

May 2016

# TRADES

Workforce trends and data

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# Introduction

Algoma Workforce Investment Corporation (AWiC), a Local Workforce Planning Board funded by the Ministry of Training, Colleges and Universities (MTCU), is gathering geographically-specific trades' data for its catchment area. The data shines an important light on the local trades' workforce and provides additional context for workforce planning.

Trades data is collected by MTCU and the Ontario College of Trades (OCoT). The local MTCU apprenticeship office manages the Registered Training Agreements between employers and apprentices, including efforts that promote apprenticeship completions. OCoT collects registration data<sup>1</sup> and they receive regular updates from MTCU field offices.

Statistics Canada census divisions can be linked to postal codes<sup>2</sup>. OCoT was able to mine its data and tailor it for the District of Algoma<sup>3</sup>.

The data in this report is a depiction of the District of Algoma as of April 2016. The Trades Map was developed to present important trends in Ontario trades, such as which trades are most active in the District of Algoma and a general demographic profile of the people working in the trades.

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<sup>1</sup> But, OCoT has a broader mandate in addition to data collection. This data for this report has been generated with the able assistance of the OCoT research staff.

<sup>2</sup> Trades data include postal code information.

<sup>3</sup> Map of Ontario's 50 census divisions including counties, districts, regions and others.

[https://www.google.com/maps/d/viewer?mid=zqKmUR0yZG5w.kh\\_6fydtlpbY&hl=en](https://www.google.com/maps/d/viewer?mid=zqKmUR0yZG5w.kh_6fydtlpbY&hl=en)

# Executive Summary

The data for this report was collected from the Ontario College of Trades (OCoT) in March 2016.

- The District of Algoma has 2,387 journeypersons and 783 apprentices.
- Sectors representing the highest level of trade activity are:
  - Motive Power (1,098 journeypersons; 216 apprentices)
  - Construction (911 journeypersons; 319 apprentices)
- Ontario has 156 trades. Trades represented by journeypersons and apprentices in Algoma are:
  - Trades with journeypersons (49)
  - Trades with apprentices (54)
- The median age for District of Algoma is:
  - journeypersons (45)
  - apprentices (32)
- The median age of journeypersons and apprentices in the top 10 trades by activity changes significantly, representing a more accurate picture.
  - journeypersons (53)
  - apprentices (27)
- The District of Algoma is strongly oriented to male tradespersons.
- With some exceptions (Hairstylist, Child Development Practitioner), female participation as journeypersons and apprentices is minimal.
- Female tradespersons tend to be clustered in the service sector trades.
- The pass rates for trade qualification exams is both acceptable and unacceptable depending on the trade.

## Key Trade Data Summary Tables

The following discussion highlights key findings in the trade’s data. Individuals are encouraged to review the complete data set to undertake a more detailed analysis<sup>4</sup>. In Table 1, the District of Algoma has a workforce of 2,387 journeypersons and 783 apprentices as of April 2016.

**Table 1**  
**Summary of Trades Activity**  
**District of Algoma**  
**April 2016**

	Journeypersons	% of Total Trade Workforce	Apprentices	% of Total Trade Workforce
District of Algoma	<b>2,387</b>	<b>75.3</b>	<b>783</b>	<b>24.7</b>

The Ontario College of Trades (OCOT) lists 156 Ontario trades. In Table 2, The District of Algoma identifies 49 journeypersons and 54 apprentices.

**Table 2**  
**Summary of Trades Identified by Journeypersons and Apprentices**  
**District of Algoma**  
**April 2016**

	Trades with Journeypersons	Trades with Apprentices
District of Algoma	49	54

Table 3 indicates the overall median age<sup>5</sup> by trade sector for journeypersons and apprentices. Apprentice ages are slightly older than the Ontario average of 29 years. Census data tell us the “boomer” workforce is aging and facing retirement, yet journeyperson ages in Algoma appear to be lower than expected. Motive Power is the oldest journeyperson cohort.

**Table 3**  
**Median Age by Trade Sector Journeyperson and Apprentice**  
**District of Algoma**  
**April 2016**

	District of Algoma	
Median Age	JP	App
Construction	45	30
Industrial	40	33
Motive Power	52	32
Service	43	33
<b>Overall</b>	<b>45</b>	<b>32</b>

Table 4 indicates the 10 most active trades in Algoma. It illustrates the number of journeypersons and apprentices in the top ten trades as a percentage of all journeypersons and apprentices in the District of Algoma.

<sup>4</sup> The Trades Map is included as a separate document to this report.

<sup>5</sup> Mean (or average) and median are statistical terms that have a somewhat similar role in terms of understanding the central tendency of a set of statistical scores. While an average has traditionally been a popular measure of a mid-point in a sample, it has the disadvantage of being affected by any single value being too high or too low compared to the rest of the sample. This is why a median is sometimes taken as a better measure of a mid-point. The Trades Data Map show both mean (average) and median ages.

Journeypersons represent 89.4% (2,133) and apprentices represent 68.2% (783). The median age of this workforce subset increases to 53 years for journeypersons and decreases to 27 for apprentices<sup>6</sup>. This represents a more realistic picture of the workforce. It confirms that most of the journeyperson workforce is aging (consistent with demographic projections) and displays that many of the apprentices are younger.

**Table 4**  
**Summary of Top 10 Most Active Trades**  
**Sorted by Journeypersons, Apprentices, Median Age, Male, Female**  
**District of Algoma**  
**April 2016**

Overall - Top 10 Trades by Journeypersons					Overall -Top 10 Trades by Apprentices					
		JP	Age	M	F		App	Age	M	F
1	Automotive Service Technician	522	52	520	2	Electrician - Construction and Maintenance	106	25	101	5
2	Truck and Coach Technician	414	54	414	0	Automotive Service Technician	99	25	96	3
3	Electrician - Construction and Maintenance	395	53	393	2	Truck and Coach Technician	59	23	58	1
4	Hairstylist	316	51	85	231	General Carpenter	51	25	51	0
5	Plumber	141	49	140	1	Industrial Mechanic Millwright	46	32	45	1
6	Steamfitter	108	58	108	0	Plumber	39	24	39	0
7	Hoisting Engineer - Mobile Crane Operator 1	80	58	80	0	Industrial Electrician	35	28	34	1
8	Auto Body and Collision Damage Repairer	62	53	61	1	Utility Arborist	35	29	32	3
9	Refrigeration and Air Conditioning Systems Mechanic	48	50	48	0	Hairstylist	34	26	0	34
10	Sheet Metal Worker	47	48	47	0	Child Development Practitioner	30	29	0	30
	<b>Total</b>	<b>2,133</b>		<b>1,896</b>	<b>237</b>	<b>Total</b>	<b>783</b>		<b>456</b>	<b>78</b>
	Top 10 Trades as a % of all District of Algoma Journeypersons	<b>89.4%</b>				Top 10 Trades as a % of all District of Algoma Apprentices	<b>68.2%</b>			
	Average Age Journeypersons		<b>53</b>			Average Age Apprentices		<b>27</b>		

The information in Table 5 shows the most active trades in the District of Algoma for April 2016 sorted by sector, median age, male and female. A total of 10 trades were selected in the construction sector because it shows more activity across a wider range of trades.

