core)	24	24	0
3387	Advanced Motors and Generators (Common Core)	40	24	16
3388	Advanced Instrumentation (Industrial only)	32	16	16
3389	Pneumatic and Hydraulic Control Systems (Industrial only)	24	16	8
3390	High voltage Service and Operation (Common Core)	40	40	0
3391	Automated Control systems (Industrial only)	32	16	16
	<b>Total</b>	<b>240</b>	<b>176</b>	<b>64</b>

\*The above list sets out the level 4 reportable subject requirements for Industrial Electricians (442A) only. 5 reportable subjects are common core with the level 4 requirements of Electricians, Construction and Maintenance (309A). The remaining 3 apply solely to Industrial Electricians. There are no level 4 requirements for Electrician, Domestic and Rural (309C).

**Level 4 Program Summary of Reportable Subjects\* —  
Electrician, Construction & Maintenance**

<b>Number</b>	<b>Reportable Subjects</b>	<b>Hours Total</b>	<b>Hours Theory</b>	<b>Hours Practical</b>
3384	Building Automation Systems (Common Core)	32	24	8
3385	Professionalism and Ethics (Common Core)	16	16	0
3386	Power Conditioning (Common Core)	24	24	0
3387	Advanced Motors and Generators (Common Core)	40	24	16
3390	High voltage Service and Operation (Common Core)	40	40	0
3392	Specialty Installations (Construction only)	40	40	0
3393	Canadian Electrical Code IV (Construction only)	48	48	0
	<b>Total</b>	<b>240</b>	<b>216</b>	<b>24</b>

\*The above list sets out the level 4 reportable subject requirements for Electricians, Construction and Maintenance (309A) only. 5 reportable subjects are common core with the level 4 requirements of Industrial Electricians (442A). The remaining 2 apply solely to Electricians, Construction and Maintenance (309A). There are no level 4 requirements for Electrician, Domestic and Rural (309C).



**Program Summary: Pre-requisites and Co-requisites**  
Electrician – Construction and Maintenance  
Electrician – Domestic and Rural  
Industrial Electrician

**Pre-requisite requirements for the Electrical Trades Curriculum:**

In order to advance to Level 2 of the apprenticeship program, an individual must have completed all of the units outlined in Level 1. Similarly, in order to advance to Level 3 of the program, an individual must have completed all of the units outlined in Level 1 and 2. Finally, in order to advance to Level 4 of the program, an individual must have completed all of the units outlined in levels 1, 2 & 3.

## Reportable Subject Mapping – Existing Curriculum Standard to New Curriculum Standard

New Reportable Subject#	New Reportable Subject Curriculum Standard 2023	Existing Reportable Subject#	Existing Reportable Subject 2003
<b>Level 1</b>			
3365.0	Communication and Documentation	n/a	New
3366.0	Introduction to the Canadian Electrical Code	1.01	Canadian Electrical Code I
3367.0	Trade Practices	n/a	New Note: a small number of outcomes related to safety/safety practices/trade practices were previously in context in other reportable subjects
3368.0	Installation and Maintenance Methods	1.04	Installation Methods I
3369.0	Electrical Fundamentals	1.03	Electrical Theory I
3370.0	Drawings, Specifications and Standards Fundamentals	1.02	Prints I
<b>Level 2</b>			
3371.0	Electrical Systems	2.03	Electrical Theory II
3372.0	Electronic Fundamentals	1.06	Electronics I
3373.0	Drawings, Specifications and Standards Intermediate	2.02	Prints II
3374.0	Motor Controls and Devices	3.07 2.04	Electronics III Installation Methods II
3375.0	Communication and Monitoring Systems	2.07	Monitoring and Communication Systems
3376.0	Canadian Electrical Code II	2.01	Canadian Electrical Code II

**Level 3**

3377.0	Renewable Energy Generating and Storage Systems	n/a	New
3378.0	Electrical Theory and Application	3.03	Electrical Theory III
3379.0	PLC Fundamentals	3.04	Installation Methods III
3380.0	Power Electronics	2.06 3.07	Electronics II Electronics III
3381.0	Drawings, Specifications and Standards Advanced	3.02	Prints III
3382.0	Introduction to Instrumentation	1.05 2.05	Instrumentation I Instrumentation II
3383.0	Canadian Electrical Code III	3.01	Canadian Electrical Code III

## Level 4

3384.0	Building Automation Systems (Common Core)	n/a	New
3385.0	Professionalism and Ethics (Common Core)	n/a	New
3386.0	Power Conditioning (Common Core)	3.07	Electronics III Electrical Theory III (Harmonics, power factor correction etc..)
3387.0	Advanced Motors and Generators (Common Core)	2.03 3.03	Electrical Theory II (DC motors and generators) Electrical Theory III (AC motors, synchronizing alternators)
3388.0	Advanced Instrumentation (Industrial only)	3.05	Instrumentation III
3389.0	Pneumatic and Hydraulic Control Systems (Industrial only)	3.06 3.05	Fluid Power Instrumentation III (only regarding pneumatic controls) Note: Some of the outcomes and content is new
3390.0	High voltage Service and Operation (Common Core)	3.01 3.02 3.03	Canadian Electrical Code III Prints III Electrical Theory III Note: old curriculum did not directly distinguish high voltage transformers Note: Some of the outcomes and content are new
3391.0	Automated Control systems (Industrial only)	3.06 3.04 3.07	Fluid Power (DCS) Installation Methods III Electronics III Note: Some of the outcomes and content are new
3392.0	Specialty Installations (Construction only)	n/a	New
3393.0	Canadian Electrical Code IV (Construction only)	n/a	New

## Tools, Equipment and Materials Recommendations for Training Delivery Agents

The purpose of the Curriculum Standard is to establish the highest standard for learning and expectations for knowledge transfer for apprentices.

