Apprenticeship Training Standard

Industrial Electrician

Trade Code: 442A

Development Date: November 2011
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### SKILL SETS

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<th>Skill Description</th>
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APPRENTICESHIP PROGRAM SUMMARY/GUIDELINES

1. **Program Definition:** **Industrial Electrician** is defined as a person who,

   “Industrial Electrician” is defined as a person who installs, maintains, tests, troubleshoots and repairs industrial electrical equipment (and associated electrical and electronic controls) and hydraulic and pneumatic equipment in industrial, manufacturing and power plants.

   **INDUSTRIAL ELECTRICIAN** is an approved apprenticeship program for the purposes of the *Apprenticeship and Certification Act, 1998 (ACA)*.

2. **Program Guidelines**

   - **On-The-Job Training Duration (for apprentices)**
     The Industry Committee has identified 8160 hours as the duration generally necessary for any apprentice to become competent in the skills required. There may be individual circumstances where the duration varies from this guideline.

   - **In-School Training Duration**
     The Industry Committee has identified 840 hours of in-school training as the duration generally necessary for an apprentice to complete the in-school curriculum for this program, except where an apprentice has been exempted from any level of that curriculum.

   - **Ratio**
     The Industry Committee has identified a journeyperson-to-apprentice ratio of one trainer to one apprentice and three trainers for each additional apprentice as the ratio generally necessary for an apprentice to be properly trained on the job in this program. There may be individual circumstances where the ratio varies from this guideline.

2. **Program Requirements**

   - **Restricted Skill Sets**
     This program does not contain any restricted skill sets as per Ontario Regulation 565/99, Restricted Skill Sets. Therefore, an individual is not required to be registered apprentice or possess certification in order to perform skills contained in the program.
Academic Standard

The minimum academic standard for entry to this program as completion of Grade 12 or ministry-approved equivalent.

(See ACA Policy 102, Confirming Academic Requirements)

- **Eligibility for Exam Challenge (for Non-apprentice C of Q Applicants)**
  The challenger must:
  ✓ provide proof of competency in all skills as identified in the Training Standard (see page 6); and
  ✓ demonstrate that he/she has acquired 9000 hours of on-the-job training.

(See ACA Policy 150, Assessing Applicants for the Certificate of Qualification)

- **Eligibility for Program Completion (for Apprentices)**
  The apprentice must:
  ✓ achieve competency in all skills as identified in the Training Standard (see page 6); and
  ✓ complete the in-school training as outlined in the industry and ministry-approved Curriculum Standard.

(ACA Policy 309, Completion of an Apprenticeship Program)

- **Other Information**

- **Other Resources**
  Complete program requirements, policies, and standards can be obtained by referring to the following resources:
  ✓ *Apprenticeship and Certification Act, 1998* (ACA);
  ✓ ACA General Regulation 573/99;
  ✓ ACA Exemption Regulation 566/99;
  ✓ Program-specific Apprenticeship Training Standards or Schedules of Training; and
  ✓ ACA Program and Policy Manual

- **Other Required Certification**
  N/A

- **Academic Background**
  Industry has identified relevant secondary school course(s) likely to increase an individual’s chances of success if completed prior to program entry. For details, see the document Apprenticeship Subject Pathways.
## COMPETENCY ANALYSIS PROFILE

### INDUSTRIAL ELECTRICIAN

### SKILL SETS

#### PROTECT SELF AND OTHERS

<table>
<thead>
<tr>
<th>SKILLS</th>
<th>U7241</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify, interpret and apply applicable Acts, regulations, codes and directives</td>
<td>7241.01</td>
</tr>
<tr>
<td>Recognize, assess and control hazards and hazardous conditions, equipment and material</td>
<td>7241.02</td>
</tr>
<tr>
<td>Identify and use fire extinguishers and fire-fighting equipment</td>
<td>7241.03</td>
</tr>
<tr>
<td>Perform housekeeping duties to ensure a safe working environment</td>
<td>7241.04</td>
</tr>
<tr>
<td>Practice first aid in emergency situations</td>
<td>7241.05</td>
</tr>
<tr>
<td>Select, wear, adjust, use and maintain personal protective apparel and equipment</td>
<td>7241.06</td>
</tr>
<tr>
<td>Perform lock out, tagging and hold-off procedures</td>
<td>7241.07</td>
</tr>
</tbody>
</table>

#### READ, INTERPRET AND REVISE SCHEMATIC DRAWINGS AND DOCUMENTATION

<table>
<thead>
<tr>
<th>SKILLS</th>
<th>U7242</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify, read and interpret architectural drawings and specifications</td>
<td>7242.01</td>
</tr>
<tr>
<td>Create, maintain and modify drawings and sketches</td>
<td>7242.02</td>
</tr>
<tr>
<td>Identify, read and interpret mechanical drawings and specifications</td>
<td>7242.03</td>
</tr>
<tr>
<td>Identify, read and interpret power distribution drawings and specifications</td>
<td>7242.04</td>
</tr>
<tr>
<td>Identify, read and interpret instrumentation and communication drawings and specifications</td>
<td>7242.05</td>
</tr>
<tr>
<td>Identify, read and interpret electrical drawings and specifications</td>
<td>7242.06</td>
</tr>
<tr>
<td>Identify, read and interpret relay, solid state and logic drawings and specifications</td>
<td>7242.07</td>
</tr>
</tbody>
</table>
## Skill Sets

### Select, Maintain and Use Tools and Equipment

<table>
<thead>
<tr>
<th>U7243</th>
<th>Select, maintain, use and repair hand tools</th>
<th>Select, maintain, use and repair electric power tools and accessories</th>
<th>Select, use, inspect and maintain rigging and hoisting equipment</th>
<th>Select, inspect and maintain scaffolds, lifting devices and elevating platforms</th>
<th>Assemble, erect and locate scaffolds, lifting devices and elevating platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>7243.01</td>
<td>7243.02</td>
<td>7243.03</td>
<td>7243.04</td>
<td>7243.05</td>
<td></td>
</tr>
<tr>
<td>Dismantle and store scaffolds, lifting devices and elevating platforms</td>
<td>Select and perform trade-specific oxy-fuel cutting and welding procedures</td>
<td>Schedule electrical job site materials and equipment requirements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7243.06</td>
<td>7243.07</td>
<td>7243.08</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Install, Maintain and Repair Wiring Systems

<table>
<thead>
<tr>
<th>U7244</th>
<th>Select and install busway systems for rural, institutional, commercial and industrial installations</th>
<th>Maintain and repair busway systems for rural, institutional, commercial and industrial installations</th>
<th>Select, layout and install branch circuit wiring for power and lighting branch circuits</th>
<th>Troubleshoot branch circuit wiring for power and lighting branch circuits</th>
<th>Select, layout and install cable trays for power, data and communication cable wiring systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>7244.01</td>
<td>7244.02</td>
<td>7244.03</td>
<td>7244.04</td>
<td>7244.05</td>
<td></td>
</tr>
<tr>
<td>Select, lay out and install feeder cables for single and multi-conductor cables, metallic and non-metallic cables</td>
<td>Select, lay out and install rigid Poly Vinyl Chloride (PVC) conduits</td>
<td>Select, lay out and install electric heating systems</td>
<td>Select, lay out and install wiring for hazardous locations</td>
<td>Select, lay out and install overhead distribution systems</td>
<td></td>
</tr>
<tr>
<td>7244.06</td>
<td>7244.07</td>
<td>7244.08</td>
<td>7244.09</td>
<td>7244.10</td>
<td></td>
</tr>
<tr>
<td>Select, lay out and install underground distribution systems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7244.11</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>SKILL SETS</td>
<td>SKILLS</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SELECT, INSTALL, MAINTAIN AND TROUBLESHOOT POWER DISTRIBUTION EQUIPMENT SYSTEMS</td>
<td>Lay out and install secondary services</td>
<td>Maintain secondary services</td>
<td>Select and install high voltage protection and control devices</td>
<td>Maintain high voltage protection and control devices</td>
<td>Calculate requirements for secondary service loads, fuses and feeders</td>
</tr>
<tr>
<td>U7245</td>
<td>7245.01</td>
<td>7245.02</td>
<td>7245.03</td>
<td>7245.04</td>
<td>7245.05</td>
</tr>
<tr>
<td></td>
<td>Select and install oil and dry type distribution transformers</td>
<td>Test and maintain oil and dry type distribution transformers</td>
<td>Select and layout power distribution panels</td>
<td>Test and maintain power distribution panels</td>
<td>Lay out and install ground fault circuit interrupters</td>
</tr>
<tr>
<td></td>
<td>7245.06</td>
<td>7245.07</td>
<td>7245.08</td>
<td>7245.09</td>
<td>7245.10</td>
</tr>
<tr>
<td></td>
<td>Test and Maintain ground fault circuit interrupters</td>
<td>Layout and install power factor correction equipment</td>
<td>Test and maintain power factor protection equipment</td>
<td>Install low voltage power distribution systems</td>
<td>Troubleshoot and maintain low voltage power distribution systems</td>
</tr>
<tr>
<td></td>
<td>7245.11</td>
<td>7245.12</td>
<td>7245.13</td>
<td>7245.14</td>
<td>7245.15</td>
</tr>
<tr>
<td></td>
<td>Install direct current (DC) power distribution systems</td>
<td>Troubleshoot and maintain direct current (DC) power distribution systems</td>
<td>Select and install AC/DC protective devices</td>
<td>Troubleshoot and maintain AC/DC protective devices</td>
<td></td>
</tr>
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<td></td>
<td>7245.16</td>
<td>7245.17</td>
<td>7245.18</td>
<td>7245.19</td>
<td></td>
</tr>
<tr>
<td>SELECT, INSTALL, MAINTAIN AND TROUBLESHOOT LIGHTING SYSTEMS</td>
<td>Layout and install incandescent lighting</td>
<td>Maintain and troubleshoot incandescent lighting</td>
<td>Layout and install fluorescent lighting</td>
<td>Maintain and troubleshoot fluorescent lighting</td>
<td>Layout and install high intensity discharge lighting</td>
</tr>
<tr>
<td>U7246</td>
<td>7246.01</td>
<td>7246.02</td>
<td>7246.03</td>
<td>7246.04</td>
<td>7246.05</td>
</tr>
<tr>
<td></td>
<td>Maintain and troubleshoot high intensity discharge lighting</td>
<td>Layout and install light dimming and control systems</td>
<td>Maintain and troubleshoot light dimming and control systems</td>
<td>Layout, install and maintain exit and emergency</td>
<td>Measure, record and report illumination levels</td>
</tr>
<tr>
<td></td>
<td>7246.06</td>
<td>7246.07</td>
<td>7246.08</td>
<td>7246.09</td>
<td>7246.10</td>
</tr>
</tbody>
</table>
### SKILL SETS