<sup>6</sup> We don't know the impact of missing journeyperson data (i.e., low membership counts for voluntary trades) on the level of activity by trade or the overall average age.

Voluntary trades that offer the Certificate of Qualification (C of Q) are **bolded**. The data for some trades will show logical inconsistencies between the number of apprentices and the number of qualified journeypersons needed to train them. Journeypersons in voluntary trades are not required to register and become members of OCoT. This highlights one of the limits on the accuracy of the journeyperson data.

**Table 5  
Most Active Trades in the District of Algoma  
Sorted by Trade Sector, Median Age, Male & Female  
April 2016**

Overall - Top 10 Trades by Journeypersons						Overall -Top 10 Trades by Apprentices					
Construction		JP	Age	M	F	Construction		App	Age	M	F
1	Electrician - Construction and Maintenance	395	53	393	2	Electrician - Construction and Maintenance	106	25	101	5	
2	Plumber	141	49	140	1	<b>General Carpenter</b>	51	25	51	0	
3	Steamfitter	108	58	108	0	Plumber	39	24	39	0	
4	Hoisting Engineer - Mobile Crane Operator 1	80	58	80	0	Refrigeration and Air Conditioning Systems Mechanic	17	27	17	0	
5	Refrigeration and Air Conditioning Systems Mechanic	48	50	48	0	<b>Ironworker - Structural and Ornamental</b>	17	28	16	1	
6	Sheet Metal Worker	47	48	47	0	Sheet Metal Worker	16	25.5	16	0	
7	Hoisting Engineer - Mobile Crane Operator 2	22	51	22	0	Hoisting Engineer - Mobile Crane Operator 1	14	33	14	0	
8	Hoisting Engineer - Tower Crane Operator	20	63	20	0	<b>Powerline Technician</b>	13	25	13	0	
9	Residential Air Conditioning Systems Mechanic	17	48	17	0	<b>Brick and Stone Mason</b>	12	26.5	12	0	
10	<b>General Carpenter</b>	12	31.5	12	0	Steamfitter	8	33	8	0	

Top 5 Trades by Journeypersons					Top 5 Trades by Apprentices						
Industrial		JP	Age	M	F	Industrial		App	Age	M	F
1	<b>Industrial Electrician</b>	27	38	27	0	<b>Industrial Mechanic Millwright</b>	46	32	45	1	
2	<b>Industrial Mechanic Millwright</b>	25	42	25	0	<b>Industrial Electrician</b>	35	28	34	1	
3	<b>Welder</b>	7	38	7	0	<b>Metal Fabricator (Fitter)</b>	16	22	16	0	
4	<b>Instrumentation and Control Technician</b>	5	43	5	0	<b>General Machinist</b>	6	21.5	5	1	
5	<b>Metal Fabricator (Fitter)</b>	4	37	4	0	<b>Welder</b>	5	23	5	0	

Motive Power		JP	Age	M	F	Motive Power		App	Age	M	F
1	Automotive Service Technician	522	23	520	2	Automotive Service Technician	99	25	96	3	
2	Truck and Coach Technician	414	21	414	0	Truck and Coach Technician	59	23	58	1	
3	Auto Body and Collision Damage Repairer	62	24	61	1	<b>Heavy Duty Equipment Technician</b>	29	23	29	0	
4	<b>Heavy Duty Equipment Technician</b>	25	21	25	0	Auto Body and Collision Damage Repairer	12	36	9	3	
5	Motorcycle Technician	11	24	11	0	<b>Marine Engine Technician</b>	5	39	5	0	

Service		JP	Age	M	F	Service		App	Age	M	F
1	Hairstylist	316	51	85	231	<b>Utility Arborist</b>	35	29	32	3	
2	<b>Utility Arborist</b>	18	37	17	1	Hairstylist	34	26	0	34	
3	Child Development Practitioner	3	32	0	3	Child Development Practitioner	30	29	0	30	
4	<b>Cook</b>	2	43.5	2	0	<b>Cook</b>	13	19	5	8	
5	Information Technology - Contact Centre Customer Service Agent	1	50	1	0	Information Technology - Contact Centre Customer Service Agent	5	44	1	4	

Algoma's trade data clearly show that the trades are strongly oriented to males. On the other hand, recent trends suggest that trades are beginning to attract more female workers.

What does Algoma's data suggest about female representation in the trades?

- With some exceptions (Hairstylist, Child Development Practitioner) journeyperson and apprentice activity is minuscule.
- Female representation is clustered in the service sector trades (red highlights).

**Table 6**  
**Summary of Female Trades Representation in 25 Trades**  
**District of Algoma**  
**April 2016**

Journeypersons and Apprentices Female	District of Algoma	
	JP	App
Hairstylist	231	34
Child Development Practitioner	3	30
Cook	0	8
Electrician - Construction and Maintenance	2	5
Information Technology - Contact Centre Customer Service Agent	0	4
Automotive Service Technician	2	3
Auto Body and Collision Damage Repairer	1	3
Utility Arborist	1	3
Parts Technician	0	2
Educational Assistant		2
Ironworker - Structural and Ornamental	0	1
Drywall Finisher and Plasterer		1
Industrial Mechanic Millwright	0	1
Industrial Electrician	0	1
General Machinist	0	1
Tractor-Trailer Commercial Driver		1
Truck and Coach Technician	0	1
Automotive Electronic Accessory Technician	0	1
Gemsetter/Goldsmith		1
Information Technology - Contact Centre Technical Support Agent		1
Information Technology - Contact Centre Sales Agent	1	1
Retail Meat Cutter	0	1
General Carpenter	0	0
Plumber	1	0
Refrigeration and Air Conditioning Systems Mechanic	0	0

Table 7 displays the population of tradesperson, trade qualifiers, who have work experience and training in a skilled trade from Ontario or another province, territory or country. Individuals can compare their training and skills to an apprenticeship program in Ontario. The Trade Equivalency Assessment (TEA) process assesses skills over 150 Ontario apprenticeship programs. If all the training requirements of that apprenticeship are met, the candidate qualifies to apply for certification in the trade.