To meet the in-school learning outcomes and objectives set out in this Curriculum Standard for Electrician-Construction and Maintenance, Electrician – Domestic and Rural and Industrial Electrician, the curriculum steering committee and working group, recommend that designated Training Delivery Agents (TDAs) have the following tools, equipment and/or materials in place for use during the implementation of this curriculum.

Reportable Subject	Recommended Resources, Tools, Equipment and Materials
<b>Level 1</b>	
Communication and Documentation	<ul style="list-style-type: none"> <li>• Computer stations with software</li> <li>• Printers</li> <li>• Form samples</li> </ul>
Introduction to the Canadian Electrical Code	n/a
Trade Practices	<ul style="list-style-type: none"> <li>• Sample Safety Data Sheets (SDS) sheets and related materials</li> <li>• Lock out/tagout resources/materials               <ul style="list-style-type: none"> <li>➤ Sample disconnect/panel and equipment</li> <li>➤ Locks</li> <li>➤ Tags</li> <li>➤ Lock out hasps and accessories</li> <li>➤ Z460 copy</li> </ul> </li> <li>• Assorted Personal Protective Equipment (PPE) and safety equipment for demonstration</li> <li>• Hoisting and rigging display board               <ul style="list-style-type: none"> <li>➤ Rope (wire and fibre)</li> <li>➤ Chain falls</li> <li>➤ Straps</li> <li>➤ Slings</li> <li>➤ Shackles</li> </ul> </li> </ul>
Installation and Maintenance Methods	<ul style="list-style-type: none"> <li>• Tools, resources and materials for demonstrating grounding and bonding methods</li> <li>• Tools, resources and materials for demonstrating the installation and maintenance of raceways, cables, enclosures, fittings and associated support components               <ul style="list-style-type: none"> <li>➤ Non-metallic sheathed cable</li> <li>➤ Armoured cable</li> <li>➤ Rigid conduits</li> <li>➤ Flexible conduits</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>➤ Liquid-tight conduit</li> <li>➤ Electrical metallic tubing</li> <li>➤ Electrical Non-metallic tubing</li> <li>➤ Flexible cords</li> <li>➤ Associated tools for bending metallic and non-metallic raceways</li> <li>➤ Conduit threading equipment</li> </ul> <ul style="list-style-type: none"> <li>• Tools, resources and materials for demonstrating the installation and maintenance of a single-phase service and distribution equipment and associated support components <ul style="list-style-type: none"> <li>➤ Service entrance equipment</li> <li>➤ Service entrance raceway (overhead or underground)</li> <li>➤ Meter base</li> <li>➤ Main disconnect</li> <li>➤ Panel board</li> <li>➤ Grounding electrodes</li> <li>➤ breakers</li> <li>➤ wire/conductors</li> </ul> </li> <li>• Tools, resources and materials for demonstrating the installation and maintenance of branch circuits and wiring devices <ul style="list-style-type: none"> <li>➤ Single pole wiring devices</li> <li>➤ Double Pole wiring devices</li> <li>➤ Class A GFCI protection devices</li> <li>➤ AFCI protection devices</li> <li>➤ Wet location enclosures and covers</li> <li>➤ 15A, 20A, 30A and 50A receptacles</li> <li>➤ Switches <ul style="list-style-type: none"> <li>○ Single pole</li> <li>○ 3 way</li> <li>○ 4 way</li> </ul> </li> <li>➤ Device boxes, conductors and cables</li> </ul> </li> </ul>
Electrical Fundamentals	<ul style="list-style-type: none"> <li>• Trainer board with variable DC power supply and protoboard</li> <li>• Various resistors</li> <li>• Multimeters</li> <li>• Connecting wire</li> </ul>
Drawings, Specifications and Standards Fundamentals	<ul style="list-style-type: none"> <li>• Sample drawings, schematics and specifications</li> </ul>