| INSTALL, MAINTAIN AND TROUBLESHOOT ROTATING EQUIPMENT AND ASSOCIATED CONTROL SYSTEMS | SKILLS |
|---|---|---|---|---|
| U7247 | Inspect, maintain and troubleshoot brush assemblies, slip rings and commutators | Inspect, maintain and troubleshoot DC motors and generators | Install and test mechanical, electrical alignment and auxiliary protective equipment | Maintain and troubleshoot mechanical, electrical alignment and auxiliary protective equipment |
| 7247.01 | 7247.02 | 7247.03 | 7247.04 | 7247.05 |
| Maintain and troubleshoot lubrication systems | Maintain and troubleshoot braking and clutch systems | Start-up and shutdown rotating equipment | Select and install relays, solid state devices and controls | |
| 7247.06 | 7247.07 | 7247.08 | 7247.09 | 7247.10 |
| Select and install protective devices | Maintain protective devices | Select, assemble and wire control panels, enclosures and control devices | Select and install field devices such as mechanical/remote field devices | |
| 7247.11 | 7247.12 | 7247.13 | 7247.14 | |

| INSTALL, MAINTAIN AND TROUBLESHOOT MOTOR DRIVES AND ASSOCIATED CONTROL SYSTEMS | SKILLS |
|---|---|---|---|---|
| U7248 | Install, maintain and troubleshoot DC constant voltage drives | Install, maintain and troubleshoot solid state and variable DC drives | Install, maintain and troubleshoot AC constant voltage drives | Install, maintain and troubleshoot solid state and variable AC drives | Install, maintain and troubleshoot computer based interface systems |
| 7248.01 | 7248.02 | 7248.03 | 7248.04 | 7248.05 |
| Install, maintain and troubleshoot programmable logic controller systems | Install, maintain and troubleshoot computerized numerical control systems | Install, maintain and troubleshoot robotic systems | | |
| 7248.06 | 7248.07 | 7248.08 | | |
## SKILL SETS

<table>
<thead>
<tr>
<th>SKILLS</th>
<th>INSTALL, MAINTAIN AND TROUBLESHOOT STAND-BY POWER SYSTEMS AND ASSOCIATED EQUIPMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>U7249</td>
<td>Lay out, install and maintain uninterruptible power supply systems</td>
</tr>
<tr>
<td></td>
<td>7249.01</td>
</tr>
</tbody>
</table>

## INSTALL, MAINTAIN AND TROUBLESHOOT COMMUNICATIONS SYSTEMS

<table>
<thead>
<tr>
<th>SKILLS</th>
<th>INSTALL, MAINTAIN AND TROUBLESHOOT COMMUNICATIONS SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>U7250</td>
<td>Install and test fibre optic cabling and terminations</td>
</tr>
<tr>
<td></td>
<td>7250.01</td>
</tr>
<tr>
<td></td>
<td>7250.06</td>
</tr>
<tr>
<td></td>
<td>Test and verify the operation of a clock system</td>
</tr>
</tbody>
</table>
## SKILL SETS

### SELECT, MAINTAIN AND OPERATE TEST AND MEASURING EQUIPMENT

<table>
<thead>
<tr>
<th>U7251</th>
<th>7251.01</th>
<th>7251.02</th>
<th>7251.03</th>
<th>7251.04</th>
<th>7251.05</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SKILLS</strong></td>
<td>Layout and install power and energy metering equipment</td>
<td>Select, operate and maintain analog and digital multimeters</td>
<td>Select, operate and maintain electronic test equipment</td>
<td>Select, operate and maintain insulation testers</td>
<td>Select, operate and maintain oscilloscopes</td>
</tr>
<tr>
<td></td>
<td>Select, operate and maintain fault locators</td>
<td>Select, operate and maintain high voltage test equipment</td>
<td>Select, operate and maintain computer-based test equipment</td>
<td>Select, operate and maintain chart recorders</td>
<td>Select, operate and maintain electrical test equipment</td>
</tr>
<tr>
<td></td>
<td>7251.06</td>
<td>7251.07</td>
<td>7251.08</td>
<td>7251.09</td>
<td>7251.10</td>
</tr>
<tr>
<td></td>
<td>Select, operate and maintain special test equipment</td>
<td></td>
<td></td>
<td></td>
<td>7251.11</td>
</tr>
</tbody>
</table>

### INSTALL, MAINTAIN AND TROUBLESHOOT INSTRUMENTATION DEVICES AND SYSTEMS

<table>
<thead>
<tr>
<th>U7252</th>
<th>7252.01</th>
<th>7252.02</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SKILLS</strong></td>
<td>Select, install and maintain instrumentation devices</td>
<td>Install, maintain and troubleshoot distributed control systems (DCS)</td>
</tr>
</tbody>
</table>

### COMMUNICATE IN THE WORKPLACE

<table>
<thead>
<tr>
<th>U7253</th>
<th>7253.01</th>
<th>7253.02</th>
<th>7253.03</th>
<th>7253.04</th>
<th>7253.05</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SKILLS</strong></td>
<td>Write job related documents</td>
<td>Give, receive and convey instructions to and from others</td>
<td>Demonstrate effective interpersonal relations</td>
<td>Present professional image</td>
<td>Interact effectively with computers</td>
</tr>
<tr>
<td></td>
<td>Interact effectively through communication devices</td>
<td></td>
<td></td>
<td></td>
<td>7253.06</td>
</tr>
</tbody>
</table>
## SKILL SET COMPLETION FORM

<table>
<thead>
<tr>
<th>SKILLS SETS</th>
<th>TITLE</th>
<th>MINIMUM SIGN OFF REQUIREMENT</th>
<th>SIGNING AUTHORITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>U7241</td>
<td>Protect Self and Others</td>
<td>ALL</td>
<td></td>
</tr>
<tr>
<td>U7242</td>
<td>Read, Interpret and Revise Schematic Drawings and Documentation</td>
<td>ALL</td>
<td></td>
</tr>
<tr>
<td>U7243</td>
<td>Select, Maintain and Use Tools and Equipment</td>
<td>ALL</td>
<td></td>
</tr>
<tr>
<td>U7244</td>
<td>Install, Maintain and Repair Wiring Systems</td>
<td>9 of 11</td>
<td></td>
</tr>
<tr>
<td>U7245</td>
<td>Select, Install, Maintain and Troubleshoot Power Distribution Equipment Systems</td>
<td>16 of 19</td>
<td></td>
</tr>
<tr>
<td>U7246</td>
<td>Select, Install, Maintain and Troubleshoot Lighting Systems</td>
<td>ALL</td>
<td></td>
</tr>
<tr>
<td>U7247</td>
<td>Install, Maintain and Troubleshoot Rotating Equipment and Associated Control Systems</td>
<td>ALL</td>
<td></td>
</tr>
<tr>
<td>U7248</td>
<td>Install, Maintain and Troubleshoot Motor Drives and Associated Control Systems</td>
<td>6 of 8</td>
<td></td>
</tr>
<tr>
<td>U7249</td>
<td>Install, Maintain and Troubleshoot Stand-by Power Systems and Associated Equipment</td>
<td>ALL</td>
<td></td>
</tr>
<tr>
<td>U7250</td>
<td>Install, Maintain and Troubleshoot Communications Systems</td>
<td>8 of 12</td>
<td></td>
</tr>
<tr>
<td>U7251</td>
<td>Select, Maintain and Operate Test and Measuring Equipment</td>
<td>9 of 11</td>
<td></td>
</tr>
<tr>
<td>U7252</td>
<td>Install, Maintain and Troubleshoot Instrumentation Devices and Systems</td>
<td>ALL</td>
<td></td>
</tr>
<tr>
<td>U7253</td>
<td>Communicate in the Workplace</td>
<td>ALL</td>
<td></td>
</tr>
</tbody>
</table>

### Note:

The Ministry of Training, Colleges and Universities recommends that all On-the-Job Performance Objectives be signed off in every skill set. Depending on the availability of equipment and company needs, apprentices may not be able to obtain sign-offs for every objective in sections U7244, U7245, U7248, U7250, and U7251. For those skill sets, the minimum requirement for sign-offs is given in the third column of the above table. Individuals writing the examination for this trade are required to be proficient in all aspects of the trade, regardless of whether they have obtained all sign-offs in this document.
PREFACE

This training standard was developed by the Ministry of Training Colleges and Universities (MTCU), in partnership with the Industry Committee and in consultation with representatives from the industry. This document is intended to be used by apprentice, supervisor/trainer and sponsor/employer as a "blueprint" for training and as a prerequisite for completion and certification.

This training document becomes the apprentice’s only record of workplace training performance.

Supervisor/trainer and apprentice are required to sign off and date the skills following each successful acquisition, as detailed in the Skill Set Completion Form.