The data shown below indicated the most active trades sorted by trade sector. The data show examinees' success in passing the exam on the first attempt. Data for 2<sup>nd</sup> and 3<sup>rd</sup> attempts are shown on the Trades Map (included as a separate document) but not included in Table 7.

In a past report, *Supporting Apprenticeship Completions: A Model of Service Provision*<sup>7</sup>, when individuals were asked "How can LBS programs leverage the EO network to support tradespersons who need to pass the C of Q or complete Grade 12 or its equivalent to improve their employability?" Of those who answered having a difficult time passing the exam they indicated that they:

- have been licensed from another country;
- have been working in the trades for many years, but have never written the exam;
- have been laid-off and need additional certification to find or retain employment;
- are older;
- speak English as a second language;
- have been out of school or training for many years; and
- have weak essential skills, particularly English and technical math skills.

The data in Table 7 also show that some trade exams present little difficulty for Trade Qualifiers (e.g., Heavy Duty Equipment Technician, Industrial Electrician, Instrumentation and Control Technician, Metal Fabricator, Sheet Metal Worker) while others exams are more challenging (Electrician – Construction and Maintenance, General Carpenter, Steamfitter, Truck and Coach Technician, Welder).

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<sup>7</sup> Kallio, S. (2013). *Supporting Apprenticeship Completions: A Model of Service Provision*

**Table 7**  
**Summary of Trade Qualifier Success Rates for Most Active Trades Sorted by Sector**  
**District of Algoma**  
**April 2016**

<b>Overall – Activity in Trades by Trade Qualifiers and Examination Attempts</b>						
		<b>TQ Examinees</b>	<b>TQ Attempts</b>	<b>TQ Passed</b>	<b>TQ Passed 1<sup>st</sup> Attempt</b>	<b>% Passed First Attempt</b>
<b>Construction</b>						
1	Electrician - Construction and Maintenance	23	65	22	10	43%
2	Plumber	5	8	3		N/A
3	Steamfitter	6	8	4	2	33%
4	Refrigeration and Air Conditioning Systems Mechanic	5	10	5		N/A
5	General Carpenter	10	18	7	6	60%
6	Sheet Metal Worker	3	3	3	3	100%
7	Hoisting Engineer - Mobile Crane Operator 2	3	4	3	2	67%
<b>Industrial</b>						
1	Welder	5	17	5	2	40%
2	Industrial Electrician	10	12	8	8	80%
3	Industrial Mechanic Millwright	2	4	1		N/A
4	Instrumentation and Control Technician	1	1	1	1	100%
5	Metal Fabricator (Fitter)	1	1	1	1	100%
<b>Motive Power</b>						
1	Heavy Duty Equipment Technician	11	17	9	8	73%
2	Automotive Service Technician	9	13	8	6	67%
3	Auto Body and Collision Damage Repairer	3	5	3	2	67%
4	Truck and Coach Technician	3	3	1	1	33%
<b>Service</b>						
1	Hairstylist	6	6	6	6	100%
2	Utility Arborist	10	10	10	10	100%

## Supply and Demand - A Complex Picture

Collecting supply and demand data for the trades can be complex. Statistics Canada and RAIS (Registered Apprenticeship Information System) data is not reliable because they both don't provide enough local detail. Aggregated data from Statistics Canada shows demographic trends across a particular age group in specific geographic regions. RAIS groups more than 400 trades into 22 trade groups. It also shows five-year longitudinal information (2008 to 2012) with an approximate number of certificates issued as well as registrations by province and gender. Statistics Canada data doesn't identify how soon the trades' workforce in the District of Algoma is likely to retire. The RAIS data aggregates apprenticeship activity into 22 trade groups, making it challenging to identify the data about each of Ontario's 156 trades.

Additional sources of information provide a partial picture. The Ontario College of Trades (OCoT) provides information about ratios, classification, certification, Red Seal, etc., and it collects information on the number of members registered with the College. Their membership data, however, doesn't represent all individuals working in the Ontario trades as many trades do not require mandatory registration with OCoT.

The transition of databases from MTCU into OCoT occurred in April 2013. MTCU trades population didn't appear to be complete in the OCoT data. A review and removal of inactive apprentices was carried out after April 2013 with an effective completion date of January 2015<sup>8</sup>. This suggests that OCoT's current apprenticeship numbers are now more accurate and the data set includes only currently registered apprentices.

Anecdotal information suggests the OCoT data may still have gaps and limitations.

1. Many businesses in the voluntary trades sector do not register apprentices. Employers in these sectors "apprentice" new employees to more senior employees, some of whom may be journeypersons. The "apprentice" learns the trade within the confines of the business then progresses to a more senior position and often receiving pay at an equivalent-to-journeyperson rate. These "apprentices" and "journeypersons" are not identified in the OCoT data<sup>9</sup>. The numbers could be substantial and efforts should be made to identify this population.
2. Prior to the transition from MTCU to OCoT, many journeypersons in compulsory trades would have routinely renewed their certification with MTCU. As a result, they would have continued to work, post OCoT, believing they were legitimately certified and not required to formally register their membership with OCoT. According to MTCU, the number of journeypersons in this scenario are substantial. This populations of journeyperson is slowly being identified as a result of OCoT's enforcement<sup>10</sup> and MTCU employer consultations<sup>11</sup>.

The local economy directs the labour demand and market. When the economy is strong, companies ramp up hiring and local education and training programs including apprenticeships. However, the cycle of demand and supply is out of sync with the economy resulting in tradespersons without work and occupations without tradespersons. Often, tradespersons without employment opt to seek opportunities out-of-town or out-of-province. Furthermore, it becomes difficult for apprentices to find an employer who will hire them.