## Level 2

Electrical Systems	<ul style="list-style-type: none"><li>• DC compound motor</li><li>• Variable DC and AC power supply</li><li>• Resistive dynamic braking load</li><li>• device to load the motor</li><li>• Double pole double throw switch or drum switch</li><li>• Armature rheostat</li><li>• Field rheostat</li><li>• DC ammeter</li><li>• Tachometer</li><li>• Digital multi-meter</li><li>• Associated conductors</li><li>• Manual motor starter</li><li>• Sample motor parts</li><li>• Resistive loads</li><li>• Capacitive loads</li><li>• Inductive loads</li></ul>
Electronic Fundamentals	<ul style="list-style-type: none"><li>• Trainer board with variable dc and ac power supplies</li><li>• Protoboard</li><li>• Digital multi-meter</li><li>• Oscilloscope (dual trace)</li><li>• Electronic components: resistors, diodes, LEDs, filter capacitors, RC timer capacitors, SCR, DIAC, TRIAC, various resistive loads for circuits</li></ul>
Drawings, Specifications and Standards Intermediate	<ul style="list-style-type: none"><li>• Sample drawings, schematics and specifications</li></ul>
Motor Controls and Devices	<ul style="list-style-type: none"><li>• AC power supply</li><li>• Push buttons</li><li>• Selector switches</li><li>• Pilot lights</li><li>• Motor starters (reverse and forward)</li><li>• Relays</li><li>• Timers</li><li>• Overload blocks</li><li>• AC split phase motor</li><li>• Auxiliary contacts</li><li>• Conductors</li></ul>
Communication and Monitoring Systems	<ul style="list-style-type: none"><li>• Conventional and addressable fire alarm panels</li><li>• Initiating devices</li><li>• Notification devices</li><li>• Annunciators</li></ul>

	<ul style="list-style-type: none"> <li>• Ancillary devices</li> <li>• Supervisory devices</li> <li>• Conductors</li> <li>• cables</li> <li>• End of the line resistors</li> <li>• Termination tools for various communication cables</li> <li>• Security alarm panel</li> <li>• Door and window contacts</li> <li>• Motion detector</li> <li>• Key pads</li> <li>• Notification devices</li> </ul>
Canadian Electrical Code II	n/a
<b>Level 3</b>	
Renewable Energy Generating and Storage Systems	<p>Note: Practical outcome is written broadly to provide flexibility in meeting project requirements (up to TDA to determine project requirements)</p> <p>Sample Options:</p> <ul style="list-style-type: none"> <li>• Solar modules</li> <li>• Charge controller</li> <li>• Battery</li> <li>• inverter</li> <li>• conductors</li> <li>• digital multi-meter</li> </ul>
Electrical Theory and Application	<ul style="list-style-type: none"> <li>• single phase transformer with centre tap secondary</li> <li>• three phase transformer with centre tap secondary</li> <li>• three phase resistive load bank</li> <li>• three phase inductive load bank</li> <li>• three phase capacitive load bank</li> <li>• digital multi-meter</li> <li>• AC ammeter</li> <li>• power factor meter</li> <li>• three phase squirrel cage motor (dual voltage)</li> <li>• split phase motor (dual voltage)</li> <li>• universal motor</li> <li>• motor starting equipment</li> <li>• conductors</li> <li>• oscilloscope or power analyzer</li> </ul>
PLC Fundamentals	<ul style="list-style-type: none"> <li>• computer work stations</li> <li>• programming software</li> <li>• PLC and associated equipment</li> <li>• Input devices</li> <li>• Output devices</li> </ul>



Power Electronics	<ul style="list-style-type: none"> <li>• Digital multi meter</li> <li>• Trainer board with variable dc and ac power supplies</li> <li>• Protoboard</li> <li>• Oscilloscope (dual trace)</li> <li>• Electronic components: resistors, transistors, Op Amps diodes, LEDs, filter capacitors, various resistive loads for circuits</li> <li>• AC variable frequency drive with motor</li> <li>• DC single and four quad drive with motor</li> <li>• Tachometer</li> <li>• Ammeter</li> <li>• Conductors</li> </ul>
Drawings, Specifications and Standards Advanced	<p>Recommended for demonstration only:</p> <ul style="list-style-type: none"> <li>• Access to electronic drawing software</li> </ul>
Introduction to Instrumentation	<ul style="list-style-type: none"> <li>• Pressure sensors</li> <li>• Temperature sensors</li> <li>• Level sensors</li> <li>• Flow sensors</li> <li>• Pump</li> <li>• Tanks</li> <li>• Related plumbing</li> <li>• Analog multi-meter</li> <li>• RTDs and thermocouple testers</li> <li>• Digital multi-meter</li> <li>• Wheat stone bridge</li> </ul>
Canadian Electrical Code III	n/a
<b>Level 4</b>	
Building Automation Systems (Common Core)	<p>For Building automation control devices and equipment it is up to TDA to determine project requirements</p> <p>Recommended:</p> <ul style="list-style-type: none"> <li>• control device (i.e. thermostat, pull station, occupancy sensor, current sensors, key pads)</li> <li>• equipment – i.e. door opener, VAV boxes, lighting dimmers</li> <li>• associated tools and equipment i.e. wire cutters, strippers etc...</li> <li>• 3384.04 suggested equipment; 0 – 10 volt occupancy/vacancy sensors, daylight sensors, dimmer switches, dimming ballasts, thermostat, and VAV box</li> </ul>