The care and maintenance of this training document are the joint responsibility of the apprentice and the sponsor/employer. By signing off the skill, the supervisor/trainer and the apprentice are indicating that the apprentice has demonstrated competence in the skill. This training standard has been developed specifically for documenting the apprentice’s acquisition of skills in the trade.

Please Note: Apprenticeship Training and Curriculum Standards were developed by the Ministry of Training, Colleges and Universities (MTCU). As of April 8th, 2013, the Ontario College of Trades (College) has become responsible for the development and maintenance of these standards. The College is carrying over existing standards without any changes.

However, because the Apprenticeship Training and Curriculum Standards documents were developed under either the Trades Qualification and Apprenticeship Act (TQAA) or the Apprenticeship and Certification Act, 1998 (ACA), the definitions contained in these documents may no longer be accurate and may not be reflective of the Ontario College of Trades and Apprenticeship Act, 2009 (OCTAA) as the new trades legislation in the province. The College will update these definitions in the future.

Meanwhile, please refer to the College’s website (http://www.collegeoftrades.ca) for the most accurate and up-to-date information about the College. For information on OCTAA and its regulations, please visit: http://www.collegeoftrades.ca/about/legislation-and-regulations
DEFINITIONS

ACA
Apprenticeship and Certification Act, 1998

Certificate of Apprenticeship (CofA)
Certification issued to individuals who have demonstrated that they have completed an apprenticeship in Ontario.

Certificate of Qualification (CofQ)
Certification issued to C of Q applicants who have achieved a passing grade on the certification exam for their trade.

Competency Analysis Profile
A document that identifies the training needs of an individual trade and details the skills/skill sets that must be demonstrated.

Competence
The ability of an individual to perform a skill repeatedly and without assistance in the workplace to the standard set out in the Training Standard or Schedule of Training.

General Performance Objective (On-the-job Skill Set)
Describes set of skills which include all performance objectives under that skill set.

Industry Committee (IC) - under the ACA and Provincial Advisory Committee (PAC) under the TQAA
Under the ACA and TQAA, the Minister may appoint a provincial committee in any trade or group of trades to advise the Minister in matters relating to the establishment and operation of apprenticeship training programs and trades qualifications.

Journeyperson or Equivalent
A person who has acquired the knowledge and skills in a trade, occupation or craft as attested to by a provincial or territorial authority.

Mandatory
Status assigned to unshaded individual skills, skill sets or general performance objective, which must be signed off for the apprentice to complete their program.

Optional
Status assigned to shaded individual skills, skills sets or general performance objective for which sign-off is not required for the apprentice to complete the program.
**Sign-off**
Signature of the sponsor/employer of record or an individual, to whom that sponsor or employer has delegated signing authority, indicating an apprentice’s achievement of competence.

**Skill**
Individual skill described in the Training Standard (note: does not mean the larger skill groups referred to in the Training Standard as Skill Sets, Training Units, or General Performance Objective, but the individual skills that make up those groups).

**Skill Sets**
Group of individual skills found in the Training Standard (may also be called Training Unit or General Performance Objective)

**Skill Set Completion Form**
Lists all skill sets and includes space for sign-off by sponsor/employer of record.

**Sponsor/Employer**
Means a person that has entered into a registered training agreement under which the person is required to ensure that an individual is provided with workplace-based training in a trade, other occupation or skill set as part of an apprenticeship program approved by the Director.

**Sponsor/Employer of Record**
Refers to the sponsor or employer documented as the signatory to the current training agreement or contract. In order for an sponsor/employer to be considered for the training of apprentices, they must identify that the workplace has qualified journeypersons or equivalent on site and can identify that the workplace has the tools, equipment, materials, and processes which have been identified by Provincial Advisory Committees (PACs) or Industry Committees (ICs) to be required for the trade.

**Supervisor**
An individual who oversees the execution of a task, oversees the actions or work of others.

**Trainer**
A qualified trainer in a compulsory trade is a journeyperson with a Certificate of Qualification or in a voluntary trade is an individual who is considered equivalent to a journeyperson with a Certificate of Qualification.

**TQAA**
Trades Qualification and Apprenticeship Act.

**Training Standard**
A document that has been written in concise statements, which describe how well an apprentice must perform each skill in order to become competent. In using the document, trainers will be able to ensure that the apprentice is developing skills detailed for the occupation.
IMPORTANT DIRECTIONS

Apprentice

1. All complete skills or skill sets must be signed and dated by both the apprentice and sponsor/employer when either all terms of the contract have been completed or the apprentice leaves the employ of the employer.

2. It is the responsibility of the apprentice to inform the apprenticeship staff at the local Ministry of Training, Colleges and Universities office regarding the following changes:
   - change of sponsor/employer address;
   - change of apprentice name or address;
   - transfer to a new sponsor/employer.

3. The Skill Set Completion Form must be completed and signed by the current sponsor/employer and presented to the local Apprenticeship Client Services Office at the fulfillment of all terms of a Contract of Apprenticeship/Training Agreement.

4. The apprentice completion form with the Completed and Authorized Training Standard must be presented to the local Apprenticeship Client Services Unit.

Sponsors/Employers and Supervisors/Trainers

1. The Training Standard identifies skills required for this trade/occupation and its related training program.

2. This Training Standard has been written in concise statements which describe how an apprentice must perform each skill in order to become competent. Competence means being able to perform the task to the required standard.

3. In using this Training Standard, supervisors/trainers will be able to ensure that the apprentice is developing the skills detailed for the trade/occupation.

4. Supervisors/Trainers and apprentices are required to sign off and date the skills following each successful acquisition.

5. Sponsors/Employers participating in this training program will be designated as the Signing Authority and are required to attest to successful achievement by signing the appropriate box included at the end of each skill set.
NOTICE OF COLLECTION OF PERSONAL INFORMATION

1. At any time during your apprenticeship training, you may be required to show this training standard to the Ministry of Training, Colleges and Universities (the Ministry). You will be required to disclose the signed Apprenticeship Completion form to the Ministry in order to complete your program. The Ministry will use your personal information to administer and finance Ontario’s apprenticeship training system, including confirming your completion and issuing your certificate of apprenticeship.

2. The Ministry will disclose information about your program completion and your certificate of apprenticeship to the Ontario College of Trades, as it is necessary for the College to carry out its responsibilities.

3. Your personal information is collected, used and disclosed by the Ministry under the authority of the Ontario College of Trades and Apprenticeship Act, 2009.

4. Questions about the collection, use and disclosure of your personal information by the Ministry may be addressed to the:

Manager, Employment Ontario Contact Centre
Ministry of Training, Colleges and Universities
33 Bloor St. E, 2nd floor, Toronto, Ontario M7A 2S3
Toll-free: 1-800-387-5656; Toronto: 416-326-5656
INDUSTRIAL ELECTRICIAN

ROLES & RESPONSIBILITIES OF APPRENTICE, SPONSOR/EMPLOYER AND SUPERVISOR/TRAINER

**Apprentice** “Apprenticeship is Learning On-the-job”

- Practice safe work habits.
- Use your apprenticeship training standard as a journal to keep track of which skills you have achieved.
- Talk over your training plan with your Training Consultant, Employer, Union, or Sponsor.
- Know what tools are required for your trade and how to use them.
- Ask questions and keep asking.
- Talk to your employer about your training needs.
- Demonstrate enthusiasm and good work habits.
- Ensure that you and your supervisor/trainer sign off skill/skill sets upon demonstration of competency.

**Sponsor/Employer** “Training is an Investment”

- Demonstrate safe work habits.
- Attest to successful achievement by signing the skill/skills sets.
- Provide opportunities and time for the apprentice to learn the trade.
- Offer practical trade training experiences that cover all of the skill sets.
- Foster work ethics that support training while minimizing productivity losses.
- Set out clear expectations, then recognize or reward performance excellence.
- Involve both the apprentice and supervisor/trainer in developing the training plan.
- Use the Training Standard as a monitoring tool and part of regular performance evaluations.
- Select supervisors/trainers with good communication skills and who work well with others.
- Encourage supervisors/trainers to take upgrading courses - (e.g. Train the Trainer, Mentor Coach, etc.).
- Complete the Skill Set Completion Form once the apprentice has demonstrated competency in the training.
- Ensure that the apprentice always works under the direction of or has access to a qualified supervisor/trainer.
- Vary the apprentice’s exposure to all the skills set out in the training standard.
Supervisor/Trainer

- Demonstrate safe work habits.
- Treat apprentices fairly and with respect.
- Use the Training Standard as a guide to evaluating competence in each skill area. In using the Training Standard, supervisors/trainers will be able to ensure that the apprentice is developing skills detailed for the trade/occupation.
- Review the Training Standard with the apprentice and develop a training plan.
- Respond fully to all questions.
- Be patient. Explain what is to be done then, show how it is done, and then let the apprentice demonstrate the task.
- Provide continuous feedback.
- Sign off individual skills/skill sets once the apprentice demonstrates competence in the skill.

Suggestions for Assessing the Progress of the Apprentice in the Workplace

- Use informal daily observation.
- Provide constructive feedback to build confidence.
- Allow the supervisor/trainer time to teach and demonstrate the skills.
- Take prompt action wherever problems occur.
- Conduct regular performance reviews involving the apprentice, supervisor/trainer and sponsor/employer.
- Use the Training Standard as the reference for establishing the competency of the apprentice.
U7241 PROTECT SELF AND OTHERS

GENERAL PERFORMANCE OBJECTIVE

Protect self and others by: identifying, interpreting and applying applicable Acts, regulations, codes and directives; recognizing, assessing and controlling hazards and hazardous conditions, equipment and material; identifying and using fire extinguishers and firefighting equipment; performing housekeeping duties to ensure a safe working environment; practising first aid in emergency situations; selecting, wearing, adjusting, using and maintaining personal protective apparel and equipment; and, performing lockout, tagging and hold-off procedures.