The supply of tradespersons should flow from the education and training sector, but public perception of the trades as an inadequate career path decreases the size of the high school graduate pool who even consider pursuing a career in the trades. There are many reasons for this that including a cultural bias that reinforce a negative perception of the trades.

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<sup>8</sup> Apprentices had up to January 2015 to confirm their "active" status or they were dropped from the records.

<sup>9</sup> Permanent employees of industrial plants are exempt from section 2 of OCTAA, and are therefore not required to be members of the College in order to work in a compulsory trade so long as they are working within the plant and its premises.

<sup>10</sup> As of Friday, May 6, 2016, the Government of Ontario decided that the regulatory and administrative oversight of the Ontario College of Trades (College) will be transferred from the Ministry of Training, Colleges and Universities to the Ministry of Labour.

<sup>11</sup> Enforcement officers review compliance in compulsory trades where journeypersons are required to be members of OCoT and Employment Training Consultants confirm with employers that qualified staff are in place to train apprentices.

In Europe, students interested in the trades are encouraged to sign with an employer to begin an apprenticeship after completing high school, too many Canadian parents, students and educators still don't encourage direct entry to training, work and a career in the trades (although there are indications this perception is changing<sup>12</sup>). Instead, some high school graduates pursue traditional postsecondary programs, discover it's not what they want, and re-entertain a career in the trades later in life (average age of an apprentice in Ontario is 29 years). Older workers who seek trade qualifications later in life struggle with the literacy and digital skills required to succeed.

## Context

The OCoT membership structure is “class-based”. Classes of membership include: apprentices, tradespersons, journeyperson candidates, journeypersons and employers/sponsors.

OCoT maintains a public registry of its members in both compulsory and voluntary trades in Ontario. All individuals in one of the 22 designated compulsory trades<sup>13</sup> are required to be a member of the College and must be one of the following:

- a licensed journeyperson — a holder of a valid Certificate of Qualification; or
- a journeyperson candidate; or
- a registered apprentice with the Ministry of Training, Colleges and Universities; or
- a holder of a provisional Certificate of Qualification.

Additional trade information for this report was gathered from the OCoT website (list of trades, classification, C of Q exam, Red Seal designation, and ratios). OCoT also references specific information about definitions, policies and explanations of the trade practices (e.g., ratios).

## Discussion of the Trades Map

The Trades Map is an Excel based document sorted by trade sector and then alphabetical listing of trades by name. The list of trades was ‘extracted’ from the OCoT website. The Excel “sort” feature can be used to explore the data for specific workforce queries. The Trades Map is attached as a separate document.

The March 2016 Map could be used to create a consistent “snapshot” that becomes a living document of the trade activity over time.

The data is organized from general to specific. Trades are color-coded by sector (Construction – yellow; Industrial – grey; Motive Power – green; Service – red). Key summary data is identified in the blue columns. Color-coding helps with reading the data, especially as it is sorted.

The first section describes trade information including Trade Code, Sector, Classification (compulsory/voluntary) C of Q Exam, Red Seal, and Ratios<sup>14</sup>. The remaining sections show aggregated information by trade for the District of Algoma. Total journeypersons (JP), apprentices (Appr) and trade qualifiers (TQ) are noted. Apprentice and trade qualifier examination data is shown.

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<sup>12</sup> Majority of Parents Support a Career in the Trades for Their Children (OCoT, March 2016)  
<http://www.collegeoftrades.ca/latest-news/majority-of-parents-support-a-career-in-trades-for-their-children>

<sup>13</sup> See **Appendix 1**, List of Compulsory Trades in Ontario

<sup>14</sup> The ratio heading is hyperlinked to the OCoT Ratio Calculator

# Organization of the Trade Map

The following provides a brief description of each of the headings in the Trades Map Document.

## **Trade Sector/Code/Sector<sup>15</sup>**

Ontario has 156 trades organized in four trades sectors: construction, industrial, motive power and service. Not all trade sectors drive equal levels of activity. The Trades Map can be a resource to identify trades that are attracting more activity and represent opportunities for employment.

## **Classification**

Trades are designated as compulsory or voluntary. There are 22 compulsory trades in Ontario: construction sector (11), motive power sector (10) and service sector (1). Journeypersons (C of Q holders) working in compulsory trades must be members of OCoT. Other classes working in compulsory trades must be members of OCoT include apprentices and journeyperson candidates.

Most of Ontario's trades are voluntary meaning that tradespersons can work in the trade without formal certification and without being members of the Ontario College of Trades. Many voluntary trades (e.g. General Carpenter, Welder, Heavy Duty Equipment Technician, Cook, etc.) offer certification through the Certificate of Qualification (C of Q) exam which leads to designation as a Journeyperson in Ontario.

## **Certificate of Qualification (C of Q)**

Ontario has 75 trades that offer the C of Q designation. Twenty-two (22) of these trades are compulsory meaning the C of Q is required to work legally in Ontario. The C of Q designation is also available for fifty-three (53) voluntary trades. C of Q holders in voluntary trades are not required to be members of OCoT; as a result, the data for journeypersons in voluntary trades (C of Q holders) will only be accurate as more C of Q holders become members of OCoT.

The C of Q designation is required for all compulsory trades. When apprentices complete the in-school and employer-based training, they qualify for the Certificate of Apprenticeship. They then register as Journeyperson Candidates to prepare for the C of Q. Journeyperson Candidates have 12 months to successfully pass the C of Q exam.

The Certificate of Qualification is issued upon completion of the C of Q exam in a designated trade. The C of Q holder is then designated as a Journeyperson.

## **Red Seal**

The Red Seal designation is attached to 47 trades in Ontario and 57 trades across Canada.<sup>16</sup> The Red Seal program allows qualified tradespeople to practise their trade anywhere in Canada where the trade is designated without having to write further examinations. This provides greater mobility for skilled workers across Canada. The 57 Red Seal trades account for almost 90% of all registered apprenticeships in Canada. More than 80% of Canada's total trades workforce (journeypersons/apprentices) are working in Red Seal trades.

In Canada, trades training and certification are the responsibility of the provinces and territories (known as jurisdictions). Jurisdictions each have their own laws about which trades are designated for apprenticeship training and certification within their borders. The Red Seal Program creates national standards for certain trades that are common to most jurisdictions.