Professionalism and Ethics (Common Core)	n/a
Power Conditioning (Common Core)	<p>Recommended for demonstration only: power quality analyzer and test equipment, sample UPS system, and other related equipment such as;</p> <ul style="list-style-type: none"> <li>• Suppressors</li> <li>• Voltage Regulators</li> <li>• Isolation Transformers</li> <li>• Motor Generators</li> <li>• Standby Power Supply</li> <li>• Uninterruptible Power Supply</li> <li>• Under/over voltage relays</li> <li>• infrared scan,</li> <li>• power analyser,</li> <li>• RMS</li> <li>• average voltage and current meters</li> </ul>
Advanced Motors and Generators (Common Core)	<ul style="list-style-type: none"> <li>• wound field DC motor/generator and prime mover, electrical loads, electrical test equipment</li> <li>• squirrel cage induction (dual voltage) motor</li> <li>• wound rotor induction motor</li> <li>• synchronous motor/AC generator</li> <li>• electrical test equipment</li> <li>• mechanical loads</li> <li>• tachometer</li> </ul>
Advanced Instrumentation (Industrial only)	<ul style="list-style-type: none"> <li>• Pressure, Level, Temperature, Flow, Position sensors (continuous)</li> <li>• Pump</li> <li>• Tanks</li> <li>• Related plumbing</li> <li>• Analog multi-meter</li> <li>• RTDs and thermocouple testers</li> <li>• Digital multi-meter</li> <li>• Wheat stone bridge</li> <li>• PID controller</li> <li>• Control loop equipment</li> </ul> <p>Recommended for demonstration only: Load cells</p>
Pneumatic and Hydraulic Control Systems (Industrial only)	<p>Pumps, valves, cylinders and related test equipment such as;</p> <ul style="list-style-type: none"> <li>• Hydraulic pump and prime mover</li> <li>• Hydraulic motor (optional)</li> <li>• filter</li> <li>• reservoir</li> </ul>

	<ul style="list-style-type: none"> <li>• control valves (pilot operated/manual)</li> <li>• servo/proportional valves (optional)</li> <li>• hydraulic gauges</li> <li>• actuators</li> <li>• flow controls</li> <li>• check valves (optional)</li> <li>• pressure relief valve</li> <li>• hoses and fittings</li> </ul>
High voltage Service and Operation (Common Core)	<p>Recommended for demonstration only:</p> <ul style="list-style-type: none"> <li>• Gloves</li> <li>• Hot stick and attachments</li> <li>• Voltage tester</li> <li>• Mats</li> <li>• PPE</li> <li>• Stress cone</li> <li>• High voltage fuses</li> </ul>
Automated Control systems (Industrial only)	<ul style="list-style-type: none"> <li>• computer work stations</li> <li>• programming software</li> <li>• PLC and associated equipment</li> <li>• Input devices (digital and analog)</li> <li>• Output devices (digital and analog)</li> <li>• HMI hardware or emulator software</li> <li>• SCADA hardware or emulator software</li> <li>• Drive (VFD) for interfacing</li> <li>• Communication modules and related cabling</li> </ul>
Specialty Installations (Construction only)	n/a
Canadian Electrical Code IV (Construction only)	n/a

## Cross Reference Mapping between the Electrical Trades Curriculum Standard and the Electrical Trades Apprenticeship Training Standards

The following table cross references Reportable Subjects in the Electrical Trades' Curriculum Standard with related skill sets and skills in the Apprenticeship Training Standards for each of the 3 Electrical Trades; Electrician-Construction and Maintenance, Industrial Electrician and Electrician-Domestic and Rural.

This table is meant to provide a high-level summary of linkages between the learning outcomes in the Reportable Subjects and the on-the-job performance objectives/competencies in the Apprenticeship Training Standards Skill Sets and Skills. A Skill Set reference does not mean that every skill within the skill set is directly related to all the content in the Reportable Subject content or vice versa.

Electrical Trades' Curriculum Standard Reportable Subjects	New Electrician-Construction and Maintenance (309A) Apprenticeship Training Standard Skill Sets and Skills	New Industrial Electrician (442A) Apprenticeship Training Standard Skill Sets and Skills	Electrician-Domestic and Rural (309C) Apprenticeship Training Standard Skill Sets and Skills
<b>Level 1</b>			
3365 Communication and Documentation	9245 Protect self, others and the Environment 9257 Demonstrate Business Practices	8050 Protect Self and Others 8062 Communication in the Workplace	U12.0 Communicate in the Workplace
3366 Introduction to the Canadian Electrical Code	9245 Protect self, others and the Environment 9249 Install, Troubleshoot, Repair and Maintain Wiring Installations 9250 Install and Maintain Power Distribution Equipment Systems 9251 Install and Maintain Lighting Systems 9252 Install and Maintain Rotating Equipment and Associated Control Systems 9253 Install and Maintain Motor Drives and Associated Control Systems	8050 Protect Self and Others 8054 Instrumentation Devices and Automated Control Systems 8055 Wiring Systems 8056 Power Distribution Equipment Systems 8057 Lighting Systems 8058 Rotating Equipment and Associated Control Systems 8059 Motor Drives and Associated Control Systems 8060 Power Generating Systems and Associated Equipment	U1.0 Protect Self and Others U4.0 Wiring Systems U5.0 Power Distribution Equipment Systems U6.0 Lighting Systems U7.0 Rotating Equipment and Associated Control Systems U8.0 Motor Drives and Associated Control Systems U9.0 Stand-by Power Systems and Associated Equipment U10.0 Communication Systems