PERFORMANCE OBJECTIVES

SKILLS

7241.01 Identify, interpret and apply applicable Acts, regulations, codes and directives including the Occupational Health and Safety Act (OHSA); Environmental Protection Act (EPA); Dangerous Goods Transportation Act (DGTA); Workplace Safety Insurance Act (WSIA); Ontario Building Code (OBC); Canadian Electrical Code (CEC); Ontario Electrical Code (OEC); Ontario Fire Code (OFC); Workplace Hazardous Materials Information System (WHMIS); Construction Safety Association of Ontario (CSAO); Canadian Welding Bureau (CWB); National Fire Protection Association (NFPA); American Society of Mechanical Engineers (ASME); Institute of Electrical and Electronic Engineers (IEEE); Illumination Engineering Society Standards (IESS); Technical Standards and Safety Authority (TSSA); Electrical Safety Authority (ESA); Canadian Standards Association (CSA); municipal requirements and company policies.

Date Completed Apprentice Supervisor/Trainer

7241.02 Recognize, assess and control hazards and hazardous conditions, equipment and material including work site conditions, heavy equipment operations, crane hoisting and lifting operations, overhead and trenching operations, material handling and storage, and welding operations, ensuring that procedures are in compliance with OHSA, WHMIS, applicable codes, regulations and policies and procedures.

Date Completed Apprentice Supervisor/Trainer
U7241 PROTECT SELF AND OTHERS - Cont’d

7241.03 Identify and use fire extinguishers and fire-fighting equipment including portable Class A, B and C extinguishers to suppress fires in accordance with

Date Completed    Apprentice    Supervisor/Trainer

7241.04 Perform housekeeping duties to ensure a safe working environment by: removing and disposing excess or unwanted materials; positioning equipment; identifying the location of First Aid supplies and equipment; maintaining adequate heat, light and ventilation; ensuring the work site meets customer’s expectations of cleanliness; and, erecting protective barriers and signs in accordance with OHSA, EPA, TSSA, ESA, site procedures and company policy.

Date Completed    Apprentice    Supervisor/Trainer

7241.05 Practice first aid in emergency situations to treat conditions, including burns, abrasions, bleeding, cuts, wounds, chemical inhalation and contamination of eyes, so that the condition of the victim is stabilized and prepared for further treatment, according to employer standards and first aid procedures.

Date Completed    Apprentice    Supervisor/Trainer

7241.06 Select, wear, adjust, use and maintain personal protective apparel and equipment including hard hats, gloves, glasses, goggles, masks, face shields, ear protectors/plugs, coveralls, reflector vests, safety footwear, fall protection equipment, respirators, harnesses, breathing apparatus, air samplers, gas detectors and radiation badges to ensure the safety of self and others in accordance with OHSA, CSAO, company policy and manufacturer’s instructions.

Date Completed    Apprentice    Supervisor/Trainer
U7241 PROTECT SELF AND OTHERS - Cont’d

7241.07 Perform lock out, tagging and hold-off procedures to isolate hazardous or defective equipment by: advising the appropriate authorities holding jurisdiction (AHJ); installing lock out device and retaining the key; attaching tags; repairing the problem if required, and removing the lockout device on completion of work in accordance with OHSA, manufacturer’s instructions, CEC OEC, and company policy and procedures.

Date Completed Apprentice Supervisor/Trainer

Sponsor/Employer Name Sponsor/Employer Signature
U7242 READ, INTERPRET AND REVISE SCHEMATIC DRAWINGS AND DOCUMENTATION

GENERAL PERFORMANCE OBJECTIVE

Read, interpret and revise schematics, drawings and documentation by identifying, reading and interpreting architectural drawings and specifications; creating, maintaining and modifying drawings and sketches; identifying, reading and interpreting mechanical drawings and specifications; identifying, reading and interpreting power distribution drawings and specifications; identifying, reading and interpreting instrumentation and communication drawings and specifications; identifying, reading and interpreting electrical drawings and specifications; and, identifying, reading and interpreting relay, solid state and logic drawings and specifications.

PERFORMANCE OBJECTIVES

SKILLS

7242.01 Identify, read and interpret architectural drawings and specifications by: reading the drawing title block and/or title page; determining the logical sequence of the architectural and shop drawings; cross-checking to ensure that the set is complete; identifying and interpreting symbols used on drawings, charts, guides and schedules ensuring the interpretations are correct and in accordance with industry standards.

Date Completed ________________________________________ Apprentice ____________________________ Supervisor/Trainer ____________________________

7242.02 Create, maintain and modify drawings and sketches including schematics, elevations, isometric, interference and as built, using available tools and technology to ensure that the drawing set is complete and up-to-date in order to facilitate the completion of the work to the requirements of the approving authorities and in accordance with industry and company standards.

Date Completed ________________________________________ Apprentice ____________________________ Supervisor/Trainer ____________________________
U7242 READ, INTERPRET AND REVISE SCHEMATIC DRAWINGS AND DOCUMENTATION - Cont’d

7242.03 Identify, read and interpret mechanical drawings and specifications by: reading the drawing title block and/or title page; determining the logical sequence of mechanical and shop drawings; cross checking to ensure the set is complete; identifying and interpreting symbols used on drawings, charts, guides and schedules ensuring the interpretations are correct and in accordance with industry standards.

Date Completed __________________ Apprentice __________________ Supervisor/Trainer __________________

7242.04 Identify, read and interpret power distribution drawings and specifications by: reading the drawing title block and/or title page; determining the logical sequence of architectural and shop drawings; cross checking to ensure the set is complete; and, identifying and interpreting the symbols used on the drawings, charts, guides and schedules ensuring the interpretations are correct and in accordance with industry standards.

Date Completed __________________ Apprentice __________________ Supervisor/Trainer __________________

7242.05 Identify, read and interpret instrumentation and communication drawings and specifications by: reading the drawing block title and/or title page; determining the logical sequence of the instrumentation, communication and shop drawings; cross checking to ensure the set is complete; identifying and interpreting symbols used on drawings, charts, guides and schedules ensuring the interpretations are correct and in accordance with industry standards.

Date Completed __________________ Apprentice __________________ Supervisor/Trainer __________________

7242.06 Identify, read and interpret electrical drawings and specifications by: reading the drawing title block and/or title page; determining the logical sequence of architectural and shop drawings; cross checking to ensure the set is complete; and, identifying and interpreting the symbols used on the drawings, charts, guides and schedules ensuring the interpretations are correct and in accordance with industry standards.

Date Completed __________________ Apprentice __________________ Supervisor/Trainer __________________
U7242 READ, INTERPRET AND REVISE SCHEMATIC DRAWINGS AND DOCUMENTATION - Cont’d

7242.07 Identify, read and interpret relay, solid state and logic drawings and specifications by: determining the logical sequence of architectural and shop drawings; cross checking to ensure the set is complete; and, identifying and interpreting the symbols used on the drawings, charts, guides and schedules ensuring the interpretations are correct and in accordance with industry standards.

Date Completed Apprentice Supervisor/Trainer

Sponsor/Employer Name Sponsor/Employer Signature
U7243 SELECT, MAINTAIN AND USE TOOLS AND EQUIPMENT

GENERAL PERFORMANCE OBJECTIVE

Select, maintain and use tools and equipment by: selecting, maintaining, using and repairing hand tools; selecting, maintaining, using and repairing electric power tools and accessories; selecting, using, inspecting and maintaining rigging and hoisting equipment; selecting, inspecting and maintaining scaffolds, lifting devices and elevating platforms; assembling, erecting and locating scaffolds, lifting devices and elevating platforms; dismantling and storing scaffolds, lifting devices and elevating platforms; selecting and performing basic oxy-fuel cutting and welding procedures; and, scheduling electrical job-site material and equipment requirements.

PERFORMANCE OBJECTIVES

SKILLS

7243.01 Select, maintain, use and repair hand tools including wrenches, fastening tools, measuring tools, cutting tools, joining tools, grinding tools, levelling tools, rigging tools, A-frame and other material handling equipment in accordance with manufacturer’s recommendations, OHSA, WHMIS and company policy.

7243.02 Select, maintain, use and repair electric power tools and accessories including drills, grinders, circular saws, drill press, pedestal grinder, cut-off saw, hole saw, soldering equipment, drill bits, saw blades, and grinding wheels, ensuring that the power tool and accessory is the correct one for the application, is in good working condition including cords, connecting devices, housings, control devices and lubrication, so that no damage is caused to the power tool or operator in accordance with OHSA, CSAO, manufacturer’s specifications and company standards.
SELECT, MAINTAIN AND USE TOOLS AND EQUIPMENT – Cont’d

7243.03 Select, use, inspect and maintain rigging and hoisting equipment of the correct size and type for the site location, operation and conditions, ensuring the equipment is in good working order and that the operation is controlled by use of hand and/or voice signals in accordance with OHSA, CSAO, manufacturer’s instructions and specifications and company safety standards.

Date Completed  Apprentice  Supervisor/Trainer

7243.04 Select, inspect and maintain scaffolds, lifting devices and elevating platforms including personnel lifts, scissor lifts, bucket lifts, swing stages and bosun’s chairs, to install and repair electrical installations according to engineering drawings, site conditions, OHSA, CSAO manufacturer’s recommendations and company safety standards.

Date Completed  Apprentice  Supervisor/Trainer

7243.05 Assemble, erect and locate scaffolds, lifting devices and elevating platforms including personnel lifts, scissor lifts, bucket lifts, swing stages and bosun’s chairs, to install and repair electrical installations according to engineering drawings, site conditions, OHSA, CSAO manufacturer’s recommendations and company safety standards.

Date Completed  Apprentice  Supervisor/Trainer

7243.06 Dismantle and store scaffolds, lifting devices and elevating platforms including personnel lifts, scissor lifts, bucket lifts, swing stages and bosun’s chairs, to install and repair electrical installations according to engineering drawings, site conditions, OHSA, CSAO manufacturer’s recommendations and company safety standards.