Certification in a Red Seal trade can open opportunities to pursue work across provincial jurisdictions.

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<sup>15</sup> It may be possible to identify many of the trades with a National Occupational Classification (NOC) profile that provides more detailed description.

<sup>16</sup> The Red Seal website <http://www.red-seal.ca/w.2lc.4m.2@-eng.jsp> and the Ellis Chart <http://www.ellischart.ca/h.4m.2@-eng.jsp> are excellent resources.

## Ratio

Ratios are set out for 33 Ontario trades<sup>17</sup>, all in the construction sector. Ratios describe the number of journeypersons required to supervise apprentices in the workplace<sup>18</sup>. Ratios are often referred to by a number-based short form such as 1:1 or 2:1, etc. Expressed numerically, the first number in the ratio indicates the number of journeypersons, and the second number indicates the number of apprentices that can be sponsored or employed<sup>19</sup>. The OCoT has a “Ratio Calculator” located on their website<sup>20</sup>.

For purposes of ratios and voluntary trades, the following conditions apply to supervisors of apprentices:

- someone who holds a valid C of Q in the trade and who is a member in good standing of the College’s Journeypersons class for the same trade; or
- Someone who holds a C of Q in the trade that was issued by the Ministry of Training, Colleges and Universities (MTCU) prior to April 8, 2013 (membership in the College is not required in this scenario); or
- Someone who practices as a journeyperson in the trade but who does not hold a C of Q in that trade. This can include members of the College’s Journeyperson Candidates Class for the trade.

The Ontario College of Trades (OCoT) conducts periodic ratio reviews and invites employers and trade representatives to recommend changes to ratios. OCoT’s responsibility is to enforce ratios while employers and trade representatives are responsible for making recommendations to OCoT with respect to ratios.

Ratios have been identified as an issue for small and medium-size employers, particularly employers working in rural and remote Northern Ontario communities. Small and medium-size employers represent the greatest number of people working in the trades. The requirements to abide by strict journeyperson to apprentice ratios impacts small and medium-size employers’ ability to hire and/or retain apprentices. Changes to ratios that are more favourable to helping small and medium-size employers train apprentices needs to happen through the ratio review process. Small and medium-size employers will need to bring their unique voice to the ratio review deliberations.

## Apprenticeship and Trade Qualifier Exams

Many of the skilled trades in Ontario have a final certification exam that must be passed to become certified in a trade. Passing the exam allows you to become a member in the Journeypersons’ Class at the Ontario College of Trades (the College) and receive a Certificate of Qualification (C of Q) in your trade.

Trade qualifiers have work experience and training in a skilled trade from Ontario or another province, territory or country. They can have their experience and skills compared to an apprenticeship program in Ontario. The Trade Equivalency Assessment (TEA) process assesses skills based on one of the over 150 Ontario apprenticeship programs. If all the training requirements of that apprenticeship are met, the candidate qualifies to apply for certification in the trade.

## Total Active Trade Qualifiers, Journeypersons and Apprentices in the District of Algoma (April 2016)

- Journeypersons/Apprentices: Average, Mean, and Median Ages
- Journeypersons/Apprentices: Youngest/Oldest
- Journeypersons/Apprentices: Female/Male

The Ontario College of Trades (OCoT) maintains a registry of its members. Apprentices, journeyperson candidates and journeypersons in compulsory trades must be OCoT members. OCoT collects up-to-date information about the number of journeypersons registered as members of the College. In compulsory trades, the numbers will be accurate; in voluntary trades the numbers will reflect only those journeypersons who are registered with the College.

<sup>17</sup> See **Appendix 2: Trades Subject to Journeyperson to Apprenticeship Ratios in Ontario.**

<sup>18</sup> The Ontario College of Trades website has a very useful ratio calculator. The Trades Data Map has a heading that is hyperlinked to the OCoT website.

<sup>19</sup> See **Appendix 3: How to Interpret Journeyperson to Apprentice Ratios.**

<sup>20</sup> The Ratio heading on the Trade Map is hyperlinked to the OCoT website.

The columns in the Trades Map show the number of journeypersons/apprentices across the District of Algoma. Reviewing the journeyperson/apprenticeship representation by trade sector tells us the level of activity by sector and trade. The Trades Map offers the District of Algoma employers access to real-time information, particularly the supply of workers.

The age demographic for each trade helps us understand where older journeypersons may be closer to retirement, thus communities can increase training capacity to respond to retirements and workforce organizations can identify employment opportunities. Compulsory trades tend to have the oldest journeypersons.

The data for journeypersons and apprentices in compulsory trades suggests that meeting ratios requirements is not a problem. In some of the voluntary trades that have ratios and C of Q certification there appears to be a shortfall of journeypersons to the number of apprentices. General Carpenter and Powerline Technician are prime examples:

- General Carpenter – 12 journeypersons for 51 apprentices
- Powerline Technician - 5 journeypersons for 13 apprentices

At the minimum ratio of 1:1, the number of journeypersons supervising apprentices in the District of Algoma should be much larger. All apprentices are required to register regardless of trade which means their employer (sponsor) has been approved, including having qualified journeypersons according to required ratios. Many of these journeypersons, however, are not documented in the OCoT data as their trade is voluntary and registration is not required.

Other voluntary trades with ratios and C of Q certification shows similar discrepancies include Architectural Glass and Metal Technician, Brick and Stone Mason, Construction Boilermaker, Drywall Acoustic and Lathing Applicator, Drywall Finisher and Plasterer and Iron worker – Structural and Ornamental.

Apprentices enter into a Registered Training Agreement with a sponsor and register with the Ontario College of Trades (OCoT) as a member of the Apprentices Class. The data for the number of apprentices is much more accurate, missing only apprentices who choose not to register because they working within industrial plants.

# How to Use the Trades Map

The Trades Map is a framework for collecting information that changes over time. Small changes might include reclassification of a trade (compulsory/voluntary) or noting where training capacity is available locally. More significant changes will require tracking real time numbers of journeypersons and apprentices working in the trades. Currently, the Trades Map information is collected from various sources and entered manually. Ideally, the same information should be updated automatically by on-line linking to the OCoT and MTCU databases.

It is not useful to simply collect and present information without asking good questions about what it is, what it means or what it suggests about the workforce. Community stakeholders should use the information for planning. Ideally, the Trades Map should be actively maintained as an accessible community resource<sup>21</sup>.