	<p>9254 Install and Maintain Power Generating Systems and Associated Equipment</p> <p>9255 Install, Troubleshoot and Maintain Voice, Video, Sound, Phone and Data Communications and Signalling Systems</p> <p>9256 Install, Troubleshoot and Maintain Instrumentation and Automated Control Devices and Systems</p>	8061 Communication and Signalling Systems	
3367 Trade Practices	<p>9245 Protect self, others and the Environment</p> <p>9246 Create, Modify and Interpret Schematics, Drawings and Specifications</p> <p>9247 Use and Maintain Tools and Equipment</p> <p>9248 Use and Maintain Test and Measuring Equipment</p>	<p>8050 Protect self and others</p> <p>8051 Schematics, Drawings and Specifications</p> <p>8052 Tools and Equipment</p> <p>8053 Test and Measuring Equipment</p>	<p>U1.0 Protect Self and Others</p> <p>U2.0 Schematic Drawings and Documentation</p> <p>U3.0 Tools and Equipment</p> <p>U11.0 Test and Measuring Equipment</p>
3368 Installation and Maintenance Methods	<p>9245 Protect self, others and the Environment</p> <p>9246 Create, Modify and Interpret Schematics, Drawings and Specifications</p> <p>9247 Use and Maintain Tools and Equipment</p> <p>9248 Use and Maintain Test and Measuring Equipment</p> <p>9249 Install, Troubleshoot, Repair and Maintain Wiring Installations</p> <p>9251 Install and Maintain Lighting Systems</p>	<p>8050 Protect self and others</p> <p>8051 Schematics, Drawings and Specifications</p> <p>8052 Tools and Equipment</p> <p>8053 Test and Measuring Equipment</p> <p>8055 Wiring Systems</p> <p>8057 Lighting Systems</p>	<p>U1.0 Protect Self and Others</p> <p>U2.0 Schematic Drawings and Documentation</p> <p>U3.0 Tools and Equipment</p> <p>U4.0 Wiring Systems</p> <p>U6.0 Lighting Systems</p> <p>U11.0 Test and Measuring Equipment</p>

3369 Electrical Fundamentals	9245 Protect self, others and the Environment 9248 Use and Maintain Test and Measuring Equipment 9249 Install, Troubleshoot, Repair and Maintain Wiring Installations	8050 Protect self and others 8053 Test and Measuring Equipment 8055 Wiring Systems	U1.0 Protect Self and Others U4.0 Wiring Systems U11.0 Test and Measuring Equipment
3370 Drawings, Specifications and Standards Fundamentals	9245 Protect self, others and the Environment 9246 Create, Modify and Interpret Schematics, Drawings and Specifications 9250 Install and Maintain Power Distribution Equipment Systems	8050 Protect self and others 8051 Schematics, Drawings and Specifications 8056 Power Distribution Equipment Systems	U1.0 Protect Self and Others U2.0 Schematic Drawings and Documentation U5.0 Power Distribution Equipment Systems
<b>Level 2</b>			
3371 Electrical Systems	9245 Protect self, others and the Environment 9246 Create, Modify and Interpret Schematics, Drawings and Specifications 9247 Use and Maintain Tools and Equipment 9248 Use and Maintain Test and Measuring Equipment 9249 Install, Troubleshoot, Repair and Maintain Wiring Installations 9251 Install and Maintain Lighting Systems 9252 Install and Maintain Rotating Equipment and Associated Control Systems	8050 Protect self and others 8051 Schematics, Drawings and Specifications 8052 Tools and Equipment 8053 Test and Measuring Equipment 8055 Wiring Systems 8057 Lighting Systems, 8058 Rotating Equipment and Associated Control Systems	U1.0 Protect Self and Others U2.0 Schematic Drawings and Documentation U3.0 Tools and Equipment U4.0 Wiring Systems U6.0 Lighting Systems U7.0 Rotating Equipment and Associated Control Systems U11.0 Test and Measuring Equipment

<p>3372 Electronic Fundamentals</p>	<p>9245 Protect self, others and the Environment  9246 Create, Modify and Interpret Schematics, Drawings and Specifications  9248 Use and Maintain Test and Measuring Equipment  9249 Install, Troubleshoot, Repair and Maintain Wiring Installations  9250 Install and Maintain Power Distribution Equipment Systems  9252 Install and Maintain Rotating Equipment and Associated Control Systems  9251 Install and Maintain Lighting Systems  9254 Install and Maintain Power Generating Systems and Associated Equipment</p>	<p>8050 Protect self and others  8051 Schematics, Drawings and Specifications  8053 Test and Measuring Equipment  8055 Wiring Systems  8056 Power Distribution Equipment Systems  8058 Rotating Equipment and Associated Control Systems  8057 Lighting Systems  8060 Power Generating Systems and Associated Equipment</p>	<p>U1.0 Protect Self and Others  U2.0 Schematic Drawings and Documentation  U4.0 Wiring Systems  U5.0 Power Distribution Equipment Systems  U6.0 Lighting Systems  U7.0 Rotating Equipment and Associated Control Systems  U9.0 Stand-by Power Systems And Associated Equipment  U11.0 Test and Measuring Equipment</p>
<p>3373 Drawings, Specifications and Standards Intermediate</p>	<p>9245 Protect self, others and the Environment  9246 Create, Modify and Interpret Schematics, Drawings and Specifications  9249 Install, Troubleshoot, Repair and Maintain Wiring Installations  9251 Install and Maintain Lighting Systems</p>	<p>8050 Protect self and others  8051 Schematics, Drawings and Specifications  8055 Wiring Systems  8057 Lighting Systems</p>	<p>U1.0 Protect Self and Others  U2.0 Schematic Drawings and Documentation  U4.0 Wiring Systems  U6.0 Lighting Systems</p>
<p>3374 Motor Controls and Devices</p>	<p>9245 Protect self, others and the Environment  9246 Create, Modify and Interpret Schematics, Drawings and Specifications  9247 Use and Maintain Tools and Equipment</p>	<p>8050 Protect self and others  8051 Schematics, Drawings and Specifications  8052 Tools and Equipment  8053 Test and Measuring Equipment  8055 Wiring Systems  8058 Rotating Equipment and Associated Control Systems</p>	<p>U1.0 Protect Self and Others  U2.0 Schematic Drawings And Documentation  U3.0 Tools and Equipment  U11.0 Test and Measuring Equipment  U4.0 Wiring Systems</p>