Date Completed  Apprentice  Supervisor/Trainer
U7243  SELECT, MAINTAIN AND USE TOOLS AND EQUIPMENT – Cont’d

7243.07  Select and perform trade-specific oxy-fuel cutting and welding procedures to install brackets, hangers and struts using applicable safety equipment and ensuring strength of weld in accordance with OHSA, CSAO, CWB, CSA, manufacturer’s specifications and company standards

Date Completed  Apprentice  Supervisor/Trainer

7243.08  Schedule electrical job site materials and equipment requirements by: locating and sequencing the material requirements, reviewing delivery schedules, ensuring storage space is available, keeping a complete record of inventory of on-site materials, maintaining an adequate supply on hand of basic items in accordance with site specifications, government regulations and company standards.

Date Completed  Apprentice  Supervisor/Trainer

Sponsor/Employer Name  Sponsor/Employer Signature
U7244 INSTALL, MAINTAIN AND REPAIR WIRING SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Install, maintain and repair wiring systems by: selecting and installing busway systems for rural, institutional, commercial and industrial installations; maintaining and repairing busway systems for rural, institutional, commercial and industrial installations; selecting, laying out and installing branch circuit wiring for power and lighting; troubleshooting branch circuit wiring for power and lighting; selecting, laying out and installing cable trays for power, data and communication cable wiring systems; selecting, laying out and installing feeder cables for single and multi conductor cables, metallic and non-metallic; selecting, laying out and installing rigid metal and rigid PVC conduits; selecting, laying out and installing electric heating systems; selecting, laying out and installing wiring for hazardous locations; selecting, laying out and installing overhead distribution systems; and, selecting, laying out and installing underground distribution systems.

PERFORMANCE OBJECTIVES

SKILLS

7244.01 Select and install busway systems for rural, institutional, commercial and industrial installations including feeder duct, plug-in devices, supports, mechanical protection and fire stops in accordance with the plans and specifications, environmental conditions, CEC, OEC, OBC, manufacturer’s specifications, customer’s and company standards.

Date Completed  Apprentice  Supervisor/Trainer

7244.02 Maintain and repair busway systems for rural, institutional, commercial and industrial installations including feeder duct, plug-in devices, supports, mechanical protection and fire stops in accordance with the plans and specifications, environmental conditions, CEC, OEC, OBC, manufacturer’s specifications, customer’s and company standards.

Date Completed  Apprentice  Supervisor/Trainer
U7244 INSTALL, MAINTAIN AND REPAIR WIRING SYSTEMS – Cont’d

**7244.03** Select, layout and install branch circuit wiring for power and lighting branch circuits including switching circuits, isolated ground circuits, ground fault interrupters, arc fault interrupters, bonding to ground, overcurrent protection conductor size and type in accordance with the plans and specifications, environmental conditions, CEC, OEC, OBC, manufacturer’s specifications, customer’s requirements and company standards.

Date Completed  Apprentice  Supervisor/Trainer

**7244.04** Troubleshoot branch circuit wiring for power and lighting branch circuits including switching circuits, isolated ground circuits, ground fault interrupters, arc fault interrupters, bonding to ground, overcurrent protection conductor size and type in accordance with the plans and specifications, environmental conditions, CEC, OEC, OBC, manufacturer’s specifications, customer’s requirements and company standards.

Date Completed  Apprentice  Supervisor/Trainer

**7244.05** Select, layout and install cable trays for power, data and communication cable wiring systems including supports, bonding, proximity to building structure and other cable trays and fire stops in accordance with the plans and specifications, circuit loadings, environmental conditions, CEC, OEC, OBC, manufacturer’s specifications, customer’s requirements and company’s standards.

Date Completed  Apprentice  Supervisor/Trainer

**7244.06** Select, lay out and install feeder cables for single and multi-conductor cables, metallic and non-metallic cables including supports, bonding, mechanical protection, flame spread rating and penetration of fire partitions stop in accordance with the plans and specifications, circuit loadings, environmental conditions, CEC, OEC, OBC, manufacturer’s specifications, customer’s requirements and company standards.

Date Completed  Apprentice  Supervisor/Trainer
U7244  INSTALL, MAINTAIN AND REPAIR WIRING SYSTEMS – Cont’d

7244.07  Select, lay out and install rigid Poly Vinyl Chloride (PVC) conduits including supports, bonding, mechanical protection, flame spread rating and penetration of fire partitions stop, in accordance with the plans and specifications, environmental conditions, CEC, OEC, OBC, manufacturer’s specifications, customer’s requirements and company standards.

Date Completed  Apprentice  Supervisor/Trainer

7244.08  Select, layout and install electric heating systems including central units, fixtures, heating cable sets and heating panels on the surface or encased in concrete asphalt, and sauna heaters in accordance with heat loss calculation, plans and specifications, environmental conditions, CEC, OEC, OBC, manufacturer’s specifications, customer’s requirements and company standards.

Date Completed  Apprentice  Supervisor/Trainer

7244.09  Select, lay out and install wiring for hazardous locations including Class I, II and III areas, Zones 0, 1 and 2, Divisions 1 and 2, intrinsically safe circuits, wiring methods and sealing in accordance with the plans and specifications, environmental conditions, CEC, OEC, OBC, manufacturer’s specifications, customer’s requirements and company standards.

Date Completed  Apprentice  Supervisor/Trainer

7244.10  Select, lay out and install overhead distribution systems for single-phase and three-phase power, communication, data and fibre optic systems, including pole heights and types, clearances from ground and buildings, bonding to ground, overcurrent protection, spans between supports, type of conductor supports and guyin in accordance with the plans and specifications, environmental conditions, OHSA, CSAO, CEC, OEC, manufacturer’s specifications, customer’s and company standards.

Date Completed  Apprentice  Supervisor/Trainer
U7244  INSTALL, MAINTAIN AND REPAIR WIRING SYSTEMS – Cont’d

7244.11 Select, lay out and install underground distribution systems for single-phase and three-phase power, data, communication and fibre optic systems including depth of coverage, mechanical protection, spacing in trench, backfill, frost, cable or raceway types, support, bonding to ground and overcurrent protection in accordance with the plans and specifications, environmental conditions, OHSA, CSAO, CEC, OEC, manufacturer’s specifications, customer’s and company standards.

Date Completed  Apprentice  Supervisor/Trainer

Sponsor/Employer Name  Sponsor/Employer Signature
U7245 SELECT, INSTALL, MAINTAIN AND TROUBLESHOOT POWER DISTRIBUTION EQUIPMENT SYSTEMS

GENERAL PERFORMANCE OBJECTIVE:

Select, install, maintain and troubleshoot power distribution equipment systems by: laying out and installing secondary services; maintaining secondary services; selecting and installing high voltage protection and control devices; maintaining high voltage protection and control devices; calculating the requirements for secondary service loads, fuses and feeders; selecting and installing oil and dry type distribution transformers; testing and maintaining oil and dry type distribution transformers; selecting and laying out power distribution panels; testing and maintaining power distribution panels; laying out and installing ground fault circuit interrupters; testing and maintaining ground fault circuit interrupters; laying out and installing power factor correction equipment; testing and maintaining power factor correction equipment; installing low voltage power distribution systems; troubleshooting and maintaining low voltage power distribution systems; installing direct current power distribution systems; troubleshooting and maintaining direct current power distribution systems; selecting and installing AC/DC protective devices; and, troubleshooting and maintaining AC/DC protective devices.

PERFORMANCE OBJECTIVES

SKILLS

7245.01 Lay out and install secondary services including high voltage switchgear and cabling such as stress cones, pot heads and testing to verify quality in accordance with CEC, OEC, IEEE standards, manufacturer’s specifications, local supply authority and customer’s requirements.

Date Completed Apprentice Supervisor/Trainer

7245.02 Maintain secondary services including high voltage switchgear and cabling such as stress cones, pot heads and testing to verify quality in accordance with CEC, OEC, IEEE standards, manufacturer’s specifications, local supply authority and customer’s requirements.

Date Completed Apprentice Supervisor/Trainer
U7245 SELECT, INSTALL, MAINTAIN AND TROUBLESHOOT POWER DISTRIBUTION EQUIPMENT SYSTEMS – Cont’d

7245.03 Select and install high voltage protection and control devices to quality standards in accordance with the CEC, OEC, manufacturer’s specifications, local supply authority and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer

7245.04 Maintain high voltage protection and control devices, providing test and verification to quality standards in accordance with the CEC, OEC, manufacturer’s specifications, local supply authority and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer

7245.05 Calculate requirements for secondary service loads, fuses and feeders in accordance with CEC, OEC, manufacturer’s specifications, local supply authority and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer

7245.06 Select and install oil and dry type distribution transformers by determining loads, size and type; verifying installation requirements; and, testing the operation of the equipment in accordance with CEC, OEC, manufacturer’s and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer

7245.07 Test and maintain oil and dry type distribution transformers by determining loads, size and type; and, testing the operation of the equipment in accordance with CEC, OEC, manufacturer’s and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer
SELECT, INSTALL, MAINTAIN AND TROUBLESHOOT POWER DISTRIBUTION EQUIPMENT SYSTEMS – Cont’d

7245.08 Select and layout power distribution panels by: determining loads, size, and type required; verification of installation requirements; and, testing the operation of equipment installed in accordance with the CEC, OEC, manufacturer’s specifications and instructions, and customer’s requirements.

Date Completed        Apprentice        Supervisor/Trainer

7245.09 Test and maintain power distribution panels by: determining loads, size, and type required; verification of installation requirements; and, testing the operation of equipment in accordance with the CEC, OEC, manufacturer’s specifications and instructions, and customer’s requirements.