## **Workforce Planning Boards**

Workforce Planning Boards across Ontario gather intelligence about labour supply and demand. They consult with employers to identify current and emerging workforce employment needs. The primary role of Workforce Planning Boards is to improve understanding of the workforce and coordinate community responses to labour market issues. Workforce Planning Boards prepare annual labour market plans using various sources of information.

Workforce Planning Boards draw on a wide variety of pre-existing data sources to describe their local labour market and analyse what it means for the workforce (e.g., National Household Survey, Labour Force Survey, National Occupational Classification, Employment Ontario service data, etc.). The Trades Map provides an additional tool to inform the Boards' analysis about current and future workforce needs.

## **Literacy Networks**

Literacy networks provide service coordination for Employment Ontario (EO) service providers and support to programs delivering Literacy and Basic Skills (LBS). The networks work together to respond to the unique challenges and training needs of the North. Apprenticeship is one of the five goal paths in the Ontario Adult Literacy Curriculum Framework (OALCF). LBS service providers help adults transition to further education, training or work.

The Trade Map documents examination attempts and pass rates for apprentices and trade qualifiers. Some trades attract workers whose literacy issues present challenges to passing the exam. The data can 'flag' areas of possible concern and help literacy providers implement targeted interventions. The Trades Map can be an important tool for annual service delivery planning as it provides LBS service providers with a better picture of the local trade's labour market as they assist learner's transition into apprenticeship opportunities.

## **Employment Services**

Employment Ontario helps Ontarians find work. It provides resources – such as information about who's hiring in your community — as well as personalized advice and services to help individuals assess their skills and experience, find work and start on the path to skills training. It also helps place workers with employers who require those specific skill sets.

The Trades Map will be a crucial tool for local employment service providers who place clients with employers. The Trades Map identifies which trades are most active in the District of Algoma, and it gives a profile of the journeyperson and apprenticeship workforce in those trades.

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<sup>21</sup> The Trades Map may be a useful tool for the Local Employment Planning Council pilot projects currently underway by the Ministry of Training, Colleges and Universities in 8 communities.

## **Employers**

Many employers collaborate with unions and labour associations who recruit, train and place apprentices with employers. Small and medium-size employers represent the vast majority of Ontario businesses and these business also employ journeypersons and apprentices.

Employers need a reliable supply of tradespersons to meet present and future workplace demands. Employers staff their workplaces by hiring certified journeypersons (required in compulsory trades). They develop additional tradespersons through the apprenticeship process. Having access to local data about regional representation of the labour supply helps employers plan. Real-time data is useful to employers who are considering expanding or moving to the District of Algoma and need to identify the quality of the labour supply.

Employer associations (i.e., Sault Ste. Marie Construction Association) provide a collective voice for businesses with a shared interest, in particular, in the employment sector. Associations collect and distribute industry-specific information and assist members with human resources issues including collective agreements. Business associations (i.e., Chamber of Commerce) also provide a collective voice for their members. Employer and business associations benefit from the information about the labour supply. The Trade Map can be a resource and a reference as employers assess their capacity to respond effectively to business opportunities. Employers and business associations that are linked to a broader provincial network often lobby on behalf of their members. Having access to a meaningful database helps support their case with policymakers.

## **Unions**

Unions have a strong voice in the trades. They often act as the Training Delivery Agents (TDA) and they provide a unionized workforce for employers. Unions have a strong investment in developing their workforce (membership) including apprenticeship training. Having reliable data regarding the workforce supply informs the unions' business practices as they compete in the broader workforce to establish a qualified and sustainable trade workforce.

## **Educators**

Secondary school Co-Op programs and the Ontario Youth Apprenticeship Program (OYAP) offer realistic learning opportunities for students in Grade 11 and 12. OYAP gives students workplace experience in a trade and helps them accrue hours and/or competencies which may be applied to an apprenticeship after graduation.

The Ontario colleges provide in-school training in selected trades. Colleges also provide Pre-Apprenticeship and Apprenticeship Co-Op programs. Pre-Apprenticeship helps learners prepare for entry to an apprenticeship program and the Apprenticeship Co-Op provides a college diploma and credits toward completion of an apprenticeship program.

OYAP Coordinators recruit employers for student placements. It is helpful to know which trades are active locally and regionally so employers can be contacted to accept students. The Trades Map identifies the demographics for apprentices or journeypersons by trade. Knowing that some trades attract particular demographics (male/female; older/younger) coordinators can make effective marketing and promotional targets.

Colleges make an effort to respond to community workforce demands and enrolment planning is a crucial component of their business. Colleges that develop capital-intensive projects (i.e., new trades facilities) need credible data to support their business case. The Trades Map is a useful tool to identify activity in trends over time (is the demand for some trades decreasing? Increasing? Where's the heaviest demand for in school-training?)

The Trades Map won't be a sole source of trade's information for educational planning, but it can bring an additional level of detail to current planning.

## Appendix 1: List of Compulsory Trades in Ontario

Electrician - Construction and Maintenance	309A	Construction
Plumber	306A	Construction
Sheet Metal Worker	308A	Construction
Refrigeration and Air Conditioning Systems Mechanic	313A	Construction
Steamfitter	307A	Construction
Hoisting Engineer - Mobile Crane Operator 1	339A	Construction
Residential Air Conditioning Systems Mechanic	313D	Construction
Hoisting Engineer - Mobile Crane Operator 2	339C	Construction
Hoisting Engineer - Tower Crane Operator	339B	Construction
Electrician - Domestic and Rural	309C	Construction
Residential (Low Rise) Sheet Metal Installer	308R	Construction
Automotive Service Technician	310S	Motive Power
Truck and Coach Technician	310T	Motive Power
Auto Body and Collision Damage Repairer	310B	Motive Power
Motorcycle Technician	310G	Motive Power
Auto Body Repairer	310Q	Motive Power
Transmission Technician	310D	Motive Power
Truck-Trailer Service Technician	310J	Motive Power
Automotive Electronic Accessory Technician	310K	Motive Power
Alignment and Brakes Technician	310E	Motive Power
Fuel and Electrical Systems Technician	310C	Motive Power
Hairstylist	332A	Service