	<p>9248 Use and Maintain Test and Measuring Equipment</p> <p>9249 Install, Troubleshoot, Repair and Maintain Wiring Installations</p> <p>9252 Install and Maintain Rotating Equipment and Associated Control Systems</p>		<p>U7.0 Rotating Equipment and Associated Control Systems</p>
<p>3375 Communication and Monitoring Systems</p>	<p>9245 Protect self, others and the Environment</p> <p>9246 Schematics, Drawings and Specifications</p> <p>9247 Tools and Equipment</p> <p>9248 Test and Measuring Equipment</p> <p>9249 Wiring Installations</p> <p>9255 Voice, Video, Sound, Phone and Data Communications and Signalling Systems</p>	<p>8050 Protect self and others</p> <p>8051 Schematics, Drawings and Specifications</p> <p>8052 Tools and Equipment</p> <p>8053 Test and Measuring Equipment</p> <p>8055 Wiring Systems</p> <p>8061 Communication and Signalling Systems</p>	<p>U1.0 Protect Self and Others</p> <p>U2.0 Schematic Drawings and Documentation</p> <p>U3.0 Tools and Equipment</p> <p>U11.0 Test and Measuring Equipment</p> <p>U4.0 Wiring Systems</p> <p>U10.0 Communication Systems</p>
<p>3376 Canadian Electrical Code II</p>	<p>9245 Protect self, others and the Environment</p> <p>9249 Install, Troubleshoot, Repair and Maintain Wiring Installations</p> <p>9250 Install and Maintain Power Distribution Equipment Systems</p> <p>9251 Install and Maintain Lighting Systems</p> <p>9252 Install and Maintain Rotating Equipment and Associated Control Systems</p> <p>9255 Install, Troubleshoot and Maintain Voice, Video, Sound, Phone and Data Communications and Signaling Systems</p>	<p>8050 Protect self and others</p> <p>8055 Wiring Systems</p> <p>8056 Power Distribution Equipment Systems</p> <p>8057 Lighting Systems</p> <p>8058 Rotating Equipment and Associated Control Systems</p> <p>8061 Communications and Signalling Systems</p>	<p>U1.0 Protect Self and Others</p> <p>U4.0 Wiring Systems</p> <p>U5.0 Power Distribution Equipment Systems</p> <p>U6.0 Lighting Systems</p> <p>U7.0 Rotating Equipment and Associated Control Systems</p> <p>U10.0 Communication Systems</p>



### Level 3

<p>3377 Renewable Energy Generating and Storage Systems</p>	<p>9245 Protect self, others and the Environment            9246 Create, Modify and Interpret Schematics, Drawings and Specifications            9247 Use and Maintain Tools and Equipment            9248 Use and Maintain Test and Measuring Equipment            9249 Install, Troubleshoot, Repair and Maintain Wiring Installations            9254 Install and Maintain Power Generating Systems and Associated Equipment</p>	<p>8050 Protect self and others            8051 Schematics, Drawings and Specifications            8052 Tools and Equipment            8053 Test and Measuring Equipment            8055 Wiring Systems            8060 Power Generating Systems and Associated Equipment</p>	<p>U1.0 protect self and others            U2.0 schematic drawings and documentation            U3.0 tools and equipment            U11.0 test and measuring equipment            U4.0 wiring systems            U9.0 stand-by power systems and associated equipment</p>
<p>3378 Electrical Theory and Application</p>	<p>9245 Protect self, others and the Environment            9246 Create, Modify and Interpret Schematics, Drawings and Specifications            9247 Use and Maintain Tools and Equipment            9248 Use and Maintain Test and Measuring Equipment            9249 Install, Troubleshoot, Repair and Maintain Wiring Installations            9250 Install and Maintain Power Distribution Equipment Systems            9252 Install and Maintain Rotating Equipment and Associated Control Systems</p>	<p>8050 Protect self and others            8051 Schematics, Drawings and Specifications            8052 Tools and Equipment            8053 Test and Measuring Equipment            8055 Wiring Systems            8056 Power Distribution and Equipment Systems            8058 Rotating Equipment and Associated Control Systems</p>	<p>U1.0 protect self and others            U2.0 schematic drawings and documentation            U3.0 tools and equipment            U11.0 test and measuring equipment            U4.0 wiring systems            U5.0 power distribution equipment systems            U7.0 rotating equipment and associated control systems</p>
<p>3379 PLC Fundamentals</p>	<p>9245 Protect self, others and the Environment</p>	<p>8050 Protect self and others            8051 Schematics, Drawings and Specifications            8052 Tools and Equipment</p>	<p>U1.0 Protect Self And Others            U2.0 Schematic Drawings And Documentation            U3.0 Tools And Equipment</p>