Date Completed        Apprentice        Supervisor/Trainer

7245.10 Lay out and install ground fault circuit interrupters by: determining loads, size and type; verifying installation requirements; and, testing the operation of the equipment in accordance with CEC, OEC, manufacturer’s specifications and instructions, and customer’s requirements.

Date Completed        Apprentice        Supervisor/Trainer

7245.11 Test and maintain ground fault circuit interrupters by: determining loads, size and type; and, testing the operation of the equipment in accordance with CEC, OEC, manufacturer’s specifications and instructions, and customer’s requirements.

Date Completed        Apprentice        Supervisor/Trainer
SELECT, INSTALL, MAINTAIN AND TROUBLESHOOT POWER DISTRIBUTION EQUIPMENT SYSTEMS – Cont’d

7245.12 Lay out and install power factor correction equipment by: determining the loads, size and type specified; verifying installation requirements; installing equipment; and, testing the operation of the equipment in accordance with the CEC, OEC, local supply authority, manufacturer’s and customers specifications and requirements.

Date Completed________________ Apprentice________________ Supervisor/Trainer________________

7245.13 Test and maintain power factor correction equipment by: determining the loads, size and type specified; and, testing the operation of the equipment in accordance with the CEC, OEC, local supply authority, manufacturer’s and customers specifications and requirements.

Date Completed________________ Apprentice________________ Supervisor/Trainer________________

7245.14 Install low voltage power distribution systems including power factor testing, metering and emergency procedures in accordance with CEC, OEC, government regulations and company standards and procedures.

Date Completed________________ Apprentice________________ Supervisor/Trainer________________

7245.15 Troubleshoot and maintain low voltage power distribution systems including power factor testing, metering and emergency procedures in accordance with CEC, OEC, government regulations and company standards and procedures.

Date Completed________________ Apprentice________________ Supervisor/Trainer________________

7245.16 Install direct current (DC) power distribution systems including testing, metering and emergency procedures in accordance with CEC, OEC, government regulations and company standards and procedures.

Date Completed________________ Apprentice________________ Supervisor/Trainer________________
U7245  SELECT, INSTALL, MAINTAIN AND TROUBLESHOOT POWER DISTRIBUTION EQUIPMENT SYSTEMS – Cont’d

7245.17  Troubleshoot and maintain direct current (DC) power distribution systems including testing, metering and emergency procedures in accordance with CEC, OEC, government regulations and company standards and procedures.

Date Completed  Apprentice  Supervisor/Trainer

7245.18  Select and install AC/DC protective devices in accordance with CEC, OEC, government regulations and company standards and procedures.

Date Completed  Apprentice  Supervisor/Trainer

7245.19  Troubleshoot and maintain AC/DC protective devices in accordance with CEC, OEC, government regulations and company standards and procedures.

Date Completed  Apprentice  Supervisor/Trainer

Sponsor/Employer Name  Sponsor/Employer Signature
U7246  SELECT, INSTALL, MAINTAIN AND TROUBLESHOOT LIGHTING SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Select, install, maintain and troubleshoot lighting systems by: laying out and installing incandescent lighting; maintaining and troubleshooting incandescent lighting; laying out and installing fluorescent lighting; maintaining and troubleshooting fluorescent lighting; laying out and installing high intensity discharge lighting; maintaining and troubleshooting high intensity discharge lighting; laying out and installing light dimming and control systems; maintaining and troubleshooting light dimming and control systems; laying out, installing and maintaining exit and emergency lighting; and, measuring, recording and reporting illumination levels.

PERFORMANCE OBJECTIVES

SKILLS

7246.01 **Layout and install incandescent lighting** by: determining location, quality, type and wiring requirements; and performing installation in accordance with CEC, OEC, IESS, manufacturer’s instructions, company and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer

7246.02 **Maintain and troubleshoot incandescent lighting** by: determining quality, type and wiring requirements; troubleshooting; and following maintenance procedures in accordance with CEC, OEC, IESS, manufacturer’s instructions, company and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer

7246.03 **Layout and install fluorescent lighting** by: determining location, quality type and wiring requirements; and, performing installation in accordance with CEC, OEC, IESS, manufacturer’s instructions, company and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer
7246.04 Maintain and troubleshoot fluorescent lighting by: determining quality type and wiring requirements; troubleshooting; and following maintenance procedures in accordance with CEC, OEC, IESS, manufacturer’s instructions, company and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer

7246.05 Layout and install high intensity discharge lighting including mercury vapour, metal halide and high/low pressure sodium by: determining location, quality, type and wiring requirements; and, performing installation in accordance with CEC, OEC, government regulations, manufacturer’s instructions, and company standards and practices.

Date Completed  Apprentice  Supervisor/Trainer

7246.06 Maintain and troubleshoot high intensity discharge lighting including mercury vapour, metal halide and high/low pressure sodium by: determining quality, type and wiring requirements; troubleshooting; and, following maintenance procedures in accordance with CEC, OEC, government regulations, manufacturer’s instructions, and company standards and practices.

Date Completed  Apprentice  Supervisor/Trainer

7246.07 Layout and install light dimming and control systems to quality standards in accordance with CEC, OEC, supply authorities’, manufacturers’ specifications, customer’s standards and company procedures.

Date Completed  Apprentice  Supervisor/Trainer

7246.08 Maintain and troubleshoot light dimming and control systems to quality standards in accordance with CEC, OEC, supply authorities’, manufacturers’ specifications, customer’s standards and company procedures.

Date Completed  Apprentice  Supervisor/Trainer
SELECT, INSTALL, MAINTAIN AND TROUBLESHOOT LIGHTING SYSTEMS - Cont’d

7246.09 Layout, install and maintain exit and emergency lighting to quality standards in accordance with CEC, OEC, local supply authorities’, manufacturers’ specifications, customer’s standards and company procedures.

Date Completed  Apprentice  Supervisor/Trainer

7246.10 Measure, record and report illumination levels in accordance with company procedures and standards.

Date Completed  Apprentice  Supervisor/Trainer

Sponsor/Employer Name  Sponsor/Employer Signature
U7247 INSTALL, MAINTAIN AND TROUBLESHOOT ROTATING EQUIPMENT AND ASSOCIATED CONTROL SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Install, maintain and troubleshoot rotating equipment and associated control systems by: inspecting, maintaining and troubleshooting brush assemblies, slip rings and commutators; inspecting, maintaining and troubleshooting DC motors and generators; inspecting, maintaining and troubleshooting AC motors and generators; installing and testing mechanical, electrical alignment and auxiliary protective equipment; maintaining and troubleshooting mechanical, electrical alignment and auxiliary protective equipment; maintaining and troubleshooting lubrication systems; maintaining and troubleshooting braking and clutch systems; starting-up and shutting-down rotating equipment; selecting and installing relays, solid state devices and controls; maintaining relays, solid state devices and controls; selecting and installing protective devices; maintaining protective devices; selecting, assembling and wiring control panels, enclosures and control devices; and, selecting and installing field devices such as mechanical/remote field services.

PERFORMANCE OBJECTIVES

SKILLS

7247.01 Inspect, maintain and troubleshoot brush assemblies, slip rings and commutators to ensure correct equipment operation in accordance with manufacturer’s specifications and instructions, and company procedures.

Date Completed________________ Apprentice________________ Supervisor/Trainer________________

7247.02 Inspect, maintain and troubleshoot DC motors and generators to ensure correct equipment operation in accordance with the CEC, OEC, manufacturer’s specifications and instructions, and company procedures.

Date Completed________________ Apprentice________________ Supervisor/Trainer________________
INSTALL, MAINTAIN AND TROUBLESHOOT ROTATING EQUIPMENT AND ASSOCIATED CONTROL SYSTEMS – Cont’d

7247.03 Inspect, maintain and troubleshoot AC motors and generators to ensure correct equipment operation in accordance with the CEC, OEC, manufacturer’s specifications and instructions, and company procedures.

Date Completed __________ Apprentice __________ Supervisor/Trainer __________

7247.04 Install and test mechanical, electrical alignment and auxiliary protective equipment in accordance with standard safety requirements, government regulations, the CEC, OEC, manufacturer’s specifications and instructions, and company standards and procedures.

Date Completed __________ Apprentice __________ Supervisor/Trainer __________

7247.05 Maintain and troubleshoot mechanical, electrical alignment and auxiliary protective equipment in accordance with standard safety requirements, government regulations, the CEC, OEC, manufacturer’s specifications and instructions, and company standards and procedures.

Date Completed __________ Apprentice __________ Supervisor/Trainer __________

7247.06 Maintain and troubleshoot lubrication systems in accordance with standard safety requirements, manufacturer’s specifications and instructions and company procedures.

Date Completed __________ Apprentice __________ Supervisor/Trainer __________

7247.07 Maintain and troubleshoot braking and clutch systems in accordance with standard safety requirements, government regulations, the CEC, OEC, manufacturer’s specifications and instructions, and company procedures.

Date Completed __________ Apprentice __________ Supervisor/Trainer __________
U7247 INSTALL, MAINTAIN AND TROUBLESHOOT ROTATING EQUIPMENT AND ASSOCIATED CONTROL SYSTEMS – Cont’d

7247.08 Start-up and shut-down rotating equipment in accordance with standard safety requirements, manufacturer’s specifications and instructions, and company procedures.

Date Completed  Apprentice  Supervisor/Trainer

7247.09 Select and install relays, solid state devices and controls by determining the control requirements, selecting, laying out and installing relays and solid state devices; in accordance with the CEC, OEC, manufacturer’s specifications and instructions, company and customer standards.

Date Completed  Apprentice  Supervisor/Trainer

7247.10 Maintain relays, solid state devices and controls by determining the control requirements and performing maintenance and troubleshooting sequence for control systems in accordance with the CEC, OEC, manufacturer’s specifications and instructions, company and customer standards.

Date Completed  Apprentice  Supervisor/Trainer

7247.11 Select and install protective devices by determining the control requirements, selecting, laying out and installing protective devices in accordance with the CEC, OEC, manufacturer’s requirements, company and customer standards.