## Appendix 2: Trades Subject to Journeyman to Apprenticeship Ratios in Ontario

#	Trade	Ratio
1	Architectural Glass and Metal Technician	1:1, 2:1
2	Brick and Stone Mason	1:1, 2:1
3	Cement (Concrete) Finisher	1:1, 1:1, 3:1
4	Construction Boilermaker	1:1, 3:1
5	Construction Millwright	1:1, 3:1
6	Drywall, Acoustic and Lathing Applicator	1:1, 4:1
7	Drywall Finisher and Plasterer	1:1, 3:1
8	Electrician – Construction and Maintenance	1:1, 1:1, 1:1, 1:1, 3:1, 6:1, 3:1
9	Electrician – Domestic and Rural (residential sector)	1:1, 1:1, 1:1, 1:1, 3:1, 5:1, 2:1
	Electrician – Domestic and Rural (non-residential sectors)	1:1, 1:1, 1:1, 1:1, 3:1, 6:1, 3:1
10	Floor Covering Installer	2:1
11	General Carpenter	1:1, 3:1
12	Heat and Frost Insulator	1:1, 3:1
13	Hoisting Engineer - Mobile Crane Operator 1	1:1
14	Hoisting Engineer - Mobile Crane Operator 2	1:1
15	Hoisting Engineer - Tower Crane Operator	1:1
16	Ironworker- Generalist	1:1, 2:1
17	Ironworker – Structural and Ornamental	1:1, 2:1
18	Painter and Decorator – Commercial and Residential	1:1, 1:1, 3:1
19	Painter and Decorator – Industrial	1:1, 1:1, 3:1
20	Plumber	1:1, 2:1
21	Powerline Technician	1:1
22	Precast Concrete Erector	1:1, 3:1
23	Precast Concrete Finisher	1:1, 3:1
24	Refrigeration and Air Conditioning Systems Mechanic	1:1, 2:1
25	Reinforcing Rodworker	1:1, 2:1
26	Residential Air Conditioning Systems Mechanic	1:1, 2:1
27	Residential (Low Rise) Sheet Metal Installer	1:1, 3:1
28	Restoration Mason	1:1, 2:1
29	Roofer	1:1, 2:1
30	Sheet Metal Worker	1:1, 3:1, 3:1, 2:1
31	Sprinkler and Fire Protection Installer	1:1
32	Steamfitter	1:1, 2:1
33	Terrazzo, Tile and Marble Setter	1:1, 2:1

# Appendix 3: How to Interpret Journeyperson to Apprentice Ratios

Ratios are expressed in words in regulations; however, to make it easier to talk about and describe them, they are often referred to by a number-based short form such as 1:1 or 2:1, etc. Expressed numerically, the first number in the ratio indicates the number of journeypersons, and the second number indicates the number of apprentices that can be sponsored or employed. Ratios vary by trade as each trade and sector has particular needs and characteristics. Some trades have a *single ratio*, while others have *changing ratios* that change depending on the number of journeypersons employed.



*Single Ratios* are trades with only one ratio are straightforward to interpret as the ratio stays the same as more journeypersons are employed. For example: Ratio for Powerline Technician

### Ratio(s) in words:

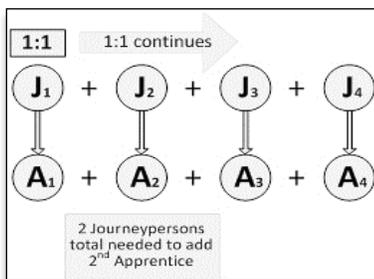
The number of apprentices who may be sponsored or employed by a person in the trade of powerline technician in relation to the number of journeypersons employed by the person in the trade shall not exceed,

- (a) for the first journey person, one apprentice; and
- (b) for every additional journey person thereafter, an additional apprentice.

### Ratio in numerical form:

1:1

### Ratio in visual form:



### Ratio in table form:

Journeypersons Employed	Apprentices Allowed
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8

1:1 1 journeyperson needs to be employed to hire 1<sup>st</sup> apprentice  
 + 1:1 2 journeypersons (total) need to be employed to hire 2<sup>nd</sup> apprentice  
 + 1:1 3 journeypersons (total) need to be employed to hire 3<sup>rd</sup> apprentice  
 + 1:1 4 journeypersons (total) need to be employed to hire 4<sup>th</sup> apprentice  
 + 1:1 5 journeypersons (total) need to be employed to hire 5<sup>th</sup> apprentice  
 + 1:1 6 journeypersons (total) need to be employed to hire 6<sup>th</sup> apprentice  
 + 1:1 7 journeypersons (total) need to be employed to hire 7<sup>th</sup> apprentice  
 [1:1 continues indefinitely]

*Changing Ratios* are the number of journeypersons employed increases. The number-based form for the ratios of these trades is more like a formula, and can therefore be more difficult to interpret.

Ratio *formulas* are describe as the *intervals* at which an apprentice can be added in relation to an increase in the number of journeyperson employed. Note that the last ratio in a given formula continues indefinitely but all of the other ratios in that formula have to be met first, in the sequence prescribed, before this happens.

Example: Ratio for Cement (Concrete) Finisher

**Ratio in words:**

The number of apprentices who may be sponsored or employed by a person in the trade of cement (concrete) finisher in relation to the number of journeypersons employed by the person in the trade shall not exceed,

- (a) for the first journeyperson, one apprentice;
- (b) for the second journeyperson, an additional apprentice; and
- (c) for every three additional journeypersons thereafter, an additional apprentice.

**Ratio in numerical form:**

1:1, 1:1, 3:1

**Ratio in table form:**

Journeypersons Employed	Apprentices Allowed	
1	1	
2	2	+
3	2	
4	2	
5	3	+
6	3	
7	3	
8	4	+
9	4	
10	4	
11	5	+
12	5	
13	5	
14	6	+
15	6	

**1:1 1 journeyperson needs to be employed to hire 1<sup>st</sup> apprentice**  
**1:1 2 journeypersons (total) need to be employed to hire 2<sup>nd</sup> apprentice**  
 No added apprentices yet, despite added journeyperson  
 No added apprentices yet, despite added journeyperson  
**3:1 5 journeypersons (total) need to be employed to hire 3<sup>rd</sup> apprentice**  
 No added apprentices yet, despite added journeyperson  
 No added apprentices yet, despite added journeyperson  
**3:1 8 journeypersons (total) need to be employed to hire 4<sup>th</sup> apprentice**  
 No added apprentices yet, despite added journeyperson  
 No added apprentices yet, despite added journeyperson  
**3:1 11 journeypersons (total) need to be employed to hire 5<sup>th</sup> apprentice**  
 No added apprentices yet, despite added journeyperson  
 No added apprentices yet, despite added journeyperson  
**3:1 14 journeypersons (total) need to be employed to hire 6<sup>th</sup> apprentice**  
*[3:1 continues indefinitely]*

## Appendix 4: Glossary of Trades Terminology

### **Apprentices**

This defines individuals who enter into a Registered Training Agreement with MTCU and hold a membership in the Ontario College of Trades. Apprentices spend 80%-90% of their time learning on the job and 10%-20% of their time in trade school (College or union sponsored trainer).