	<p>9246 Create, Modify and Interpret Schematics, Drawings and Specifications</p> <p>9247 Use and Maintain Tools and Equipment</p> <p>9248 Use and Maintain Test and Measuring Equipment</p> <p>9249 Install, Troubleshoot, Repair and Maintain Wiring Installations</p> <p>9253 Install and Maintain Motor Drives and Associated Control Systems</p> <p>9256 Install, Troubleshoot and Maintain Instrumentation and Automated Control Devices and Systems</p>	<p>8053 Test and Measuring Equipment</p> <p>8055 Wiring Systems</p> <p>8054 Instrumentation Devices and Automated Control Systems</p> <p>8059 Motor Drives and Associated Control Systems</p>	<p>U11.0 Test and Measuring Equipment</p> <p>U4.0 Wiring Systems</p> <p>U8.0 Motor Drives and Associated Control Systems</p>
3380 Power Electronics	<p>9245 Protect self, others and the Environment</p> <p>9246 Create, Modify and Interpret Schematics, Drawings and Specifications</p> <p>9247 Use and Maintain Tools and Equipment</p> <p>9248 Use and Maintain Test and Measuring Equipment</p> <p>9249 Install, Troubleshoot, Repair and Maintain Wiring Installations</p> <p>9253 Install and Maintain Motor Drives and Associated Control Systems</p> <p>9252 Install and Maintain Rotating Equipment and Associated Control Systems</p>	<p>8050 Protect self and others</p> <p>8051 Schematics, Drawings and Specifications</p> <p>8052 Tools and Equipment</p> <p>8053 Test and Measuring Equipment</p> <p>8055 Wiring Systems</p> <p>8059 Motor Drives and Associated Control Systems</p> <p>8058 Rotating Equipment and Associated Control Systems</p>	<p>U1.0 Protect Self and Others</p> <p>U2.0 Schematic Drawings and Documentation</p> <p>U3.0 Tools and Equipment</p> <p>U11.0 Test and Measuring Equipment</p> <p>U4.0 Wiring Systems</p> <p>U7.0 Rotating Equipment and Associated Control Systems</p> <p>U8.0 Motor Drives and Associated Control Systems</p>
3381 Drawings, Specifications and Standards Advanced	<p>9245 Protect self, others and the Environment</p>	<p>8050 Protect self and others</p> <p>8051 Schematics, Drawings and Specifications</p>	<p>U1.0 Protect Self And Others</p> <p>U2.0 Schematic Drawings And Documentation</p>

	<p>9246 Create, Modify and Interpret Schematics, Drawings and Specifications</p> <p>9249 Install, Troubleshoot, Repair and Maintain Wiring Installations</p> <p>9250 Power Distribution Equipment Systems</p> <p>9251 Install and Maintain Lighting Systems</p>	<p>8055 Wiring Systems</p> <p>8056 Power Distribution Equipment Systems</p> <p>8057 Lighting Systems</p>	<p>U4.0 Wiring Systems</p> <p>U5.0 Power Distribution Equipment Systems</p> <p>U6.0 Lighting Systems</p>
3382 Introduction to Instrumentation	<p>9245 Protect self, others and the Environment</p> <p>9246 Create, Modify and Interpret Schematics, Drawings and Specifications</p> <p>9247 Use and Maintain Tools and Equipment</p> <p>9248 Use and Maintain Test and Measuring Equipment</p> <p>9249 Install, Troubleshoot, Repair and Maintain Wiring Installations</p> <p>9256 Install, Troubleshoot and Maintain Instrumentation and Automated Control Devices and Systems</p>	<p>8050 Protect self and others</p> <p>8051 Schematics, Drawings and Specifications</p> <p>8052 Tools and Equipment</p> <p>8053 Test and Measuring Equipment</p> <p>8055 Wiring Systems</p> <p>8054 Instrumentation and Automated Control Systems</p>	<p>U1.0 Protect Self and Others</p> <p>U2.0 Schematic Drawings and Documentation</p> <p>U3.0 Tools and Equipment</p> <p>U11.0 Test and Measuring Equipment</p> <p>U4.0 Wiring Systems</p>
3383 Canadian Electrical Code III	<p>9245 Protect self, others and the Environment</p> <p>9249 Install, Troubleshoot, Repair and Maintain Wiring Installations</p> <p>9252 Install and Maintain Rotating Equipment and Associated Control Systems</p> <p>9254 Install and Maintain Power Generating Systems and Associated Equipment</p>	<p>8050 Protect self and others</p> <p>8055 Wiring Systems</p> <p>8058 Rotating Equipment and Associated Control Systems</p> <p>8060 Power Generating Systems and Associated Equipment</p>	<p>U1.0 Protect Self and Others</p> <p>U4.0 Wiring Systems</p> <p>U7.0 Rotating Equipment and Associated Control Systems</p> <p>U9.0 Stand-By Power Systems And Associated Equipment</p>