Date Completed  Apprentice  Supervisor/Trainer

7247.12 Maintain protective devices by determining the control requirements and performing maintenance and troubleshooting sequence for control systems in accordance with the CEC, OEC, manufacturer’s requirements, company and customer standards.

Date Completed  Apprentice  Supervisor/Trainer
U7247 INSTALL, MAINTAIN AND TROUBLESHOOT ROTATING EQUIPMENT AND ASSOCIATED CONTROL SYSTEMS – Cont’d

7247.13 Select, assemble and wire control panels, enclosures and control devices to verify the operation and ensure that the installation meets the CEC OEC, requirements, manufacturer’s specifications and instructions, and company and customer standards.

________________  _______________  __________________
Date Completed  Apprentice Supervisor/Trainer

7247.14 Select and install field devices such as mechanical/remote field devices to verify the operation and ensure the installation meets the CEC OEC, requirements and in accordance with manufacturer’s specifications and instructions, company and customer standards.

________________  _______________  __________________
Date Completed  Apprentice Supervisor/Trainer

_____________________________________________________________  _______________________
Sponsor/Employer Name  Sponsor/Employer Signature
U7248 INSTALL, MAINTAIN AND TROUBLESHOOT MOTOR DRIVES AND ASSOCIATED CONTROL SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Install, maintain and troubleshoot motor drives and associated control systems by: installing, maintaining and troubleshooting DC constant voltage drives; installing, maintaining and troubleshooting solid state and variable DC drives; installing, maintaining and troubleshooting AC constant voltage drives; installing, maintaining and troubleshooting solid state and variable AC drives; installing, maintaining and troubleshooting computer based interface systems; installing, maintaining and troubleshooting programmable logic controller systems; installing, maintaining and troubleshooting computerized numerical control systems; and, installing, maintaining and troubleshooting robotic systems.

PERFORMANCE OBJECTIVES

SKILLS

7248.01 Install, maintain and troubleshoot DC constant voltage drives in accordance with standard safety requirements, government regulations, manufacturer’s specifications and company procedures.

Date Completed ______________ Apprentice ______________ Supervisor/Trainer

7248.02 Install, maintain and troubleshoot solid state and variable DC drives to ensure correct equipment operation in accordance with the CEC, OEC, government procedures, manufacturer’s specifications and instructions and company standards.

Date Completed ______________ Apprentice ______________ Supervisor/Trainer

7248.03 Install, maintain and troubleshoot AC constant voltage drives in accordance with standard safety requirements, government regulations, manufacturer’s specifications and company procedures.

Date Completed ______________ Apprentice ______________ Supervisor/Trainer

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<th>U7248</th>
<th>INSTALL, MAINTAIN AND TROUBLESHOOT MOTOR DRIVES AND ASSOCIATED CONTROL SYSTEMS - Cont’d</th>
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<tr>
<td>7248.04</td>
<td>Install, maintain and troubleshoot solid state and variable AC drives to ensure correct equipment operation in accordance with the CEC, OEC, manufacturer’s specifications and instructions, government procedures and company standards.</td>
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<td>Install, maintain and troubleshoot computer based interface systems to maintain correct operation in accordance with the CEC, OEC, manufacturer’s specifications and instructions, and company procedures.</td>
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<td>7248.06</td>
<td>Install, maintain and troubleshoot programmable logic controller systems to ensure correct operation in accordance with the CEC, OEC, manufacturer’s specifications and instructions and company procedures.</td>
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<td>7248.07</td>
<td>Install, maintain and troubleshoot computerized numerical control systems to ensure correct operation in accordance with the CEC, OEC, manufacturer’s specifications and instructions, and company procedures.</td>
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Install, maintain and troubleshoot robotic systems to ensure correct operation in accordance with the CEC, OEC, manufacturer’s specifications and instructions, and company procedures.
U7249 INSTALL, MAINTAIN AND TROUBLESHOOT STAND-BY POWER SYSTEMS AND ASSOCIATED EQUIPMENT

GENERAL PERFORMANCE OBJECTIVE

Install, maintain and troubleshoot stand-by power systems and associated equipment by: laying out, installing and maintaining uninterruptible power supply systems; laying out and installing battery stand-by systems; maintaining and troubleshooting battery stand-by systems; and, laying out and installing stand-by power generation equipment.

PERFORMANCE OBJECTIVES

SKILLS

7249.01 Layout, install and maintain uninterruptible power supply systems to provide emergency power and illumination by: checking drawings of system and equipment to determine type of fuel, location, starting and control of system, transfer switch(es), testing, maintenance and instructing, in accordance with the CEC, OEC, OBC, Underwriters’ Laboratories of Canada (ULC) standards, manufacturer’s specifications and instructions and customer’s requirements.

Date Completed _______ Apprentice _______ Supervisor/Trainer _______

7249.02 Layout and install battery stand-by systems to provide emergency power and illumination by checking drawings of system and equipment, type of fuel, location of system, starting and control of system, transfer switch(es), testing, maintenance and instructing in accordance with CEC, OEC, OBC, ULC standards, manufacturer’s specifications and instructions and customer’s requirements.

Date Completed _______ Apprentice _______ Supervisor/Trainer _______
INSTALL, MAINTAIN AND TROUBLESHOOT STAND-BY POWER SYSTEMS AND ASSOCIATED EQUIPMENT - Cont’d

7249.03  Maintain and troubleshoot battery stand-by systems to provide emergency power and illumination by checking drawings of system and equipment, type of fuel, location of system, starting and control of system, transfer switch(es), testing, maintenance and instructing in accordance with CEC, OEC, OBC, ULC standards, manufacturer’s specifications and instructions and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer

7249.04  Layout and install stand-by generation equipment to provide emergency power and illumination by checking drawings of system and equipment, type of fuel, location of generators, starting and control of generators, transfer switch(es), testing, maintenance and instructing in accordance with CEC, OEC, OBC, ULC standards, manufacturer’s specifications and instructions and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer

Sponsor/Employer Name  Sponsor/Employer Signature
INSTALL, MAINTAIN AND TROUBLESHOOT COMMUNICATIONS SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Install, maintain and troubleshoot communications systems by: installing and testing fibre optic cabling and terminations; selecting, installing and terminating data and communication cables; maintaining, repairing and testing data and communication cables; installing, maintaining and troubleshooting alarm systems; installing and testing communication system components; installing, maintaining and troubleshooting audio-visual systems; determining layout, installing and testing patient care systems; determining layout, installing and testing security systems; determining layout, installing and testing paging systems; determining layout and installing a clock system; testing and verifying the operation of a clock system; and, determining the layout, installing, testing and verifying the operation of automation systems.

PERFORMANCE OBJECTIVES

SKILLS

7250.01 Install and test fibre optic cabling and terminations by: reading and interpreting job reference material and drawings; selecting hand and power tools and testing equipment; selecting and verifying cable pathway; and, installing and testing in accordance with the CEC, OEC, OBC, site plans, manufacturer’s specifications and instructions, company standards and customer requirements.

Date Completed ___________ Apprentice ___________ Supervisor/Trainer ___________

7250.02 Select, install and terminate data and communication cables by: reading and interpreting plans and specifications; selecting hand/power tools and materials; testing equipment; and, verifying cable pathway in accordance with the CEC, OEC, OBC, site plans, manufacturer’s specifications and instructions, company standards and customer requirements.

Date Completed ___________ Apprentice ___________ Supervisor/Trainer ___________
U7250 INSTALL, MAINTAIN AND TROUBLESHOOT COMMUNICATIONS SYSTEMS - Cont’d

7250.03 Maintain, repair and test data and communication cables by: reading and interpreting plans and specifications; selecting hand/power tools and materials; testing equipment; and, verifying cable pathway in accordance with the CEC, OEC, OBC, site plans, manufacturer’s specifications and instructions, company standards and customer requirements.

Date Completed Apprentice Supervisor/Trainer

7250.04 Install, maintain and troubleshoot fire alarm systems to provide all necessary interconnections such as supply, signal wiring, detection wiring, door monitoring, fan/air control, elevator homing, sprinkler detection and monitoring, raceway and wiring, voice communication and E-Vac systems in accordance with the CEC, OEC, OBC, ULC standards, local requirements, company standards and customer requirements.

Date Completed Apprentice Supervisor/Trainer

7250.05 Install and test communication system components by: determining layout and location; selecting tools and equipment; installing conduit, wiring system components and devices; and, providing tests and verification in accordance with the CEC, OEC, OBC, site plans, manufacturer’s instructions and specifications, company standards and customer’s requirements.

Date Completed Apprentice Supervisor/Trainer

7250.06 Install, maintain and troubleshoot audio-visual systems by: determining layout and location; selecting tools and equipment; installing wiring system to interconnect components; and testing in accordance with plans and drawings, the CEC, OEC, OBC, manufacturer’s instructions and specifications, local requirements, company standards and customer’s requirements.

Date Completed Apprentice Supervisor/Trainer
U7250 INSTALL, MAINTAIN AND TROUBLESHOOT COMMUNICATIONS SYSTEMS - Cont’d

7250.07 Determine layout, install and test patient care systems by: installing conduit, wiring system components and devices; and testing and verifying operation of the system in accordance with CEC, OEC, OBC, site plans, local and customer requirements, manufacturer’s specifications and instructions.