Individuals in this class:

- Are subject to any ratios and wage rates that have been set out in regulations for their trade(s);
- Can remain in this class until they receive their Certificate of Apprenticeship; and
- Can hold themselves out as apprentices.

### **Certificate of Apprenticeship (C of A)**

This is issued upon completion of the apprenticeship training. In trades that have a Certificate of Qualification, C of A holders can register as a journeyman candidate as they prepare to write the Certificate of Qualification.

Holders of the Ontario Certificate of Apprenticeship (C of A) qualify for membership in the College and are therefore not eligible for the Trade Equivalency Assessment (TEA) process.

### **Certificate of Qualification (C of Q)**

The Certificate of Qualification is issued upon completion of the exam in a designated trade. The C of Q holder is then designated as a Journeyman. Ontario has 75 trades that offer the C of Q designation. Twenty-two (22) of these trades are compulsory meaning the C of Q is legally required to work in their trade.

### **Compulsory Trade**

Ontario has 22 compulsory trades. These are trades in which registration as an apprentice, journeyman candidate or certification as a journeyman is mandatory. Persons working in these trades hold a valid Certificate of Qualification and membership in the Ontario College of Trades.

### **Journeyman Candidate**

A journeyman candidate is registered with the Ontario College of Trades in preparation for writing the Certificate of Qualification exam.

Journeyman candidates:

- Have completed an Ontario apprenticeship program (hold a Certificate of Apprenticeship) in a trade that has a Certificate of Qualification exam (voluntary or compulsory) and have not passed that Certificate of Qualification exam for their trade(s);
- Are subject to any ratios and/or wage rates that have been set out for their trade(s), if they practice a compulsory trade
- Can remain in this class until they pass the Certificate of Qualification exam and become members of the Journeymen class or for a maximum of one year (whichever comes first);
- Can continue to work legally in their trade, if they are in a compulsory trade, as they prepare to write their exams (individuals in voluntary trades do not have to be members of the College to work legally); and
- Can hold themselves out as journeyman candidates (they are neither apprentices nor journeymen).

### **Journeyman**

A journeyman holds a valid Certificate of Qualification. Journeymen in compulsory trades must hold a membership in the Ontario College of Trades to legally work in Ontario. Journeymen in the voluntary trades are not required to hold membership in the Ontario College of Trades and may work in their trade without restriction.

Individuals in this class:

- Have met all of the requirements set out for their trade(s) and hold a valid Certificate of Qualification
- If an individual is not an Ontario apprentice (i.e. does not have a Certificate of Apprenticeship), they could have met the requirements by having been assessed to have experience and/or qualifications that are equivalent to a Certificate of Apprenticeship in that trade and passed the required Certificate of Qualification exam, if one is available for the trade; or
- Have been assessed to have experience and/or qualifications that are equivalent to a Certificate of Apprenticeship and have been issued a valid Provisional Certificate of Qualification (separate eligibility requirements set out in Ontario Regulation 321/12 and in College operational policy); and
- Can hold themselves out as journeypersons.

### **Registered Training Agreement (RTA)**

This is the agreement between the employer (sponsor) and the apprentice outlining the roles and responsibilities of each party throughout the apprenticeship duration. The Registered Training Agreement is held by the local MTCU office. The apprentice must be registered as a member of the Ontario College of Trades.

### **Sponsor**

The sponsor is one partner in the Registered Training Agreement (RTA) who provides apprenticeship training in the workplace. Typically, the sponsor is an employer who takes an apprentice into the workplace to train under the supervision of a mentor.

### **Trade Sector**

The 156 Ontario trades are organized in four trades sectors: construction, industrial, motive power and service.

### **Tradesperson**

This is a term that can be used in general to describe anyone performing work in the trades; however, within the regulations of the Ontario College of Trades it has a very specific meaning.

Tradespersons:

- Practice voluntary trades where there is a Certificate of Qualification exam to become certified as Journeyperson in the trade;
- Have been members of the Journeyperson Candidates Class or are not eligible for Journeyperson Candidates Class and have been assessed to have experience and/or qualifications that are equivalent to a Certificate of Apprenticeship in that trade;
- Are preparing to write/have no plans to write/have not passed the available Certificate of Qualification exam for their trade(s);
- Can remain in this class indefinitely or until they pass the available Certificate of Qualification exam for their trade(s); and
- Can hold themselves out as tradespersons (they are neither apprentices nor journeypersons).

Individuals in the Tradespersons Class are not subject to any ratios and/or wage rates that may be set out for their trade(s).

### **Trade Qualifier (TQ)**

Trade qualifiers have work experience and training in a skilled trade from Ontario or another province, territory or country. They can have their experience and skills compared to an apprenticeship program in Ontario. The Trade Equivalency Assessment (TEA) process assesses skills based on one of the over 150 Ontario apprenticeship programs. If all the training requirements of that apprenticeship are met, the candidate qualifies to apply for certification in the trade.

**Training Delivery Agent (TDA)**

These are MTCU approved organizations that fall within one of the following categories:

- a public educational institution recognized as such by the Ministry of Training, Colleges and Universities (MTCU);
- a registered non-profit agency or union having demonstrated training experience;
- a private career College registered under The Private Career College's Act, 2005 with the Private Career College's Compliance Unit of MTCU; or
- other private training institutions which may be eligible to apply.

**Voluntary Trade**

Every trade that is not identified as compulsory is, by default, voluntary. Certification is offered in some voluntary trades, but is not a requirement to practice in the trade.