## Level 4

<p>3384 Building Automation Systems</p>	<p>9245 Protect self, others and the Environment            9246 Create, Modify and Interpret Schematics, Drawings and Specifications            9247 Use and Maintain Tools and Equipment            9248 Use and Maintain Test and Measuring Equipment            9249 Install, Troubleshoot, Repair and Maintain Wiring Installations            9251 Install and Maintain Lighting Systems            9253 Install and Maintain Motor Drives and Associated Control Systems            9255 Install, Troubleshoot and Maintain Voice, Video, Sound, Phone and Data Communications and Signaling Systems</p>	<p>8050 Protect Self and Others            8051 Schematics, Drawings and Specifications            8052 Tools and Equipment            8053 Test and Measuring Equipment            8055 Wiring Systems            8057 Lighting Systems            8059 Motor Drives and Associated Control Systems            8061 Communications and Signalling Systems</p>
<p>3385 Professionalism and Ethics</p>	<p>9245 Protect Self, Others and the Environment            9257 Demonstrate Business Practices</p>	<p>8050 Protect Self and Others            8062 Communication in the Workplace</p>
<p>3386 Power Conditioning</p>	<p>9245 Protect Self, Others and the Environment            9246 Create, Modify and Interpret Schematics, Drawings and Specifications            9247 Use and Maintain Tools and Equipment            9248 Use and Maintain Test and Measuring Equipment</p>	<p>8050 Protect Self and Others            8051 Schematics, Drawings and Specifications            8052 Tools and Equipment            8053 Test and Measuring Equipment            8055 Wiring Systems            8056 Power Distribution Equipment Systems            8058 Rotating Equipment and Associated Control Systems</p>

	<p>9249 Install, Troubleshoot, Repair and Maintain Wiring Installations</p> <p>9250 Install and Maintain Power Distribution Equipment Systems</p> <p>9252 Install and Maintain Rotating Equipment and Associated Control Systems</p> <p>9254 Install and Maintain Power Generating Systems and Associated Equipment</p>	<p>8060 Power Generating Systems And Associated Equipment</p>	
3387 Advanced Motors and Generators	<p>9245 Protect self, others and the Environment</p> <p>9246 Create, Modify and Interpret Schematics, Drawings and Specifications</p> <p>9247 Use and Maintain Tools and Equipment</p> <p>9248 Use and Maintain Test and Measuring Equipment</p> <p>9249 Install, Troubleshoot, Repair and Maintain Wiring Installations</p> <p>9252 Install and Maintain Rotating Equipment and Associated Control Systems</p>	<p>8050 Protect self and others</p> <p>8051 Schematics, Drawings and Specifications</p> <p>8052 Tools and Equipment</p> <p>8053 Test and Measuring Equipment</p> <p>8055 Wiring Systems</p> <p>8058 Rotating Equipment and Associated Control Systems</p>	
3388 Advanced Instrumentation (industrial electrician only)		<p>8050 Protect self and others</p> <p>8051 Schematics, Drawings and Specifications</p> <p>8052 Tools and Equipment</p> <p>8053 Test and Measuring Equipment</p> <p>8055 Wiring Systems</p> <p>8054 Instrumentation Devices and Automated Control Systems</p>	
3389 Pneumatic and Hydraulic Control		<p>8050 Protect Self and Others</p> <p>8051 Schematics, Drawings and Specifications</p>	

Systems (industrial electrician only)		8052 Tools and Equipment 8053 Test and Measuring Equipment 8055 Wiring Systems 8054 Instrumentation Devices and Automated Control Systems 8056 Power Distribution Equipment Systems 8060 Power Generating Systems and Associated Equipment	
3390 High voltage Service and Operation	9245 Protect self, others and the Environment 9246 Create, Modify and Interpret Schematics, Drawings and Specifications 9247 Use and Maintain Tools and Equipment 9248 Use and Maintain Test and Measuring Equipment 9249 Install, Troubleshoot, Repair and Maintain Wiring Installations 9250 Install and Maintain Power Distribution Equipment Systems	8050 Protect Self and Others 8051 Schematics, Drawings and Specifications 8052 Tools and Equipment 8053 Test and Measuring Equipment 8055 Wiring Systems 8056 Power Distribution Equipment Systems	
3391 Automated Control Systems (industrial electrician only)		8050 Protect Self and Others 8051 Schematics, Drawings and Specifications 8052 Tools and Equipment 8053 Test and Measuring Equipment 8055 Wiring Systems 8059 Motor Drives and Associated Control Systems 8061 Communications and Signalling Systems	

		8054 Instrumentation Devices and Automated Control Systems
3392 Specialty Systems (construction electrician only)	9245 Protect Self, Others and the Environment 9246 Create, Modify and Interpret Schematics, Drawings and Specifications 9247 Use and Maintain Tools and Equipment 9248 Use and Maintain Test and Measuring Equipment 9249 Install, Troubleshoot, Repair and Maintain Wiring Installations 9251 Install and Maintain Lighting Systems	
3393 Canadian Electrical Code IV (construction electrician only)	9245 Protect Self, Others and the Environment 9249 Install, Troubleshoot, Repair And Maintain Wiring Installations 9251 Install And Maintain Lighting Systems	







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