Date Completed  Apprentice  Supervisor/Trainer

7250.08 Determine layout, install and test security systems to provide all interconnections such as supply, signal wiring, detection wiring and entry/exit monitoring by installing conduit, wiring systems components and devices, testing and verifying operation in accordance with the CEC, OEC, OBC, ULC standards, manufacturer’s specifications and instructions, local and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer

7250.09 Determine layout, install and test paging systems by: installing conduit, wiring systems components and devices; and, testing and verifying system operation in accordance with CEC, OEC, OBC, manufacturer’s specifications and instructions, site plans and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer

7250.10 Determine layout and install a clock system by: installing conduit, wiring system components and devices; and, testing and verifying the operation of the system in accordance with the CEC, OEC, OBC, manufacturer’s specifications and instructions, and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer
U7250  INSTALL, MAINTAIN AND TROUBLESHOOT COMMUNICATIONS SYSTEMS - Cont’d

7250.11 Test and verify the operation of a clock system by: testing wiring system components and devices; and, testing and verifying the operation of the system in accordance with the CEC, OEC, OBC, manufacturer’s specifications and instructions, and customer’s requirements.

Date Completed  Apprentice  Supervisor/Trainer

7250.12 Determine layout, installing, testing and verifying the operation of automation systems by: installing conduit, wiring system components and devices; and, testing and verifying the operation of the system in accordance with the CEC, OEC, OBC, ULC standards, manufacturer’s specifications and instructions, and customer requirements.

Date Completed  Apprentice  Supervisor/Trainer

Sponsor/Employer Name  Sponsor/Employer Signature
U7251 SELECT, MAINTAIN AND OPERATE TEST AND MEASURING EQUIPMENT

GENERAL PERFORMANCE OBJECTIVE

Select, maintain and operate test and measuring equipment by: laying out and installing power and energy metering equipment; selecting, operating and maintaining analog and digital multimeters; selecting, operating and maintaining electronic test equipment; selecting, operating and maintaining insulation testers; selecting, operating and maintaining oscilloscopes; selecting, operating and maintaining fault locators; selecting, operating and maintaining high voltage test equipment; selecting, operating and maintaining computer-based test equipment; selecting, operating and maintaining chart recorders; selecting, operating and maintaining electrical test equipment; and, selecting, operating and maintaining special test equipment.

PERFORMANCE OBJECTIVES

SKILLS

7251.01 Layout and install power and energy metering equipment including overcurrent devices, ground fault sensors, static voltage regulators and remote field devices to maintain the design criteria in accordance with the CEC, OEC, ULC standards, manufacturer’s specifications and instructions and customer requirements.

Date Completed  Apprentice  Supervisor/Trainer

7251.02 Select, operate and maintain analog and digital multimeters ensuring the item selected is the correct device for the application required in accordance with the manufacturer’s specifications and instructions, and company standards and procedures.

Date Completed  Apprentice  Supervisor/Trainer
SELECT, MAINTAIN AND OPERATE TEST AND MEASURING EQUIPMENT - Cont’d

7251.03 Select, operate and maintain electronic test equipment including logic probes and signal generators ensuring that the item selected is the correct device for the application required in accordance with manufacturer’s specifications and instructions, and company standards and procedures.

Date Completed ___________ Apprentice ___________ Supervisor/Trainer ___________  

7251.04 Select, operate and maintain insulation testers ensuring that the tester selected is correct for the application required in accordance with manufacturer’s specifications and instructions, and company standards and procedures.

Date Completed ___________ Apprentice ___________ Supervisor/Trainer ___________  

7251.05 Select, operate and maintain oscilloscopes ensuring the device is correct for the application required in accordance with manufacturer’s specifications and instructions, and company standards and procedures.

Date Completed ___________ Apprentice ___________ Supervisor/Trainer ___________  

7251.06 Select, operate and maintain fault locators ensuring the device is correct for the application required in accordance with manufacturer’s specifications and instructions, and company standards and procedures.

Date Completed ___________ Apprentice ___________ Supervisor/Trainer ___________  

7251.07 Select, operate and maintain high voltage test equipment ensuring the device is correct for the application required in accordance with manufacturer’s specifications and instructions, and company standards and procedures.

Date Completed ___________ Apprentice ___________ Supervisor/Trainer ___________  

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U7251 SELECT, MAINTAIN AND OPERATE TEST AND MEASURING EQUIPMENT - Cont’d

7251.08 Select, operate and maintain computer-based test equipment including personal computers, ensuring the device is correct for the application required in accordance with manufacturer’s specifications and instructions, and company standards and procedures.

Date Completed ____________ Apprentice ____________ Supervisor/Trainer ____________

7251.09 Select, operate and maintain chart recorders ensuring the device is correct for the application required in accordance with manufacturer’s specifications and instructions, and company standards and procedures.

Date Completed ____________ Apprentice ____________ Supervisor/Trainer ____________

7251.10 Select, operate and maintain electrical test equipment including phase rotation meters and power meters, ensuring the device is correct for the application required in accordance with manufacturer’s specifications and instructions, and company standards and procedures.

Date Completed ____________ Apprentice ____________ Supervisor/Trainer ____________

7251.11 Select, operate and maintain special test equipment including infrared and laser devices, ensuring the device is correct for the application required in accordance with manufacturer’s specifications and instructions, and company standards and procedures.

Date Completed ____________ Apprentice ____________ Supervisor/Trainer ____________

Sponsor/Employer Name ____________ Sponsor/Employer Signature ____________
U7252 INSTALL, MAINTAIN AND TROUBLESHOOT INSTRUMENTATION DEVICES AND SYSTEMS

GENERAL PERFORMANCE OBJECTIVE

Install, maintain, operate and troubleshoot instrumentation devices and systems by: selecting, installing and maintaining instrumentation devices; and, installing, maintaining and troubleshooting distributed control systems.

PERFORMANCE OBJECTIVES

SKILLS

7252.01 Select, install and maintain instrumentation devices to ensure digital readouts, choosing the testing equipment, calibration procedures, type of wiring network and verification procedures in accordance with the manufacturer’s specifications and instructions, site conditions/requirements, CEC, OEC and other governing requirements, customer and company standards.

Date Completed Apprentice Supervisor/Trainer

7252.02 Install, maintain and troubleshoot distributed control systems (DCS) to maintain correct operation in accordance with the CEC, OEC, manufacturer’s specifications and instructions, and company procedures.

Date Completed Apprentice Supervisor/Trainer

Sponsor/Employer Name Sponsor/Employer Signature
U7253 COMMUNICATE IN THE WORKPLACE

GENERAL PERFORMANCE OBJECTIVES

Communicate in the workplace by: writing job related documents; giving, receiving and conveying instructions to and from others; demonstrating effective interpersonal relations; presenting a professional image; interacting effectively with computers; and, interacting effectively through communication devices.

PERFORMANCE OBJECTIVES

SKILLS

7253.01 *Write job related documents* including work orders, change orders, office memoranda, letters, accident reports and forms, ensuring that documents are written clearly, legibly and completely in accordance with official guidelines and company standards.

Date Completed  Apprentice  Supervisor/Trainer

7253.02 *Give, receive and convey instructions to and from others* by: clearly identifying steps to be followed; setting out conditions under which the instructions are to be completed; and, determining time frames, ensuring that the recipient can complete the assigned task and clearly understands the instructions given in accordance with industry standards and company procedures.

Date Completed  Apprentice  Supervisor/Trainer

7253.3 *Demonstrate effective interpersonal relations*, recognizing human rights, equality and customer relations by: listening attentively to customers and co-workers; using verbal and non-verbal signals to convey messages; using language acceptable in the workplace; recognizing the chain of command on a work site; explaining problems and procedures; identifying alternate solutions and obtaining approvals from customers in accordance with company policy and procedures.

Date Completed  Apprentice  Supervisor/Trainer

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U7253 COMMUNICATE IN THE WORKPLACE - Cont’d

7253.4 Present professional image by: wearing appropriate apparel; observing personal hygiene standards; and, maintaining clean clothing and following a hygiene regimen so that personal appearance and hygiene are not offensive to clients or co-workers according to employer standards and requirements.

Date Completed __________ Apprentice __________ Supervisor/Trainer __________

7253.5 Interact effectively with computers using basic inputting skills, including understanding computer technologies; keyboarding; and the use of touch screens, so that required computer tasks may be performed in accordance with manufacturers’ instructions and to company standards and procedures.

Date Completed __________ Apprentice __________ Supervisor/Trainer __________

7253.6 Interact effectively through communication devices including public address systems, telephones, pagers, radios and wireless devices to ensure that correct and accurate instruction and procedures are conveyed safely and efficiently in accordance with government regulations and company procedures and standards.

Date Completed __________ Apprentice __________ Supervisor/Trainer __________

Sponsor/Employer Name __________ Sponsor/Employer Signature __________
APPRENTICE RECORD

APPRENTICE NAME  (Print):

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Date Completed  Apprentice  Supervisor/Trainer
APPRENTICE RECORD

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Date Completed  Apprentice  Supervisor/Trainer
# INDUSTRIAL ELECTRICIAN

## APPRENTICE RECORD

### APPRENTICE NAME (Print):

### SPONSOR/EMPLOYER INFORMATION

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Date Completed _______________ Apprentice _______________ Supervisor/Trainer _______________
## APPRENTICE COMPLETION FORM

### APPRENTICE INFORMATION

| Name (Print) |  |
| Signature |  |
| Client ID |  |

Skill Sets when completed should be signed by the Supervisor/Trainer and presented with this completion form to your local Apprenticeship Client Services Office. Any supporting documentation should also be attached.

- **In-school Completed** (Proof to be Provided)
  - Yes ( )
  - No ( )
  - Not applicable ( )

- **Hours completed as Per Contract:**
  - Yes ( )
  - No ( )
  - Not applicable ( )

### SPONSOR/EMPLOYER INFORMATION

| Name (Print) |  |
| Address |  |
| Telephone |  |
| E-mail Address |  |
| Signature of Signing Authority |  |

You will be required to disclose this signed form to the Ministry of Training, Colleges and Universities in order to complete your program. The Ministry will use your personal information to administer and finance Ontario’s apprenticeship training system. For further information please see the notice/declaration for collection of personal information that is referenced in the table of contents of this training standard.